Marx's Bi-Level Model of Society

Superstructure (ideas, culture, religion, etc.)

Substructure or Base (economics)
- **a) modes of production**
- **b) social relations of production**

Superstructure is an epiphenomenon of the activity of the Base, which is primary.

The Superstructure is a "reflection" on the level of ideas of the material reality of the Base's economic productive aspects.

Cultural Production

Superstructural changes are dervied from changes to the Base and so lag behind the changes to the economic level.

Art is, thus, a reflection of what occurs to the economic Base.

By the 1930s in was apparent, however, that increasing culture was acquiring the capacity to be productive itself as the mass media came into existence. This is what these Marxists called "The Culture Industry." That images now were produced and circulated as commodities. The Superstructure seemed productive.

Mechanical Reproduction

The ability to reproduce art and to make art an easily reproduced media via photography has impacted cultural production:

Printing = words could be reproduced.
Woodcut = art could be reproduced.
Photography and half-tone = words and images could be reproduced.
Cinema = life itself could be reproduced.

These technologies have changed art/literature and authorship/reception.

Walter Benjamin (1892 - 1940)

Member of the Frankfurt School of Western Marxism (but as an unconventional Marxist) along with Theodor Adorno, Max Horkhemer, Herbert Marcuse, and others. They were first to call for an analysis of what they called "The Culture Industry."

Benjamin's writings have been very influential on postmodernist theory. His essay "The Work of Art in the Age of Mechanical Reproduction" has been cited frequently.

Key Concepts in Benjamin's Essay "The Work of Art in the Age of Mechanical Reproduction:

Aura -- "strange weave of space and time; unique appearance of distance, so near [something] may be."

Contemplation -- passive approach of the participant in ritual or bourgeois cult of art.

These two aspects of aesthetics are being replaced in the age of mechanical reproduction by:

Loss of aura replaced by a *critical attitude* of the *expert.*
Contemplation replaced by reception in a state of *distraction*.


Einbahnstraße
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TEPPICH
WALTER
BENJAMIN
ERNST ROWOHLT VERLAG BERLIN

The crucial claim in Benjamin's essay seems to be this: the technique of reproduction detaches the reproduced object from the domain of tradition. By making many reproductions it substitutes a plurality of copies for unique existence. In permitting the reproduction to meet the beholder or listener in his own particular situation, it reactivates the object reproduced. These two processes lead to a tremendous shattering of tradition which is the obverse of the contemporary crisis and renewal of mankind (Benjamin 1968: 168).

The search for historiographic alternatives to the models of progress and eternal return also informs Benjamin's aesthetics. In "The Work of Art in the Age of Mechanical Reproduction" and his essay on photography, Benjamin demonstrates that new art forms not only observe the conventions of older ones but can also perform similar functions. While critics commonly observe Benjamin's claim that technically reproducible artworks lack the aura of premodern originals, they often miss the fact that Benjamin warns against the return of this lost or repressed aura in politically motivated films.

The Aura

The unique artwork acquires the "patina" of aura; it becomes a kind of fetish due to its unique presence in time and space.

The reproduction (and the photo, which is capable of serial reproduction off its negative) destroy aura and the cult value of original art.

Such cultural productions have both a positive and a negative aspect: it could open a way to proletarian art as well as be co-opted for propagandistic purposes (fascistic or com-mericalist).

Compensations for Decaying Aura

Photography -- the notion of the "vintage print" and limited editions from negatives.

Cinema -- fan magazines touting the cult of the film personality (and now spin-off commodities too).

These are reactionary; they attempt to reintroduce aura into reproductions.

Old art created pictures to adorn the rooms in which one could gaze upon them undisturbed. These pictures represent the psychology of the savouring bourgeois. The new art was forced through its choice of material (steel, plaster, glass, etc.) to adopt an equally mechanical technique, similar to industrial technique. The new art does not create pictures, but rather objects, material objects. It emerges from the psychology of the active worker, the proletarian.

His hopes for film and photography are stated clearly enough, centring on a constellation that describes a revolutionary viewer's mode of apperception as *distracted*, his approach as *critical*, his task as that of *testing*, and his position as corresponding to that of an *expert*. 'It is inherent in the technique of the film,' he writes in section X, 'that everybody who witnesses its accomplishments is somewhat of an expert.'

BLIND SPOTS

CRITICAL THEORY AND THE HISTORY OF ART IN TWENTIETH-CENTURY GERMANY

Frederic J. Schwartz

A man who concentrates before a work of art is absorbed by it. . . . In contrast, the distracted mass absorbs the work of art. . . . Architecture has always represented the prototype of art the reception of which is consummated by a collectivity in a state of distraction. . . .

Buildings are appropriated . . . by use and by perception – or rather, by touch and sight. . . . Tactile appropriation is accomplished not so much by attention as by habit. . . . This mode of appropriation, developed with reference to architecture, in certain circumstances acquires canonical value. For the tasks which face the human apparatus of perception at the turning points of history cannot be solved by optical means, that is, by contemplation alone. They are mastered gradually by habit, under the guidance of tactile appropriation.[37]

Benjamin defines distraction by contrasting it to the immersion of traditional aesthetic contemplation, seeing the latter as passive and the former, in its dispersal of attention, as characteristic of the cognitive state of the competent, experienced practitioner or technician. It is, in its lack of a fixed and fixing focus, 'relaxed.' Benjamin, of course, relates this not only to the performance of technical tasks but to the viewing of films.[97] His coupling of film reception and the term 'distraction' comes directly from the usual mandarin cultural criticism of the period, to which he refers.[98] But in seeing distraction as active in evading the Medusa-stare of the work of art, Benjamin reverses the valences of traditional criticism (thus the distracted mass absorbing the work of art as opposed to being absorbed and immobilised by it).

> Let us assume that someone observes a shimmering stone . . . and is 'captivated' by the sight of it. At first, he has a feeling of himself and of the image of the stone. And now something happens, something bestowed in its full strength on only a very few of us . . . although of course everyone knows the initial signs: namely that the observer 'sinks into' the thing he observes. Then, consciousness is turned into a mirror in which only the gleam of this stone glows, and before the extraordinary power of the image, the sense of self is extinguished.

In contemplation, consciousness 'submerges' (*versinkt*). This is the same word Benjamin uses in the Artwork essay (*Versenkung*). In the state he calls 'presence of mind', we witness the very same process, but turned from the surrender of subjectivity for the purposes of contemplation into the very same surrender to the end of *action*. We saw how, in his outlines of the psychophysical problem, Benjamin tried to recast the differing forms of human consciousness into modes of physicality; here he has turned the state of ecstatic knowledge from a passive to an active mode of bodily being.

Dynamics of a Metropolis: A Film Sketch

L. Moholy-Nagy

Building construction with an iron crane (Use of special trick effects—line drawings—melting slowly into the filming of nature)
Crane for construction:

shot from below

diagonally

from above

elevator for bricks

revolving crane

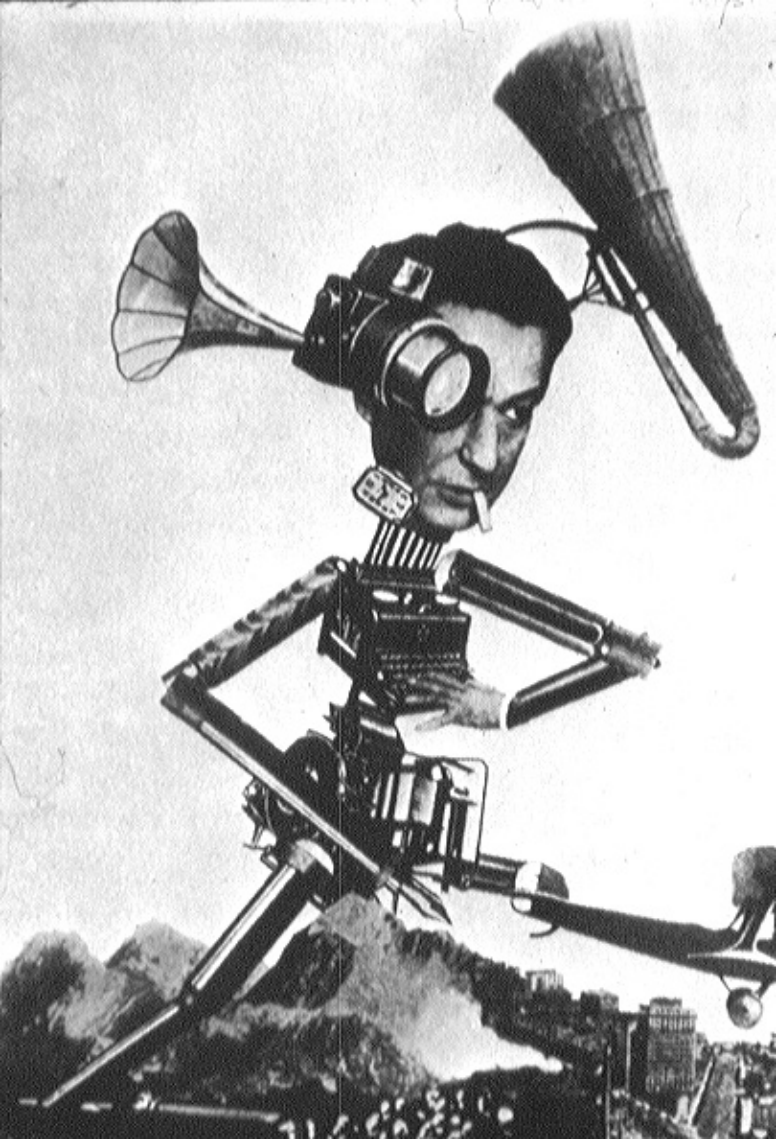
This movement is continued by an automobile racing to the left. The same house is always seen in the center of the picture.

(The house should always be re-photographed to place it in the center.)

Another automobile appears which tears along at the same speed, but in the opposite direction.

Tempo, tempo!

From Istvan Nemeskurty, *Word and Image* (London: Clematis Press, 1968), pp. 62–67. This book is a translation of *A mozgokeptol a filmmuveszetig* (Budapest: Corvina, 1961). The scenario was originally drafted in Berlin, 1921–22.



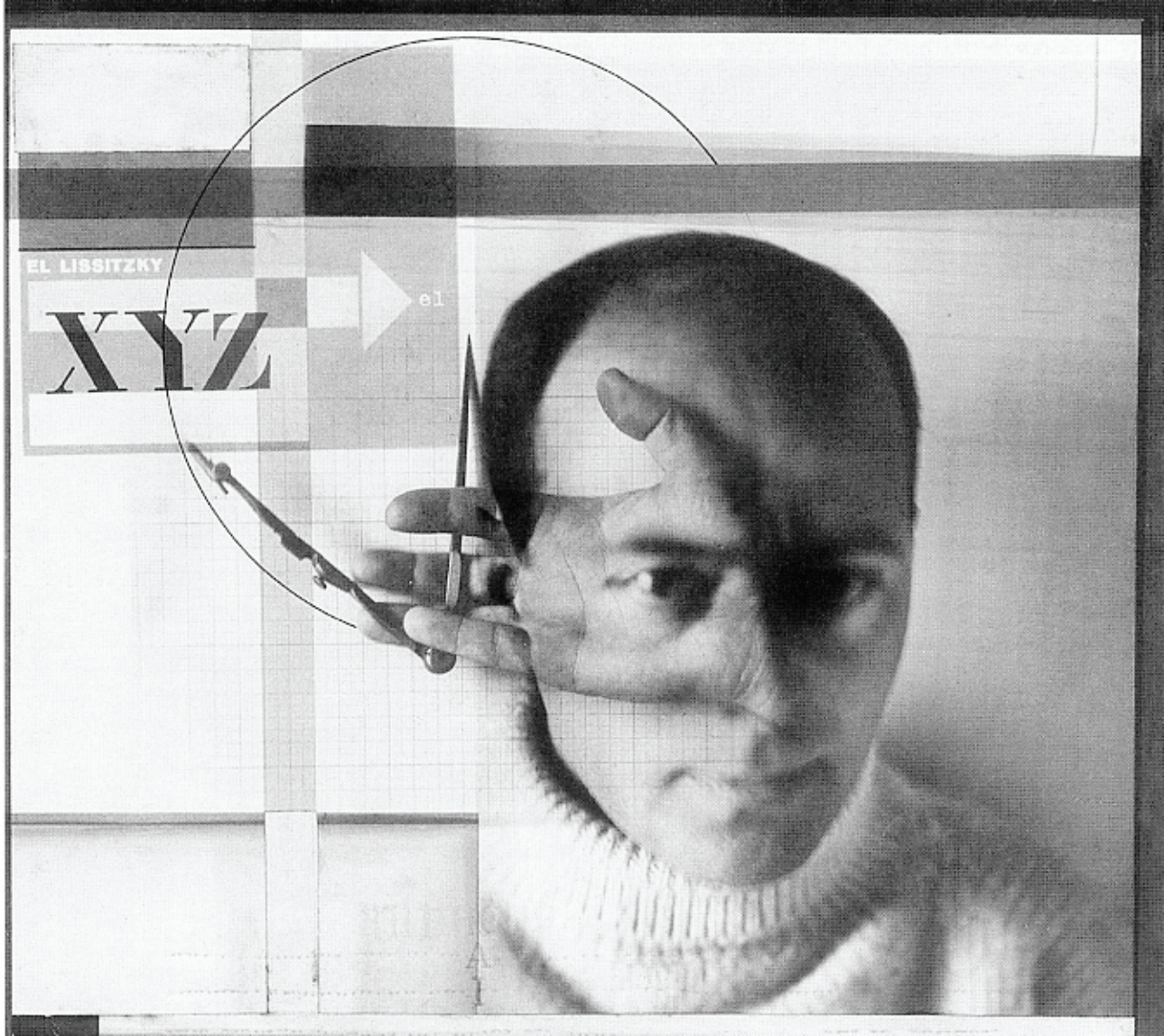
The 'widened range of present and future visual experiences . . . the simultaneous effects of perceptual events (big city) permit and require an entirely new level in the visual typographic sphere' 'Dynamic of the Metropolis' shows what this might look like; it was meant to suggest the form of visual communication adequate to the new conditions of attention, perception and thought.

Film leads to a 'deepening of apperception' in 'the entire optical, and now also the acoustical, perceptual world'.

> Our taverns and our metropolitan streets, our offices and furnished rooms, our railroad stations and our factories appeared to have us locked up hopelessly. Then came film and burst this prison-world asunder by the dynamite of the tenth of a second, so that now, in the midst of its far-flung ruins and debris, we calmly and adventurously go traveling. With the close-up, space expands; with slow motion, movement is extended. The enlargement of a snapshot does not simply render more precise what in any case was visible, though unclear: it reveals entirely new structural formations of the subject.

This bodily knowledge brought forth by film, this 'active *Verhalten* of subjects', is the work of experts acting by habit, not reflection, 'for the tasks which face the human apparatus of perception at the turning points of history cannot be solved by optical means, that is by contemplation, alone. They are mastered gradually by habit, under the guidance of tactile reception.'

Thus, like Balázs, Benjamin describes the scenario of film recreating the conditions of lost modes of sense perceptions, of physiognomic knowledge. It was a common trope of the time, and one central to the Artwork essay. In Benjamin's view, film returns the image to its place in the language of nature, one accessed by the mimetic faculty. Like the gambler, like the urban dweller, the viewer of film puts himself in danger. It is this danger that calls forth the *Verhalten* of habit, of presence of mind, of the instant deployment of bodily knowledge. .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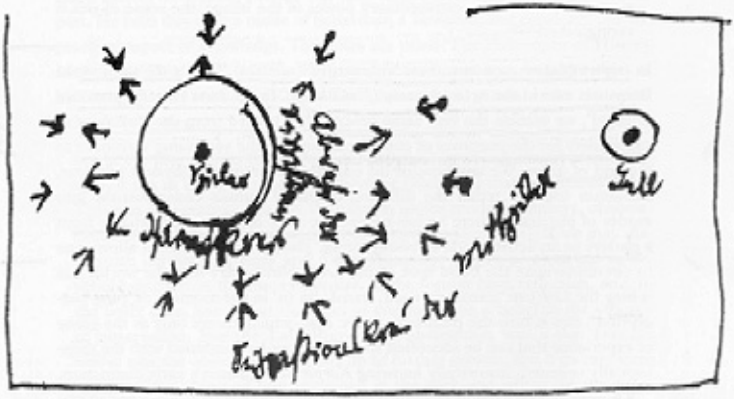
Georg Gidal, *Street Rendeme*, c.1930. Photograph courtesy ullstein bild/Das Fotoarchiv, Essen.



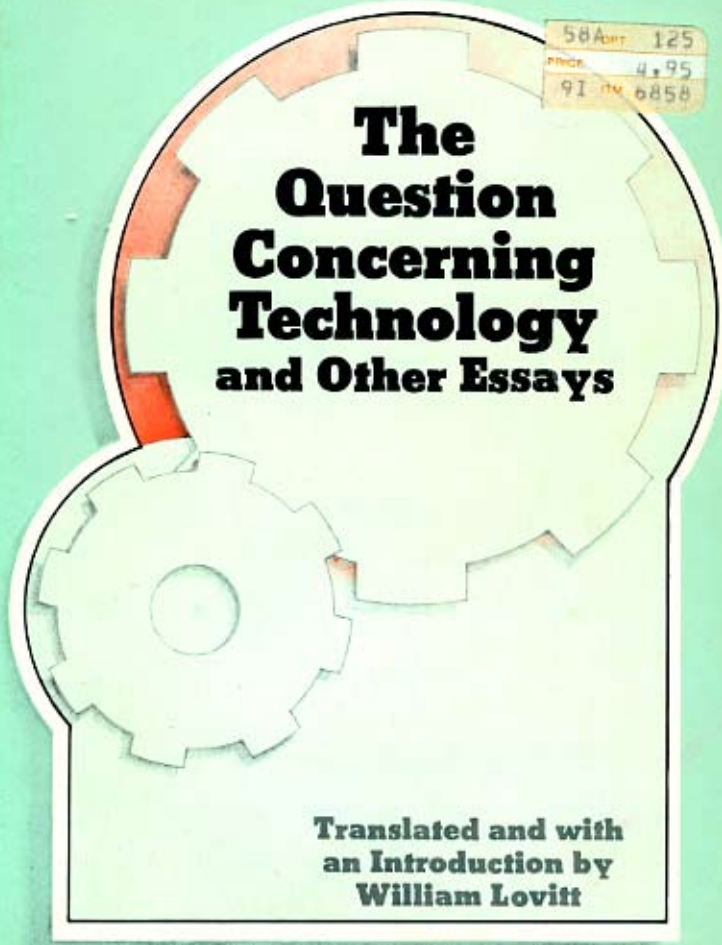
Walter Benjamin, diagram of the position and telepathic communication of a successful gambler in roulette, from the fragment titled 'Telepathy,' 1927 or after. From Benjamin, *Gesammelte Schriften*, VI, p. 188.

The notion of the 'expert', then, is an alternative to the bourgeois 'professional', a hypothetical mode of social existence leaving knowledge open to a different politics and freeing it from the pressures of class and status that were so powerfully inflecting it.

theses about the developmental tendencies of art under present conditions of production. Their dialectic is no less noticeable in the superstructure than in the economy. It would therefore be wrong to underestimate the value of such theses as a weapon. They brush aside a number of outmoded concepts, such as creativity and genius, eternal value and mystery—concepts whose uncontrolled (and at present almost uncontrollable) application would lead to a processing of data in the fascist sense.

Martin Heidegger

The Question Concerning Technology and Other Essays



Translated and with an Introduction by William Lovitt

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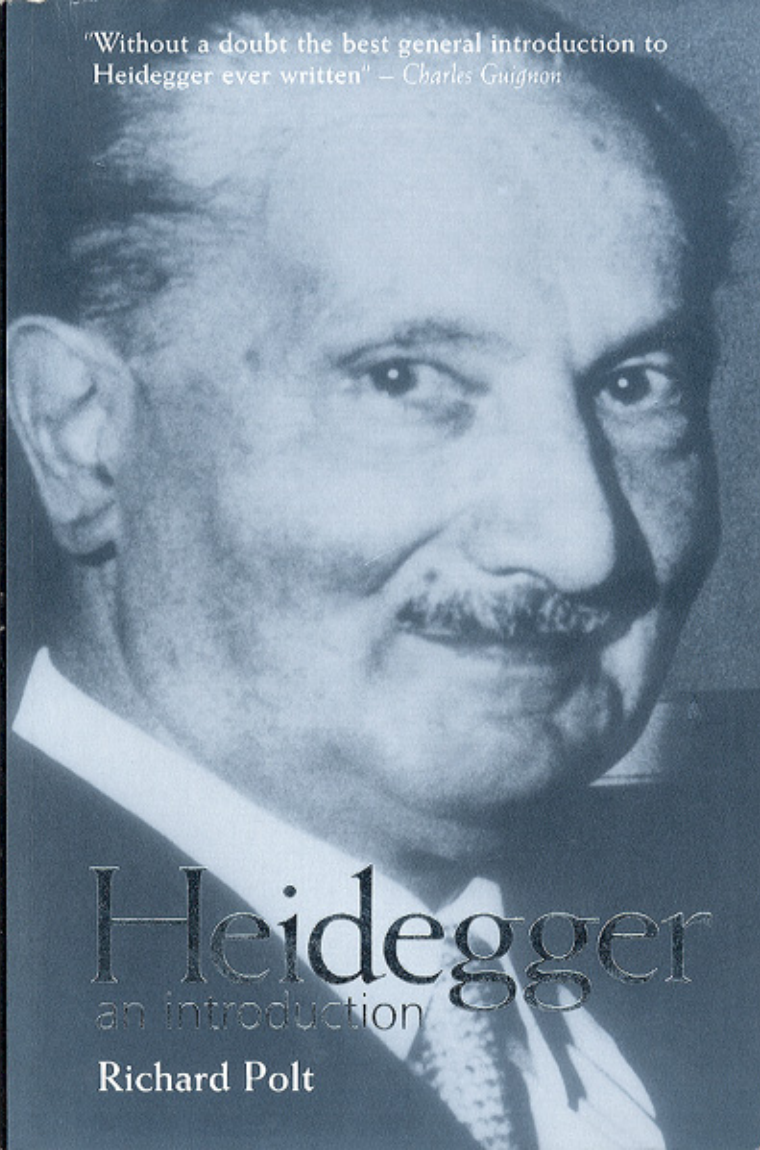
"Without a doubt the best general introduction to Heidegger ever written" – *Charles Guignon*



Heidegger

an introduction

Richard Polt

Heidegger proposed, famously, that we live in "the age of the world picture," by which he meant the modern age in which the world has *become* a picture—that is, has become a systematized, representable object of technoscientific rationality: "World picture . . . does not mean a picture of the world but the world conceived and grasped as picture."[2] He thought that this phenomenon (what some of us have been calling "the pictorial turn")[3] was a historical transformation equivalent to the modern age: "the world picture does not change from an earlier medieval one into a modern one, but rather the fact that the world becomes picture at all is what distinguishes the essence of the modern age."[4] Heidegger pinned his philosophical hopes on an epoch beyond modernity and beyond the world-as-picture. He thought the pathway to this epoch lay not in a return to prepictorial ages or a willed destruction of the modern world picture but in poetry—the kind of poetry that opens us to Being.

When objects are reproduced according to a binary model, they become virtually indistinguishable not only from each other, but from the model that generated them. Reality disappears as the process of reproducibility is pushed to its limit. The real becomes not simply what can be reproduced, but "that which is always already reproduced. The Hyperreal." There is no longer a perceptible difference between reality and its representation, between the object and the sign. Hyperreality is completely simulated, reproduced according to a model, instead of existing in an objective sense as separate from the model. "Reality itself, entirely impregnated by an aesthetic which is inseparable from its own structure, has been confused with its own image."

Baudrillard's theory of the orders of simulacra poses a conception of societal development rooted in changes in the forms of reproducing objects. In the current stage of simulation, these changes become so radical that they alter the nature of reality. The form of reproduction through binary models eradicates the difference between the object and the sign, between reality and the model designed to reproduce it.

Indeed, as our relation to the world becomes technologized, we gradually cease to differentiate distance and nearness. With everything awaiting production or made ready for consumption, we find ourselves without the means to discriminate between what sits within our court and what remains beyond our ken.

He writes, "In this dawning atomic age a far greater danger threatens—precisely when the danger of a third world war has been removed. . . . the approaching tide of technological revolution in the atomic age could so captivate, bewitch, dazzle, and beguile man that calculative thinking may someday come to be accepted and practiced *as the only* way of thinking"

"Technology is . . . no mere means," Heidegger writes. "Technology is a way of revealing" (*QT* 12). From an ontological perspective, technology is neither neutral nor merely instrumental. It is neither an artifact nor merely a means of producing artifacts. Rather, technology signifies a particular mode of disclosure. What technology reveals in a particular manner is the Being of beings.

What is essential to modern technology is its refusal of limits, its rejection of boundaries and difference. In the end, humanity itself becomes part and parcel, indeed a most crucial element, of technological ordering. This is true in a number of respects. First, humankind is, by and large, the only producer of technology. Second, the efficient and endless production of technological artifacts requires their equally efficient and endless consumption. Once again, humankind is, by and large, technology's only consumer. But the circle is only fully completed when humanity becomes not simply the primary producer and consumer of technology, but that which technology primarily produces and consumes.

Whatever is disclosed is disclosed uniformly as a product of human ingenuity, as a (man-made) object or value. As such it becomes measurable, calculable, and exchangeable in a free market of resources. Technology mints a universal currency. Though values certainly vary within the technological marketplace, all ordering is conducted on a single scale; everything is assessed in terms of its rank within the standing-reserve. Art becomes serviceable, myth and religion useful, families functional, nature adaptable, and the fourfold of earth and sky, mortals and divinities all part of a panoply of resources awaiting efficient use.

The word "machination" (*Machenschaft*) is Heidegger's expression in the *Contributions* for what he will later call *Technik* (technology) or *Ge-stell* (enframing). Machination is not just a human behavior, the act of manipulation; it is *a revelation of beings as a whole* as exploitable and manipulable objects (§61). The world seems to be a collection of present-at-hand things with no intrinsic meaning or purpose, a cold place where we cannot put down any roots. All we can do is calculate and control. We observe and measure everything, we make things go faster and faster, our power and efficiency are ever increasing – but questioning and reflection are withering away (§57). Quality is reduced to quantity (§70). This mathematization of the world does away with all sacredness: Heidegger speaks of "the flight of the gods" and "the death of the moral, Christian God" (§56).

In the world of machination, beings become "unbeings" (§§2, 58). expression does not mean that everything has been destroyed, but that the *importance* of everything is being destroyed. Heidegger complains that "beings *are* [but] Being has abandoned all 'beings'" (§5, p. 15). In other words, the difference it makes to us that there is something rather than nothing has dwindled away to mere presence-at-hand. The wealth of meaning has faded away, leaving only a bleak, gray wasteland.

Enframing cannot be brought under control through willfulness. Certainly machines and techniques, their production and use, can and should be harnessed. But the essence of technology, unlike technical devices, is not susceptible to willful mastery. Like the attempt to reduce one's level of intolerance by liquidating those individuals found overly objectionable, the attempt to master enframing is self-defeating. The problem of technology is one of willfulness itself. In other words, technology is symptomatic of a subjectivist and anthropomorphic enframing of the world.

It shows itself only when it remains undisclosed and unexplained. Earth shatters every attempt to penetrate it. It turns every merely calculational intrusion into an act of destruction. Though such destruction may be accompanied by the appearance of mastery and progress in the form of the technological-scientific objectification of nature, this mastery remains, nonetheless, an impotence of the will.

When Heidegger states that "the essence of technology is by no means anything technological," he means that technology's driving force is not located in machines themselves, nor even in the various human activities that are associated with modern modes of production. In his example of the automobile, the parts the make up the machine as well as the labor of the factory workers all belong to technology, but are not its essence. The "frame of mind" that views the world--its reserves of metal ore, its chemical structures, its human population--as raw materials for the production of automobiles approaches more closely what Heidegger means by the essence of technology. Heidegger's argument, however, is more far-reaching. He claims that enframing stems from the human drive for a "precise" and "scientific" knowledge of the world.

Heidegger: *Erfahrung* vs. *Erlebnis*

Erlebnis (lived experience) is a superficial stimulus that leaves the experiencer untouched by the experience in a life - changing sense. Entertainment and information-gathering in our mediated world.

Erfahrung (existential experience) is a type of life-changing experience, a profound, poetic mode of experience like one's reacting to art and poetry or a poetic experience of the world.

We should pause for a moment and get our bearings:

- Heidegger starts his essay with our everyday understanding of technology as instrumentality, as a way of getting things done.
- He asks what we mean by "instrumentality" and moves into a discussion of "cause."
- The examination of "cause," in turn, leads him to a discussion of *poeisis* as a bringing forth, a revealing of something that was concealed.
- At the close of the last section, he relates this bringing forth to the Greek word for "truth."

If we continue to pursue the question of the essence of technology, Heidegger now argues, we will come to see that technology is a kind of *poeisis,* a way of bringing forth or revealing--and, as such, is "the realm of truth" (294).

What does Heidegger mean by this? What does he gain from the seemingly radical and far-fetched association of technology and poetry? At this point in the essay, we begin to see that Heidegger has been developing an alternative way of thinking about technology, one that is not strictly bound to instrumentality. And as we will soon see, he is pointing out the similiarities between the ways in which technology and poetry confront the world in order to contrast them later.

The difference lies elsewhere, in modern technology's orientation to the world. Modern technology's mode of revealing is not *poeisis.*

> The revealing that rules in modern technology is a challenging [Herausfordern], which puts to nature the unreasonable demand that it supply energy which can be extracted and stored as such.

Heidegger's argument in the next few pages may seem quite familiar. It is, in a sense, an ecological argument. Heidegger views the difference between older forms of technology (the windmill, for example, which draws its energy from the wind but does not *extract* and store that energy) and modern technology which exploits and exhausts--in Heidegger's terms, "challenges"--our planet's resources.

Heidegger pauses here to sum up the major points of his argument before moving on to his conclusion:

- We tend to think of technology as an instrument, a means of getting things done. This definition, however, misses the actual essence of technology, and tends to make us think that by making the technology better--better able to "get things done"--we will master technology and solve the problems that accompany it.

- This instrumental way of thinkings stems from our assumptions about causality. If we come to understand modes of causality as ways of being responsible for the arrival of things into existence, we can begin to understand that the essence of technology has to do with the way we are oriented to the coming-into-existence, or the "revealing" of the world.

- Humanity's orientation to the world takes the form of an enframing which views the world only as "standing-reserve," a source of raw materials. In this enframing, however, lies the potential for another orientation.
- Enframing is the essence of technology. Enframing is *ambiguous,* in that contains two possibilities:

    - It is a *danger* that sets man on a destructive and self-destructive course. "On the one hand, enframing challenges forth into the frenziedness of ordering that blocks every view into the coming-to-pass of revealing and so radically endangers the relation to the essence of truth" (314)

    - At the same time, it is a "saving power" and and *opportunity:* humanity's enframing orientation to the world makes clear the responsibility of human beings to the world. If we reflect upon the enframing as the essence of technology, we will find not only that we are a part of the world, but that the world "needs" us to care for it, that humanity "is needed and used for the safekeeping of the essence of truth" (314).

Heidegger now moves to the conclusion of his essay, in which he will try to clarify the relationship between these two opposing orientations contained within enframing.

What Heidegger views as the *danger* associated with technology is not so much the direct effects of mechanization. It might be easiest to characterize Heidegger's sense of the danger as a threat to humanity's "spiritual" life, but we should be careful not to associate with Heidegger's thought too many assumptions about "spirituality" in the sense of traditional religions (in spite of the fact that Heidegger's early training was in theology, a field in which he maintained a life-long interest). Heidegger's description of this danger has four main elements:

- In continuing on the path of enframing, humanity will eventually reach a point at which the human, too, becomes only so much "standing-reserve."

- Humanity's overinflated sense of its power over the natural world will result in humanity's coming to believe that humanity has control over all existence.

- This excessive pride leads ultimately to the "delusion" that humanity encounters itself and only itself everywhere it looks--a kind of narcissism at the species level.

- Finally, such an orientation to the world will blind humanity to the ways in which the world reveals itself. In spite of (in fact, *because of*) the entire set of scientific apparatuses and theories which are meant to guarantee our precise knowledge of our world, we will miss the truth of what the world is.

By virtue of this loss of 'behavioural freedom', all criticism of technology has just about disappeared and we have slid unconsciously from pure technology to techno-culture and, lastly, to the dogmatism of a *totalitarian techno-cult* in which everyone is caught in the trap not of a society and its moral, social or cultural laws and prohibitions, but of what these centuries of progress have made of us and *of our own bodies*.

As we are gradually deprived of the use of our natural receptor organs, our sensuality, we are obsessed, like the invalid, by a kind of cosmic lack of proper 'measure', by the phantasmatic pursuit of different worlds and modes in which the old 'animal body' would be out of place, in which we would achieve total symbiosis between technology and the human.

The world "gives" itself to us insofar as it reveals and opens itself to us. Our response to this "gift," which Heidegger has described as "enframing," is at once a grave danger (our instrumental, exploitative, blind orientation to the world sets us on a self-destructive course) and an *opportunity* to see ourselves as a *part* of the coming-into-being, the revealing, and the "granting" of the world.

The work of art does not belong to the artist who produced it nor does it belong to a particular viewer. Its poetic address is impersonal; it is addressed to the threshold, to the thesis of Being that Heidegger offers to us as "preservers": "to let forth in its radiance and presence" (p. 83). This is diametrically opposed to the *Ge-stell*, the enframing, of technology, which emplaces and stores beings as a mere "standing reserve." Thus, the work of art stands in stark contrast to technology's model of use and consumption.

Heidegger, I believe, would be an advocate of what is called "alternative," "soft," or "appropriate" technology. What makes a technological artifact appropriate is its capacity to secure us within the fourfold. An artifact's contribution to ecological sustainability would then become the criterion of selection in respect to the dictum of saving the earth. To be commensurate with receiving the sky and awaiting the gods, an artifact must not be developed in the indiscriminate and hubristic effort to master nature.

His enemy is not atheism, but *indifference* to the question of the holy. True godlessness is not the absence of gods, but a state in which their presence or absence makes no difference to us. Heidegger wants us to recognize that a people's relation to the divine plays a crucial role in its relation to Being (§251).

Jacques Ellul 1912 - 1994

Marxist until age 19, a Christian at age 22; self-described as a Christian Anarchist.

Influenced by the theologian Karl Barth.

Prof. at the University of Bordeaux.

Forty books published.

The Technological Society was published in France in 1954, translated into English in 1964.

Famous quote: "That which de-sacrilizes a given reality, itself in turn becomes the new sacred reality."

THE TECHNOLOGICAL SOCIETY

JACQUES ELLUL

With an Introduction by Robert K. Merton

A penetrating analysis of our technical civilization and of the effect of an increasingly standardized culture on the future of man

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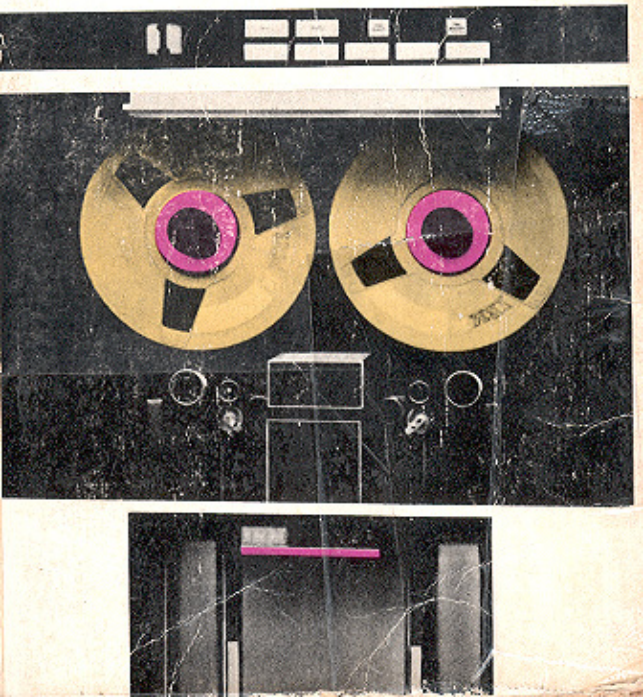


Ellul's Key Points

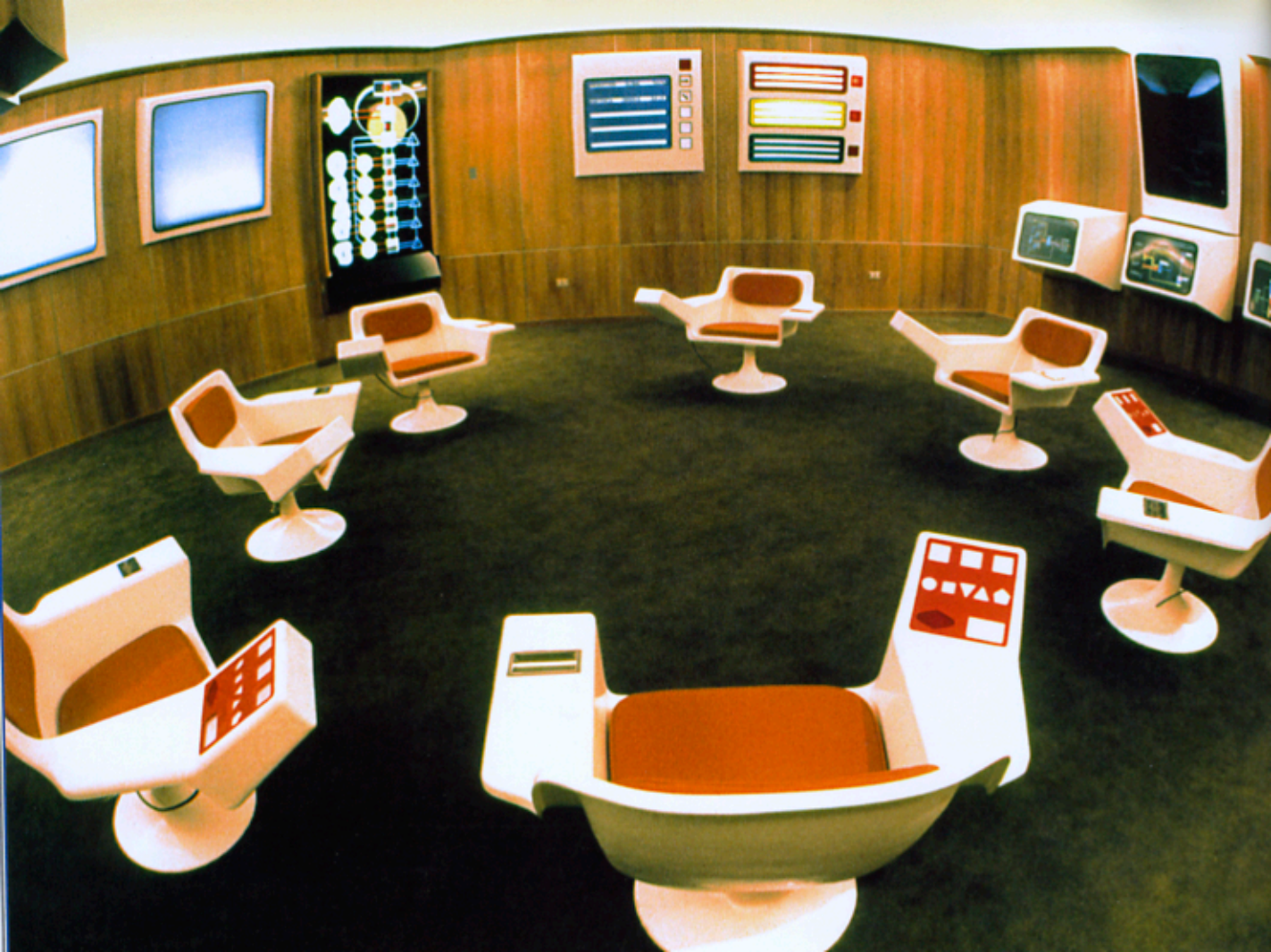
Technology's essence lies in technique, which has two main aspects to it:

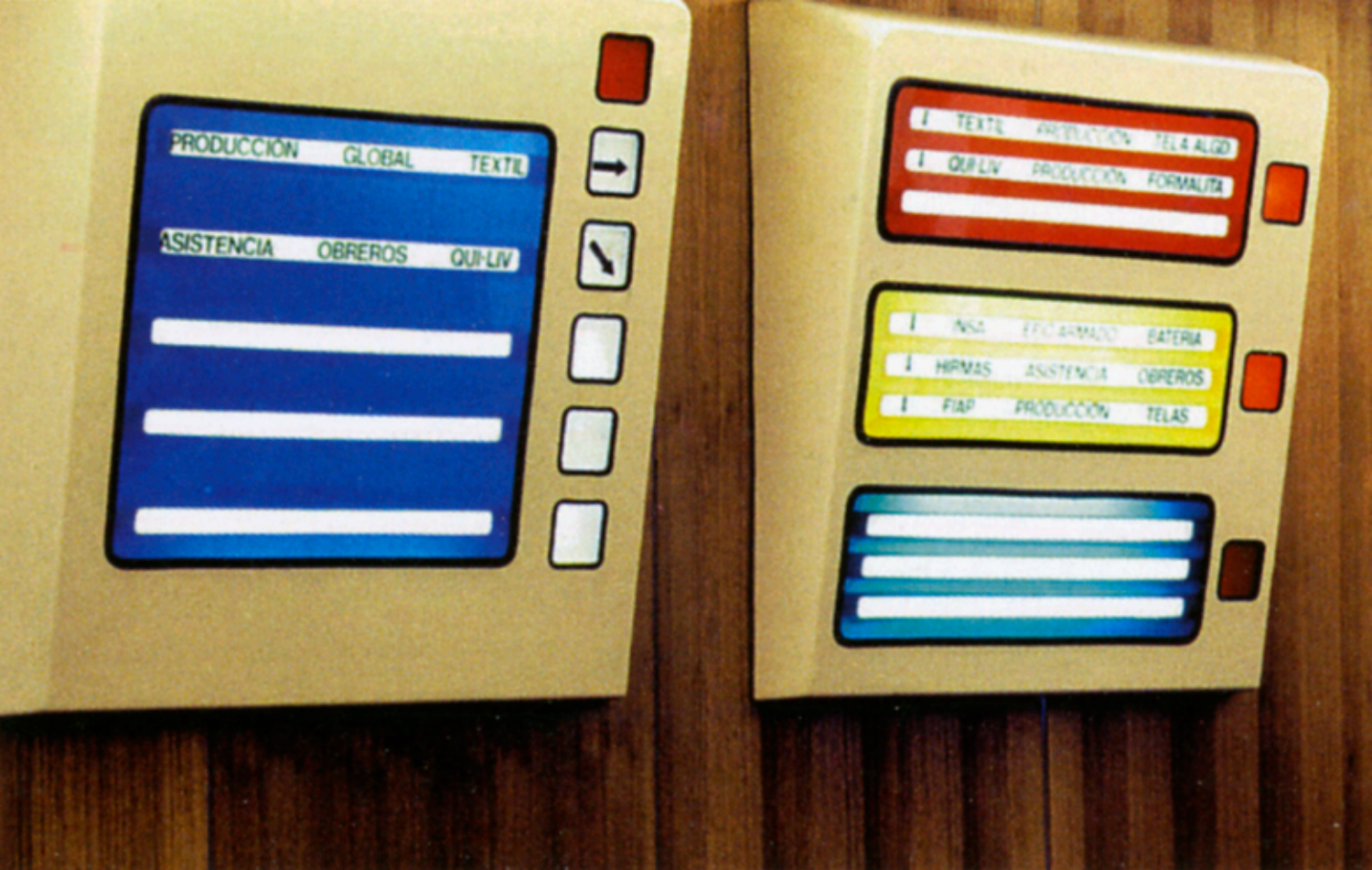
1) Rationality: a) systematization; b) reduction to the logical dimensional alone.

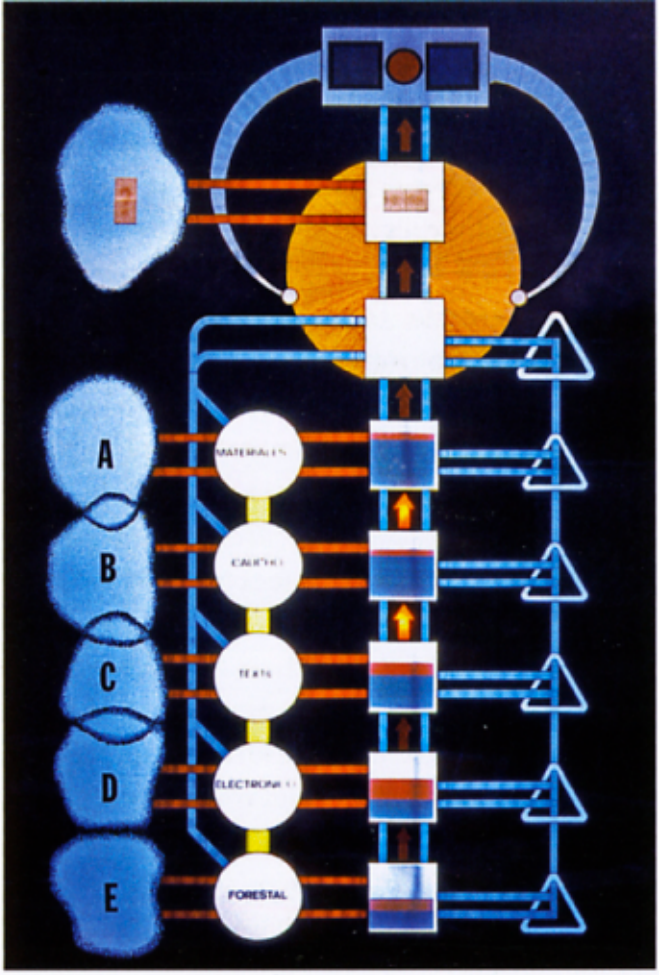
2) Artificiality: a) technique is opposed to nature; b) technique absorbs nature.

Other aspects of technique are: technical automatism, self-augmentation, monism, universalism, and autonomy.

Many theorists of technology, such as Jacques Ellul, follow Weber's lead in yielding to pessimism and cynicism. This attitude follows necessarily from their philosophic assumptions. Not unlike Heidegger, Ellul defines technology (or rather technique) as the pursuit of "*absolute efficiency.*" Ellul also proposes that the only hope of escape from the clutches of technology comes from "an increasing number of people" who are determined to "assert their freedom."[17] However, for Ellul, as for Weber, freedom remains a metaphysical concept tied to subjectivity and control. Hence the hopelessness of Ellul's and Weber's prognosis. Neither the pessimism or cynicism of the naysayers nor the heroic self-assertion or complacency of the yea-sayers is called for. We may say both "yes" and "no" to technology.




PRODUCCIÓN GLOBAL TEXTIL
ASISTENCIA OBREROS QUI-LIV
TEXTIL
QUI-LIV
HIRMAS ASISTENCIA OBREROS
FIAP PRODUCCIÓN TELAS



The room featured a reproduction of Beer's so-called Viable System Model, informally known as "Staffy." The model offered a management structure for the regulation of exceedingly complex systems. Images courtesy Gui Bonsiepe.

We believe that a historical understanding of past environmental discourses is essential for contemporary social and green theory because the dominant narratives used to reflect upon the contemporary environmental crisis are too simple. There is an assumption shared by most postmodern thinkers today that for about two generations we have been experiencing a complete transformation of our relationship with the environment. After three centuries of frenetic modernism, we entered, at last, an enlightened era of environmental awareness. Landmark writers of social theory have coined new labels to name our epoch and express its radical novelty: risk society (as opposed to industrial society), reflexive modernization, second modernization, or high modernity.

Gaia philosophy (named after Gaia, Greek goddess of the Earth) is a broadly inclusive term for related concepts that living organisms on a planet will affect the nature of their environment – to make it more suitable for life. This set of theories holds that all organisms on a planet regulate the biosphere to the benefit of the whole. The Gaia concept draws a connection between the survivability of a species, (hence its evolutionary course) and their usefulness to the survival of other species.

While there were a number of precursors to Gaia theory, the first scientific form of this idea was proposed as the Gaia hypothesis by James Lovelock, a UK chemist, in 1970. The Gaia hypothesis deals with the concept of homeostasis, and claim the resident life forms of a host planet coupled with their environment have acted and act as a single, self-regulating system. The system includes the near-surface rocks, the soil, and the atmosphere. While controversial at first, various forms of this idea became accepted to some degree by many within the scientific community (See Amsterdam declaration on Global Change).

Some radical political environmentalists who accept some form of the Gaia theory call themselves Gaians. They actively seek to restore the Earth's homeostasis - whenever they see it out of balance, e.g. to prevent manmade climate change, primate extinction, or rainforest loss. In effect, they seek to cooperate to 'become' the "system consciously manipulating to make conditions more conducive to life". Such activity 'defines' the homeostasis, but for leverage it relies on deep investigation of the homeorhetic balances, if only to find places to intervene in a system which is changing in undesirable ways.

THE ATTENTIVE HEART

Conversations with Trees

STEPHANIE KAZA

Illustrations by Davis Te Selle

When the European settlers came to this continent over three centuries ago, they encountered a forest they didn't know. The trees were tall and mature, like none they had seen in Europe for generations. Wilderness had long ago disappeared under the sweat of wars and the privilege of class. The European landscape was ruled by the metaphor of garden, of orderly fields and tamed landscapes. Those who arrived on the western shores of the Atlantic brought this metaphor with them and planted it confidently in the foreign soil.

The forest was an impediment to the garden. And it was strange. The native people who lived there were strange. The settlers' survival depended on their response to the Other—to trees, birds, mammals, and people who were different. A large part of that response was fear. And a large part of the fear was covered over by desire—for land, for wealth, for success, for adventure.

Eventually desire triumphed over fear. The cutting of forests was equated with security, prosperity, and the advancement of civilization in the New World. Social and religious values sanctioned the acceleration of this destruction. Desire for more, more, more drove the fear underground, paving it over with cities, farms, and factories.

The relationship between person and tree, arising over and over again in many different contexts and with various individuals, is one subset of all human-nonhuman relationships. I am exploring it here as a way to inquire into the nature of these relationships. I want to know, What does it actually mean to be in a relationship with a tree? Acknowledgment of and participation in relationships with trees, coyotes, mountains, and rivers is central to the philosophy of deep ecology. In this writing I express one person's experience of the truth of this philosophy. By sharing this process with others I hope to encourage and support people in engaging in their own serious conversations with trees. In these meetings of tree and person I allow myself to see and also be seen by trees. I assume that sensing of the Other is two-way and active, though I cannot describe the biological basis of this for the tree. Over the course of writing these pieces I caught some glimpse of my meetings with trees as conversations in a co-created field of experience, generated as much by tree as by person.

Ted Hughes once wrote that it is imperative to salvage "all nature from the pressures and oversights of our runaway populations, and from the monstrous anti-Nature that we have created, the now nearly-autonomous Technosphere". Here, it is important to make a distinction between environmentalists (aka light greens) who support a philosophy of conservation and constraint, and the deep ecologists, who argue for a complete return to nature.

Ecology, Key Points

Androcentric	Biocentric
Humanism	Post-humanism
Nature as Object	Nature as Subject
Great Chain of Being	Equality of Species
Evolution goal-directed	Evolution has no goal
Teilhard de Chardin	Bill Deval
John Dryzek	Gary Snyder
Murray Bookchin	Stephanie Kaza

Alan: *What is "deep ecology?"*

Michael: Deep ecology is an environmental movement initiated by a Norwegian philosopher, Arnie Naess, in 1972. He wasn't the first to dream up the idea of a radical change in humanity's relationship to nature, but he coined the term "deep ecology" and helped to give it a theoretical foundation. Deep ecology portrays itself as "deep" because it asks deeper questions about the place of human life, who we are.

Deep ecology is founded on two basic principles: one is a scientific insight into the interrelatedness of all systems of life on Earth, together with the idea that *anthropocentrism* - human-centeredness - is a misguided way of seeing things. Deep ecologists say that an *eco*centric attitude is more consistent with the truth about the nature of life on Earth. Instead of regarding humans as something completely unique or chosen by God, they see us as integral threads in the fabric of life. They believe we need to develop a less dominating and aggressive posture towards the Earth if we and the planet are to survive.

The second component of deep ecology is what Arnie Naess calls the need for human self-realization. Instead of identifying with our egos or our immediate families, we would learn to identify with trees and animals and plants, indeed the whole ecosphere. This would involve a pretty radical change of consciousness, but it would make our behavior more consistent with what science tells us is necessary for the well-being of life on Earth. We just wouldn't do certain things that damage the planet, just as you wouldn't cut off your own finger.

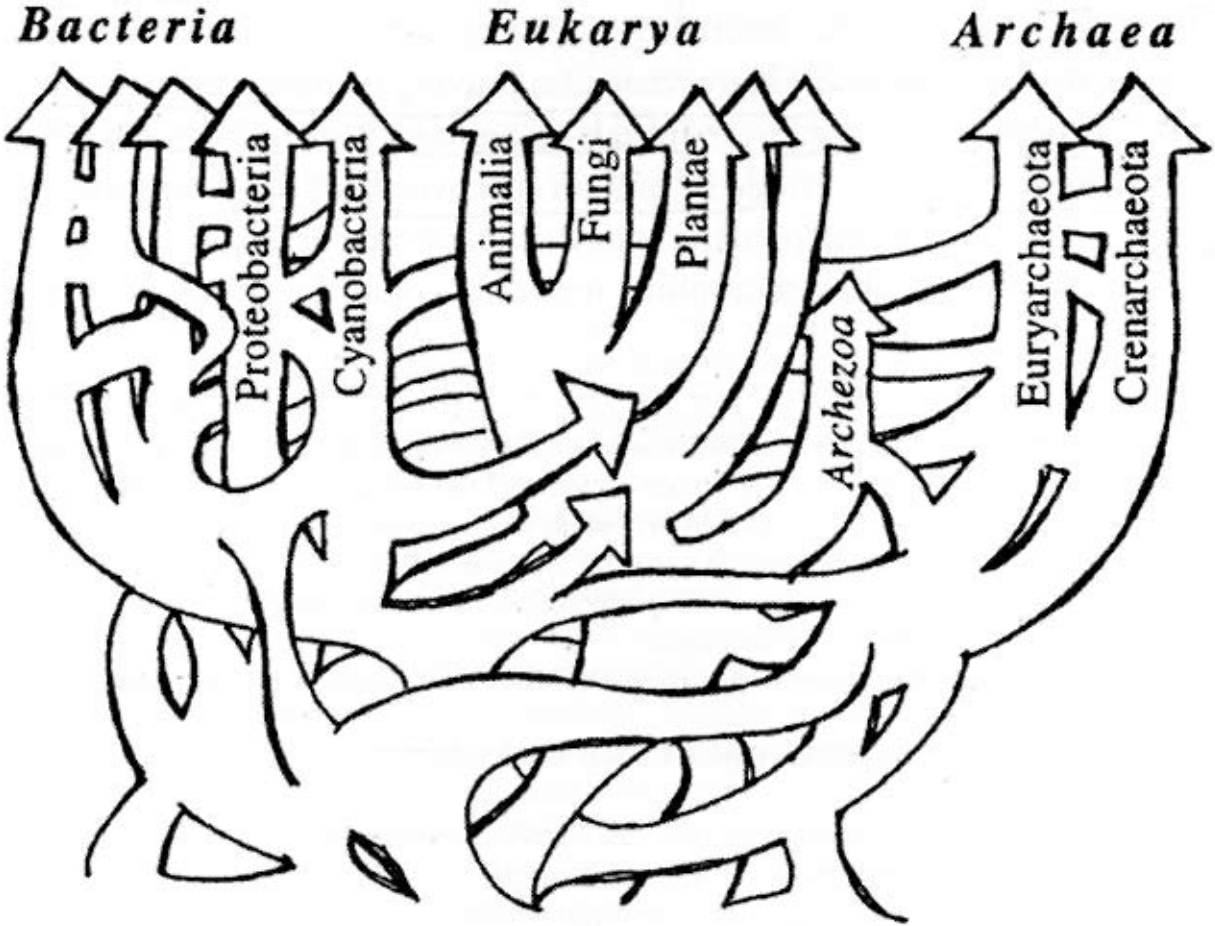


FIGURE 3. W. Ford Doolittle "A Reticulated Tree, or Net, Which Might More Appropriately Represent Life's History" (from "Phylogenetic Classification and the Universal Tree," *Science* (25 June 1999): 2127, fig. 3).

Still others thought microbial webworks endorsed a thrillingly relational vision of the planet: "I like the idea of that picture of the tree that's all knotted and tangled," a postdoc in Monterey told me. "It fits with my view of the world, of everything being connected, as parts in a body, of a Gaian synthesis." Fernando de la Cruz and Julian Davies write, "it is clear that genes have flowed through the biosphere, as in a global organism."

Alan: *How does deep ecology relate to ecofeminism? Or do they relate?*

Michael: There are many ecofeminists - people like Joanna Macy for example - who would call themselves deep ecologists, but there are some ecofeminists who've made an important claim against it. They say the real problem isn't anthropocentrism but *andro*centrism - *man*-centeredness. They say that 10,000 years of patriarchy is ultimately responsible for the destruction of the biosphere and the development of authoritarian practices, both socially and environmentally.

Deep ecologists concede that patriarchy has been responsible for a lot of violence against women and nature. But while they oppose the oppression of women and promote egalitarian social relations, deep ecologists also warn that getting rid of patriarchy would not necessarily cure the problem, because you can imagine a society with fairly egalitarian social relationships where nature is still used instrumentally.

Alan: *And then there's a third big player on the scene, "social ecology,"*

Yet, as the philosopher Kate Soper warns, "it is not language which has a hole in the ozone layer", and the last 10 years have seen the re-emergence of a mode of critical thinking that challenges the self-reflexive posturings of postmodernity and the concomitant dangers for the natural world. One of its earliest proponents over here was Jonathan Bate, professor of English literature at the University of Liverpool, whose book, **Romantic Ecology** (Routledge, 1991), turned to the Romantic poets and their writings on nature to redress the balance of the culture-nature debate.

Bate draws upon Wordsworth as an exemplar of ecocritical thinking, for Wordsworth did not view nature in Enlightenment terms - as that which must be tamed, ordered, and utilised - but as an area to be inhabited and reflected upon. By so doing, he hoped human beings might "see into the life of things", and reveal their place in a system of delicate relations between the human and the non-human worlds.

What Bate does for criticism, Brian Clarke sets out to do for fiction, with his debut novel, **The Stream (** Swan Hill, £14.95). He follows every trickle and trace of a section of river over a five-year period, witnessing its transition from flourishing stream to a stinking stretch of contaminated water.

Above all, the ecocritics rigorously defend literature's capacity to refer to a natural reality, to realise the relations between landscape and lifestyle, and to remind us of non-human perspectives (of animals, trees, rivers, mountains) towards an "environmental literacy". Clarke's novel is an exemplar of this capacity.

Marshall McLuhan (1911- 80)

1941 -- Ph.d., Cambridge Univ.
1951 -- *The Mechanical Bride*
1950s - 70s -- Editor, *Explorations* mag.
1962 -- *The Gutenberg Galaxy: The Making of Typographic Man*
1964 -- *Understanding Media: The Extensions of Man*
1967 -- *The Medium is the Massage* (with Quention Fiore)

McLuhanism thrives on a triple narrative of initial unity (in primitive, oral cultures), fragmentation (in writing and print) and reunification (in electronic media). It provides an historical and spatial dimension, in which the proximity of 'man' to reality is contingent upon the technologies of media at each period in history or in each global location. Superficially, this might lead one to suppose that, for McLuhan, the relation between media and reality is conditional upon historical circumstances. However, McLuhan bases his analyses on a residual and ahistorical psychology of perception, wherein language/media/technology are oriented at all times towards the ratios between human senses.

Furthermore, for McLuhan, the optimisation of these senses – the parity and harmonious unity of sight, touch, sound – is the desirable objective of media. The electronic media enable this 'allatonceness'. He assumes that this unification and instantaneity, which defines new technology,

The primary theoretical assumptions of his work – the rear-view mirror, visual versus acoustic cultures, hot and cool media, and the tetradic theory of media

Tetrad

This sets out McLuhan's four laws or effects of media: amplification, obsolescence, retrieval, reversal. What aspects of society does the new medium enhance or amplify? What aspects of media that were dominant before the arrival of the medium in question does it eclipse or render obsolescent? What does the medium return to prominence from previous obsolescence? And what does the medium reverse or turn back into when it has run its course or been developed to its fullest potential?

McLuhan's theory of culture can be described as a formal theory of media culture. Any medium, according to McLuhan, is an "extension of man,"[23] an extension of the human animal's physical being in the world. For McLuhan these extensions corresponded to stages in history, so that print technologies correspond to modernity, and, it can be argued, the current electronic media technologies corresponds to postmodernity. McLuhan emphasizes that "in our present electric age the imploding or contracting energies of our world now clash with the old expansionist and traditional patterns of organization." It is this clash that delineates the modernist and postmodernist position.

As "extensions of man" each medium extends logically from its corresponding bodily counterpart. In this manner a super highway becomes an extension of the foot, the radio becomes an extension of the ear, books and the print media are an extension of the eye[26] and the recent television and computer technologies become, for McLuhan, an extension of the central nervous system. It is through these extensions that cultural forms are realized.

By almost any intellectual standards McLuhan would have to be considered a technological optimist. His writings strongly endorse the position that the world, through the new (circa the mid-1960s) information and communication technologies, is fast on its way to becoming, or has already become, a "global village." The "global village" is made possible, for McLuhan, through the implosion of time and space brought on by the dramatic increase in the speed of information transmission allowed by these new technologies. As McLuhan argues: "the creative process of knowing will be collectively and corporately extended to the whole of human society, much as we have already extended our senses and our nerves by the various other media."

McLuhan, however, did see the downside to this implosion. His concern for the effects that these new technologies may have on humanity was a central concern of his career and was strongly informed by his Catholicism. While the world may indeed be a "global village," the negative effects of the rapidity of information transmission has brought with it the "never explained numbness that each extension brings about in both the individual and society." In perhaps what was the most sociological of McLuhan's discourses he warns that the speed at which information is now transmitted creates "mental breakdown of varying degrees." Further, he argues that as the media become the primary commodity, a view shared by many social critics in the later part of the twentieth century, it is likely that these media will become accepted as the "social bond" causing "subliminal and docile acceptance of media impact" creating "prisons without walls for their human users."

Marshall McLuhan

Author of UNDERSTANDING MEDIA

Quentin Fiore

The Medium is the Massage

An Inventory of Effects

R3348 * $1.45 * A BANTAM BOOK

"The discovery of the alphabet will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves... You give your disciples not truth but only the semblance of truth; they will be heroes of many things, and will have learned nothing; they will appear to be omniscient and will generally know nothing."

—Socrates, "Phaedrus"

Xerography—every man's brain-picker—heralds the times of instant publishing. Anybody can now become both author and publisher. Take any books on any subject and custom-make your own book by simply xeroxing a chapter from this one, a chapter from that one—instant steal!

As new technologies come into play, people are less and less convinced of the importance of self-expression. Teamwork succeeds private effort.

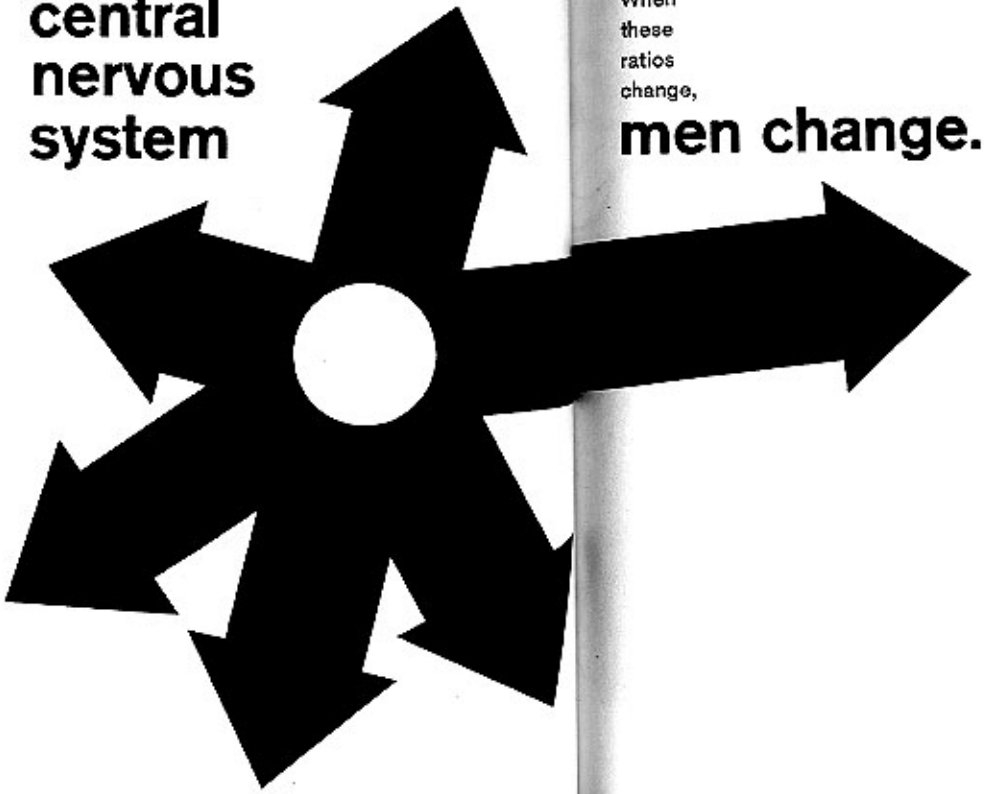
A ditto, ditto device.
" " " "
A ditto, ditto device.
" " " "
A ditto, ditto device.
" " " "

Television demands participation and involvement in depth of the whole being. It will not work as a background. It engages you. Perhaps this is why so many people feel that their identity has been threatened. This charge of the light brigade has heightened our general awareness of the shape and meaning of lives and events to a level of extreme sensitivity.

The main cause for disappointment in and for criticism of television is the failure on the part of its critics to view it as a totally new technology which demands different sensory responses. These critics insist on regarding television as merely a degraded form of print technology. Critics of television have failed to realize that the motion pictures they are lionizing—such as "The Knack," "Hard Day's Night," "What's New Pussycat?"—would prove unacceptable as mass audience films if the audience had not been preconditioned by television commercials to abrupt zooms, elliptical editing, no story lines, flash cuts.

electric circuitry,

an extension of the central nervous system



Media, by altering the environment, evoke in us unique ratios of sense perceptions. The extension of any one sense alters the way we think and act—the way we perceive the world.

When these ratios change,

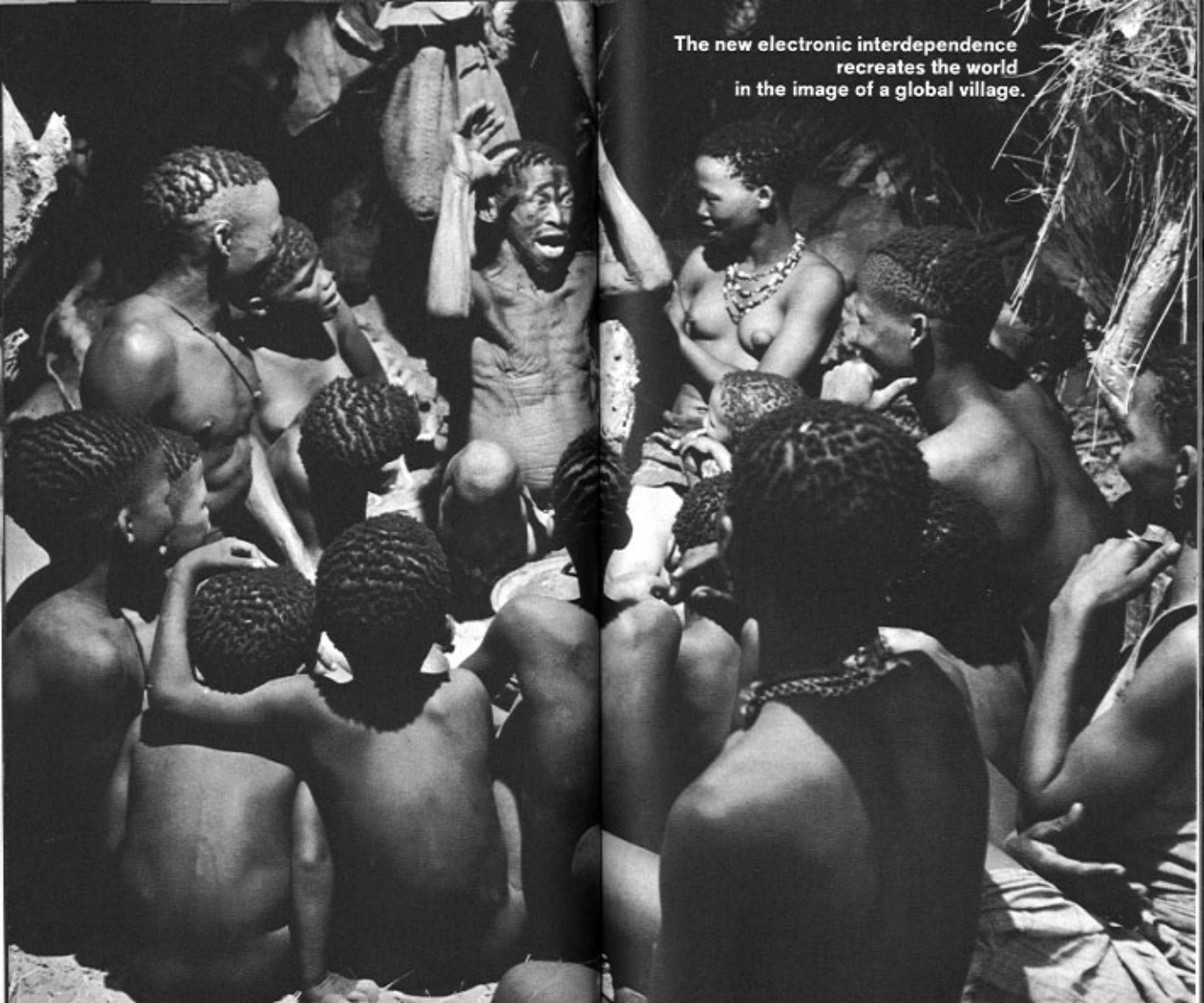
men change.

The Renaissance Legacy.

The Vanishing Point = Self-Effacement,
The Detached Observer.
No Involvement!

The viewer of Renaissance art is systematically placed outside the frame of experience. A piazza for everything and everything in its piazza.

The instantaneous world of electric informational media involves all of us, all at once. No detachment or frame is possible.



The new electronic interdependence
recreates the world
in the image of a global village.

The WELL was launched in 1984, in full consciousness of the Orwellian, totalitarian implications of that date. But the WELL's server was located on a houseboat in Sausalito, and was presided over by as authentic a collection of blue-chip counter-cultural personalities as one could wish to find, including John Perry Barlow, one of the lyricists for the Grateful Dead. Stewart Brand claims that he created the *Whole Earth Catalog* as a sourcebook for the hippie commune life so that he could avoid actually living on one. The WELL was a natural successor to the trend: "I sense communities worked on places like the WELL because you would have some of that fellow feeling that you might have in a commune, or an 'intentional community' as it was called at the time, or the idealized village that people imagined would be nice to have."

The WELL was started by Stewart Brand and Larry Brilliant in 1985, and the name is partially a reference to some of Brand's earlier projects, including the Whole Earth Catalog. The WELL began as a dial-up bulletin board system (BBS), became one of the original dial-up ISPs in the early 1990s when commercial traffic was first allowed, and changed into its current form as the Internet and web technology evolved. Its original management team—Matthew McClure, soon joined by Cliff Figallo and John Coate—collaborated with its early users to foster a sense of virtual community. From 1994 to 1999 the WELL was owned by Bruce Katz, founder of Rockport, a manufacturer of walking shoes. Since April 1999 it has been owned by Salon.com, several of whose founders such as Scott Rosenberg had previously been regular participants there. Gail Ann Williams was hired by Figallo in 1991, and has continued in management roles into the current era.

Technê-Zen and the Counterculture

In a summary of the sixties published at the height of American anxieties about Vietnam and the military-industrial-university complex, Theodore Roszak argued that the "paramount struggle of our day" was against something he called the "technocracy."[8] Echoing Jacques Ellul's notion of an all-encompassing "technique"[9] (as well as Herbert Marcuse's notion of "technological rationality"),[10] Roszak argued that the technocracy was not simply the introduction of technology into society but a much more comprehensive regime of hyperrationality and organizational integration: "By the technocracy, I mean that social form in which an industrial society reaches the peak of its organizational integration. It is the ideal men usually have in mind when they speak of modernizing, up-dating, rationalizing, planning" (*MCC*, p. 5). The real enemy, then, was not so much a specific political or economic structure (not, that is, something like capitalism or communism) but the entire "mad rationality" (*MCC*, p. 78) of what Lewis Mumford had called the "Mega-Machine," a systematic tyranny of rationalism, gridlike regimentation, and ecocidal industrialism.

Consider, for example, the most famous passage in *Zen and the Art of Motorcycle Maintenance*, which offers *technê*-zen as an organic and deeply natural way of living *with* technology rather than fighting against it:

> Their flight from and hatred of technology is self-defeating. The Buddha, the Godhead, resides quite as comfortably in the circuits of a digital computer or the gears of a cycle transmission as he does at the top of a mountain or in the petals of a flower. To think otherwise is to demean the Buddha—which is to demean oneself. [*ZMM*, p. 26]

The way to solve the conflict between human values and technological needs is not to run away from technology. That's impossible. The way to resolve the conflict is to break down the barriers of dualistic thought that prevent a real understanding of what technology is—not an exploitation of nature, but a fusion of nature and the human spirit into a new kind of creation that transcends both. [*ZMM*, p. 298]

Zen devotee Richard Brautigan's famous 1967 poem, "All Watched over by Machines of Loving Grace," reprinted in several issues of Stewart Brand's countercultural *Whole Earth Catalog:*

I like to think (and the sooner the better!)

of a cybernetic meadow
where mammals and computers
live together in mutually
programming harmony
like pure water
touching clear sky.

I like to think
(right now, please!)
of a cybernetic forest
filled with pines and electronics
where deer stroll peacefully
past computers
as if they were flowers
with spinning blossoms.

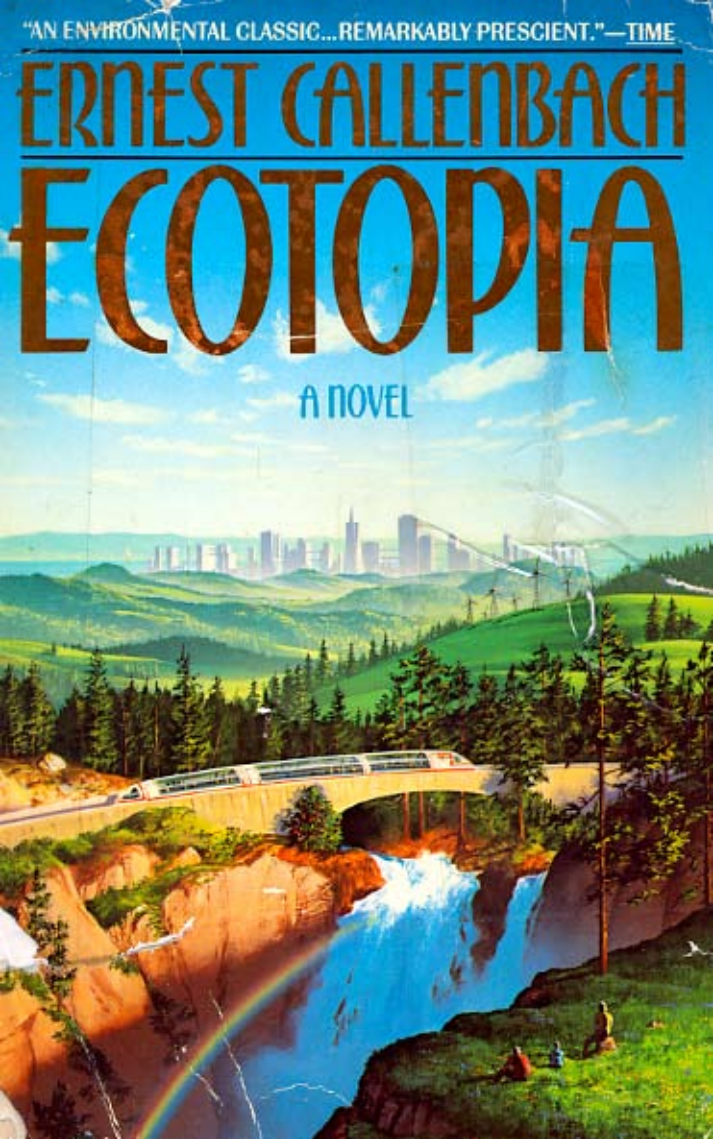
I like to think
(it has to be!)
of a cybernetic ecology
where we are free of our labors
and joined back to nature,
returned to our mammal
brothers and sisters,
and all watched over
by machines of loving grace.

"AN ENVIRONMENTAL CLASSIC...REMARKABLY PRESCIENT."—TIME

ERNEST CALLENBACH

ECOTOPIA

A NOVEL



The Fairmount Water Works in Philadelphia, Penna. We impose the form of the old on the content of the new. The malady lingers on.

ment

The poet, the artist, the sleuth—whoever sharpens our perception tends to be antisocial; rarely "well-adjusted," he cannot go along with currents and trends. A strange bond often exists among antisocial types in their power to see environments as they really are. This need to interface, to confront environments with a certain antisocial power, is manifest in the famous story, "The Emperor's New Clothes." "Well-adjusted" courtiers, having vested interests, saw the Emperor as beautifully appointed. The "antisocial" brat, unaccustomed to the old environment, clearly saw that the Emperor "ain't got nothin' on." The new environment was clearly visible to him.

Many of our institutions suppress all the natural direct experience of youth, who respond with untaught delight to the poetry and the beauty of the new technological environment, the environment of popular culture. It could be their door to all past achievement if studied as an active (and not necessarily benign) force.

Technological art takes the whole earth and its population as its material, not as its form.

It is too late to be frightened or disgusted, to greet the unseen with a sneer. Ordinary life-work demands that we harness and subordinate the media to human ends.

The media are not toys; they should not be in the hands of Mother Goose and Peter Pan executives. They can be entrusted only to new artists, because they are art forms.

Harnessing the Tennessee, Missouri, or Mississippi is kid stuff compared with curbing the movie, press, or television to human ends. The wild broncos of technological culture have yet to find their busters or masters. They have found only their P. T. Barnums.

Marshall McLuhan's Effects of Media

Extension/Enhancement: Every technology extends or amplifies some organ or faculty of the user. What does the medium enhance or intensify?

Closure/Obsolescence: Because there is equilibrium in sensibility, when one area of experience is heightened or intensified, another is diminished or numbed. What is pushed aside or obsolesced by the new medium?

Reversal: Every form, pushed to the limit of its potential, reverses its characteristics.

Retrieval: The content of any medium is an older medium.

Jean Baudrillard
(b. 1929)
Attacks
Hans Magnus Enzensberger
(b. 1929)
and all usual theories of
communication

Traditional Marxist Theory of Media

Culture Industry (a superstructural epiphenomenon) is analyzed in a way analogous to its analysis on the material mode of production:

It is in need of being liberated from the dominant classes and needs to become the vehicle for revolutionary ideas/programming.

The point I wish to make here is obvious yet vital to an understanding of the function of art in the environment, even though it is consistently ignored by the majority of film critics. It's the idea that man is conditioned by his environment and that "environment" for contemporary man is the intermedia network. We are conditioned more by cinema and television than by nature. Once we've agreed upon this, it becomes immediately obvious that the structure and content of popular cinema is a matter of cardinal importance, at least as serious as most political issues, and thus calls for comment not from journalists but from those who work at the matter, artists themselves.

To be free of the toil of old relationships we must first be free of the conditioning that instills it within us. As radical evolution gains momentum the need to unlearn our past becomes increasingly clear: contemporary life is a process of miseducation/uneducation/reeducation, at a cost of much precious time. McLuhan has noted that the true significance of Pavlov's experiments was that any controlled man-made environment is a conditioner that creates "non-perceptive somnambulists." Since then science has discovered that "molecular memory" is operative in single-celled and some multi-celled organisms, and there's evidence that memory-in-the-flesh exists in humans as well. Biochemists have proven that learned responses to environmental stimuli are passed on phylogenetically from generation to generation, encoded in the RNA of the organism's physical molecular structure.[17] And what could be a more powerful conditioning force than the intermedia network, which functions to establish meaning in life?

Gene Youngblood would agree on this too: According to Kellner, "the alternatives to commercial broadcasting are: (1) an enlarged, strengthened, and revitalized system of public access television and radio; (2) an expanded system of public access television; and (3) development of a people's satellite network, complemented by people's communication centers and a people's information network that would use new technologies to broaden and diversify information sources and services."

Extending Marxist Analysis on the Mode of Production to the Media (What Baudrillard Attacks)

dominant class / dominanted class

producer-entrepreneur / consumer

transmitter-broadcaster / receiver

Traditional Model of Communication

Transmitter (encoder)	Message (medium/code)	Receiver (decoder)

Dominant class desires one-way communication with little reversibility of receiver's feedback.

Marxist theories desire for more empowerment of the receiver to have feedback and become transmitters themselves. Media theorist, Gene Youngblood argues thus and desires Community Access Cable, freedom of the Internet, etc.

Jean Baudrillard's Theory of Media

Media is not dialectical (having a negative, dominated aspect that needs liberation) and positive aspect which can be liberated to educate the masses and liberate them akin to the way material modes of production were understood by Marx (i.e., machines are neutral entities, it is only who owns them and manipulates them that counts).

Baudrillard says the media produces *non-communi-cation,* THE CODE (the form) of media itself (akin to Marshall McLuhan here) is *intransitive,* meaning communication is only *simulated!*

True communication has to be more grass-roots: postering, street demonstrations, direct engagement.

Baudrillard con't

Mass media = abstract and general, produces simulated model of communication which excludes the particular, local reciprocity and antagonistic interlocutors and the ambivalence of their exchange; no simultaneous, mutual presence of the two terms. There is no code for ambivalence. These terms must respond to each other beyond The Code by local modes of interaction, not mass media.

Those who aim only to alter the content of the media programming only reinforce the autonomy of the message as a separated notion, and thus the abstract biopolarity of the terminals of communication (send vs. receiver).

In Baudrillard, the order of simulation is the sign of the end of the media in general (he presides over its final rites in his article "Requiem for the Media"). The mass media are not mediatory but actually anti-mediatory, in that they do not allow response, that is, the reciprocity of symbolic communication or exchange. Today we live in the ecstasy of communication precisely because communication is lost in the implosion of the media in the masses (and vice versa). That is, we transfer our disappearing capacity for understanding and sociality, for communication, to the abstraction of an operation, to the precession of codes, polls, indices, profiles which retain no distance from their instantiation and dispersion in social relations and objects.

humans and the media is reversing; the media are no longer an extension of man, à la McLuhan; the media now extends into the social, into the domain of the human,[45] in the dramatic reversal caused by speed. It is at this point of reversal that Baudrillard would like to focus his analysis because it is at this precise point that form exists as pure form, or, as Baudrillard would have it, as pure object without referent. It is at this point that the form exists as pure object, in its pure state, and does not refer back to any other form other than itself. It becomes form without content, a fatal form, which, according to the logic of formal sociology, can have no opposing form. They become fatal forms precisely because there is no opposing form. This fatality of form is the stuff of Baudrillard's "postmodern shift."

Baudrillard's prognosis for the state of the social, for the reasons stated above, is grim. The global village, which Baudrillard refers to as "the mass" exists, sociologically speaking, only in the public opinion polls and statistics that flash by each day on the evening news. The masses have become the content of the media technology form. As Baudrillard would have it, individuals watch the news in order to discover their opinion, to find the causes to "believe" in, and, most importantly, to uncover an identity. Of course, within his logic, all of this is quite beside the point since all the mass can ultimately do is absorb information in silence.

After three thousand years of explosion, by means of fragmentary and mechanical technologies, the western world is imploding. During the mechanical ages we had extended our bodies in space. Today, after more than a century of electric technology, we extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned. Rapidly, we approach the final phase of the extensions of man – the technological simulation of consciousness, when the creative process of knowing will be collectively and corporately extended to the whole of human society, much as we have already extended our senses and our nerves by the various media.

The danger in Baudrillard's notion of the code is that it accepts too easily the omnipotence of the semiological structure; it totalizes too quickly the pattern of communication that it reveals. As opposed to Habermas's subjectivism, Baudrillard's analysis errs in the direction of objectivism. In his view, floating signifiers pervade the social space without adequate recognition or theoretical account of the continuous disruptions of it by subjects. Baudrillard convincingly theorizes one side of the question – the emission of the signals – but the reception of the signals remains beyond the ken of his semiology.

Contra Web 2.0: Pleasure in mediation may have grown out of the need to relieve the anxiety attached to the dispersion of persons in social space, but this pleasure now spurs the creation of new media where there is no compelling social necessity for their existence.

To be in the photographic universe means to experience, to know and to evaluate the world as a function of photographs. Every single experience, every single bit of knowledge, every single value can be reduced to individually known and evaluated photographs. And every single action can be analyzed through the individual photos taken as models. This type of existence, then, in which everything experienced, known and evaluated can be reduced to punctuated elements (into 'bits'), is already familiar: It is the world of robots. The photographic universe and all apparatus-based universes robotize the human being and society.

Baudrillard con't

Graffit smashes The Code, it breaches the role of non-response of the dominant media. Unlike subversive decodings or recodings of mass media (as suggested by Umberto Eco and Neo-Gramscian theorists), it does not oppose one code to another; it doesn't lend itself to deciphering as a text rivaling commercial discourse; its presents itself as a transgression.

Julian Stallybrass in *Gargantua: Manufactured Mass Culture* (1996) argues against this position.


L'ART
AU SERVICE
DU PEUPLE


unité
ouvriers
paysans


CONTRE les BRISEURS DE GREVE

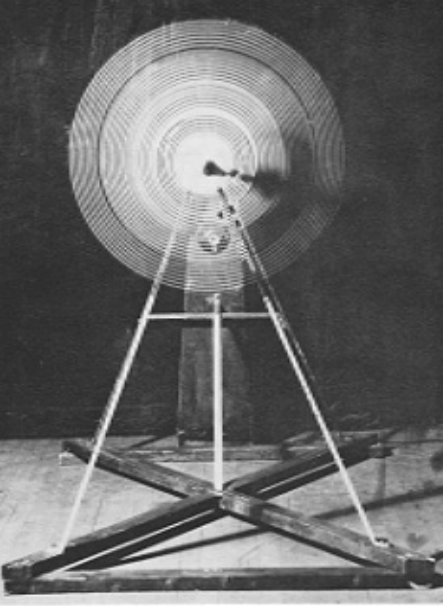

Manuela
+
Andre big Love!!
17.5.10
WRIGL
SPEAR
NT
CHEW
GUM

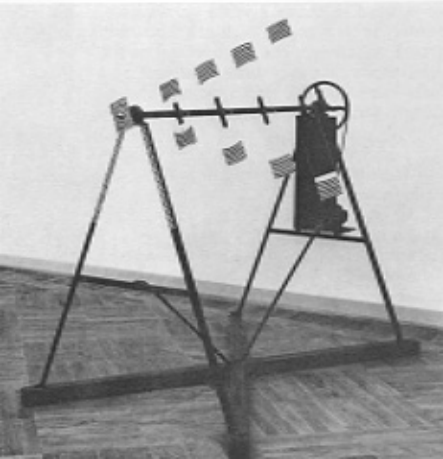
There are certain similarities between the fine artist and the graffiti writer, both looking for a distinctive and original style, which will achieve recognition by supposedly expressing their identity. The appropriation of graffiti writers was confined naturally to those who had made a reputation doing major pieces; relatively common in the eighties, particularly in Holland, it was dropped as the fashion changed and recession bit. More assimilation might have taken place, but for the fact that the worlds of graffiti and high art do not mix well, particularly because writers often explicitly reject the commercial values of the art market.[16]

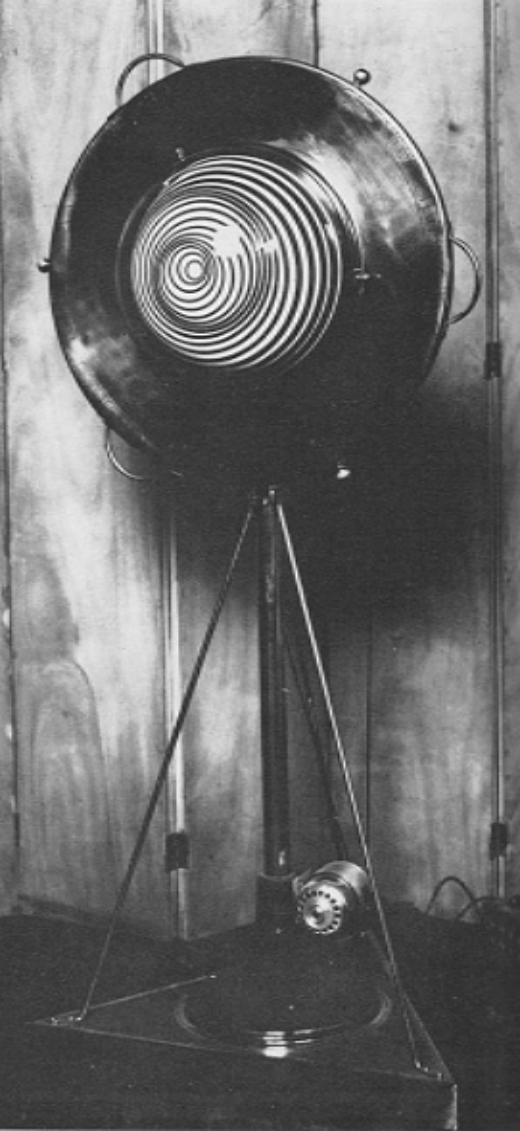
Nevertheless, it is apparently paradoxical that the content, as opposed to the practice, of graffiti art is better understood as part of a mass-produced culture than in opposition to it. Although the economy of graffiti is about cost (of time and materials at least) and hardly ever about price, it does not escape a close relation to the commodity.

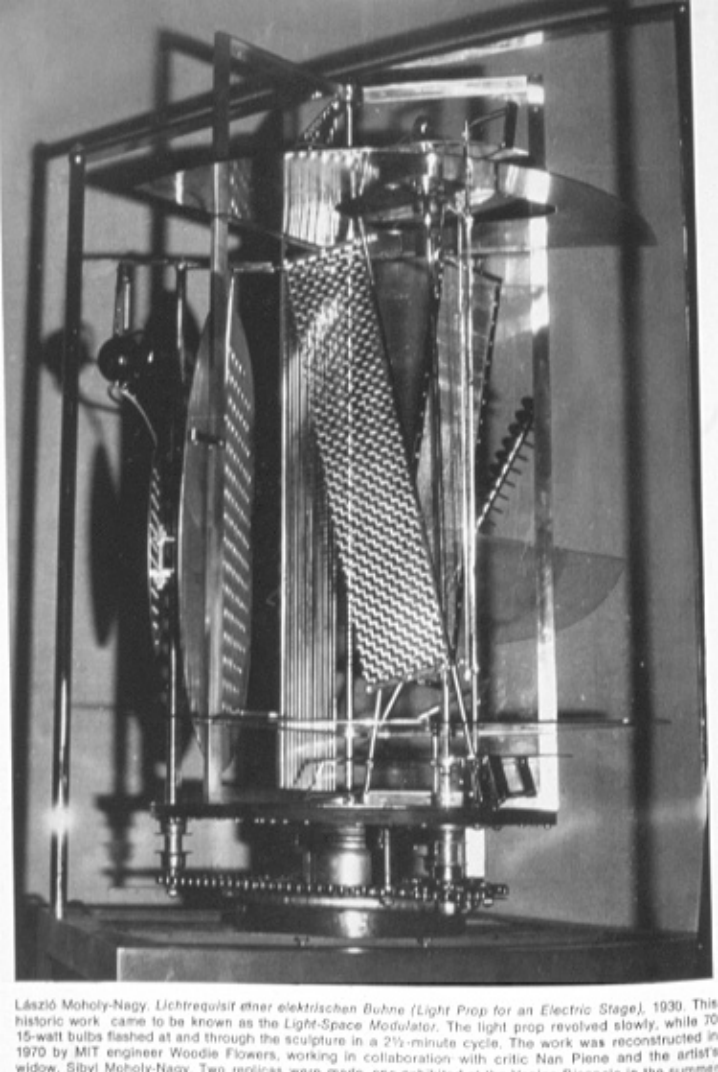
Graffiti thus becomes an allegory for many contemporary problems. For conservatives, its scrawlings are emblematic of urban and moral decay; for radicals, of protest. We may, rather, take the message from overwriting, which is very often a deliberate act of rivalry, challenging the claim to fame left by another writer. In the subsequent combat of lines and forms, the competition is so intense that each individual name is sunk in a tangle of signatures. Graffiti may then be seen as an expression and a critical comment on fragmentation, the loss of meaning and the decline of writing under commercial culture. As Stewart has argued, 'It is precisely graffiti's mere surface, repetition, lack of use, meaninglessness, and negativity that give us the paradox of insight with regard to the billboard of commodity culture. And this is exactly the point: that graffiti has no lasting value, no transcendent significance."[9]

CHRISTIAN SCHAD

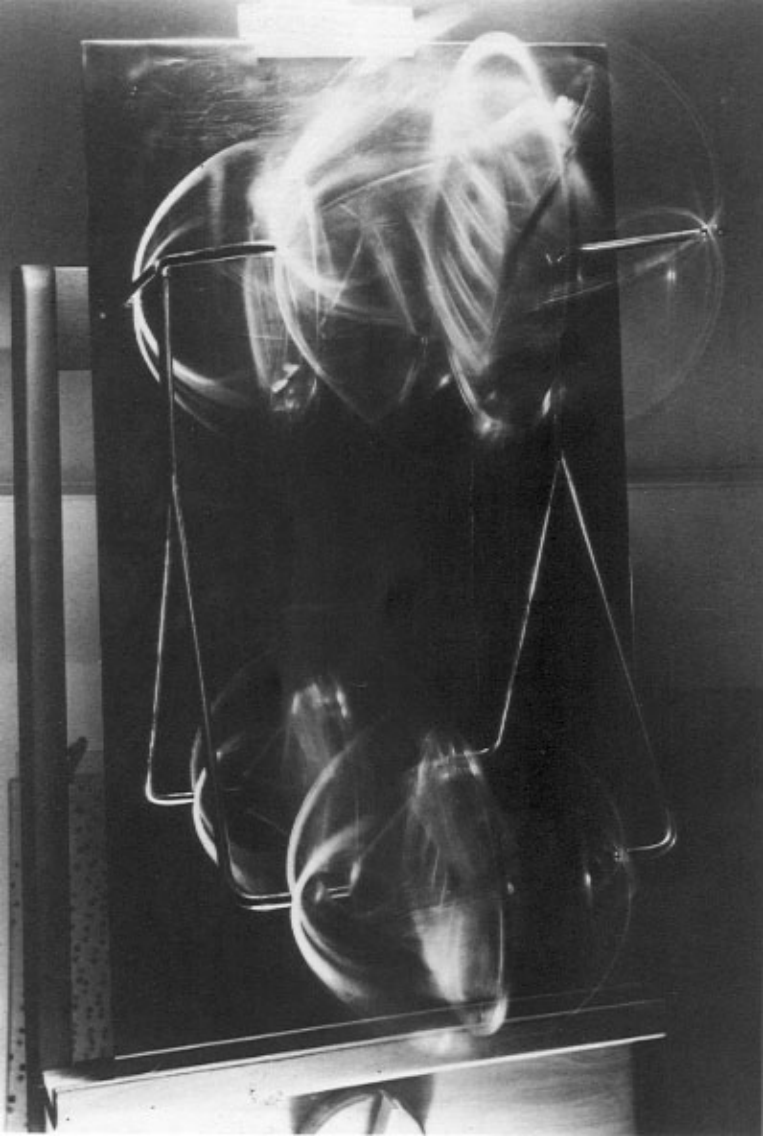


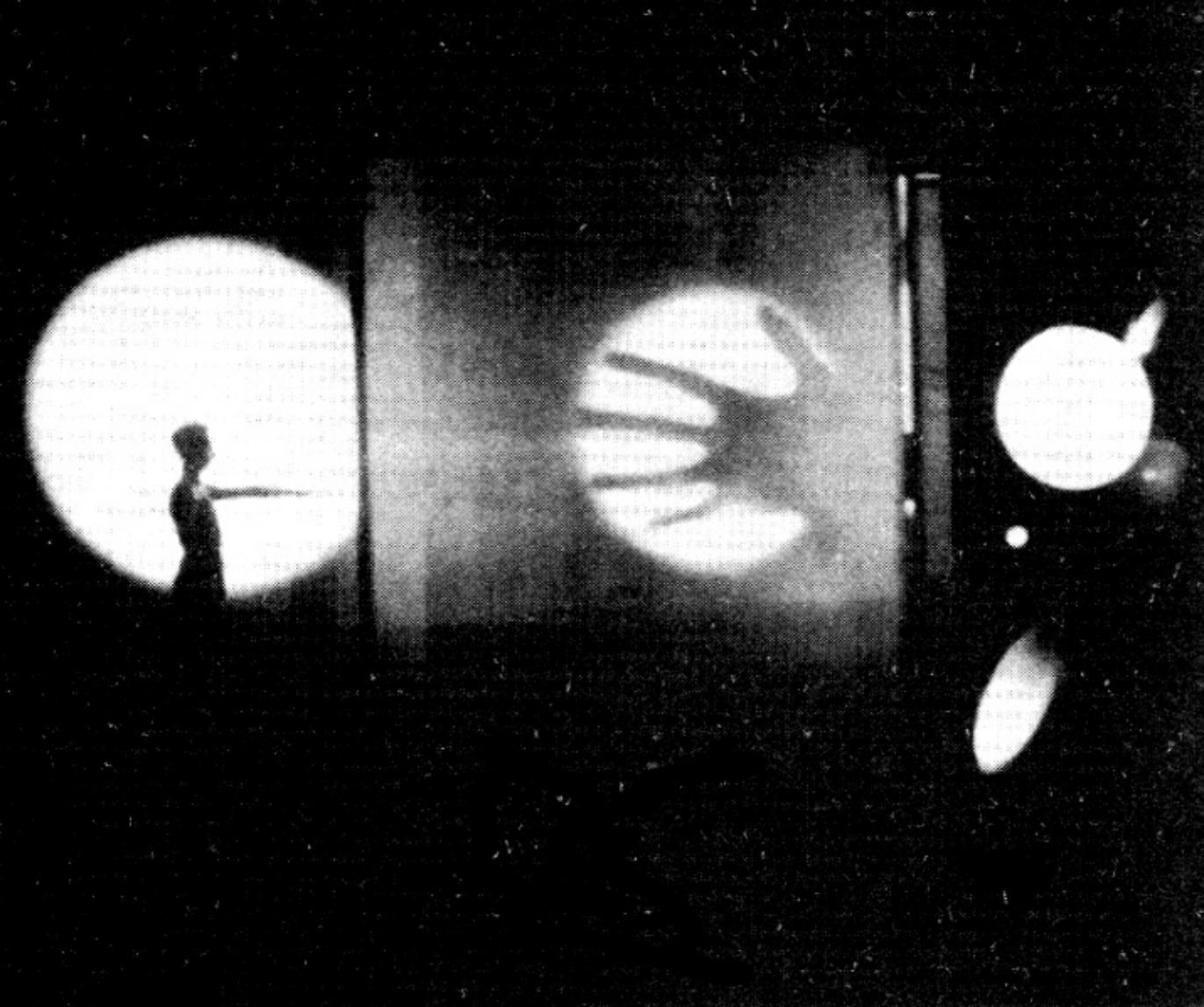


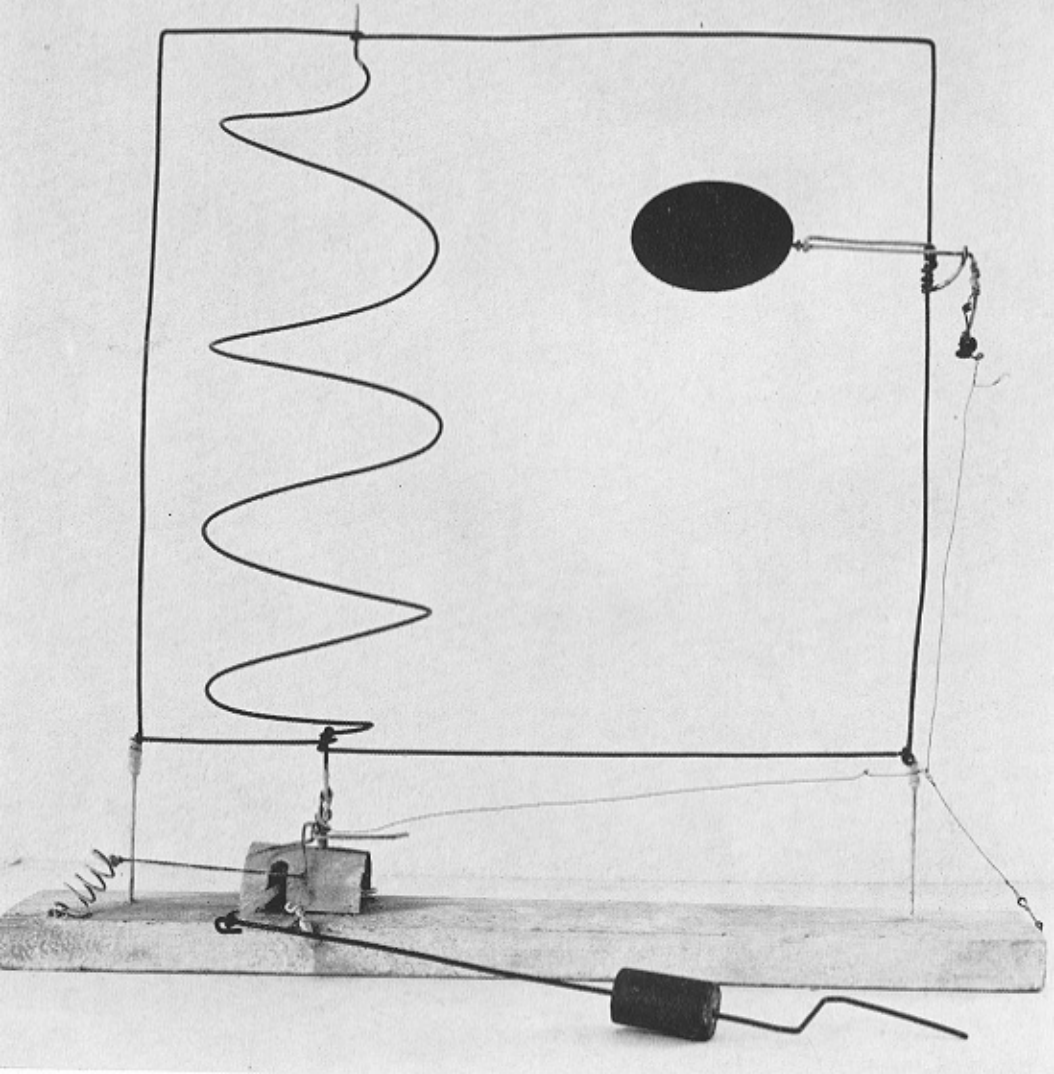


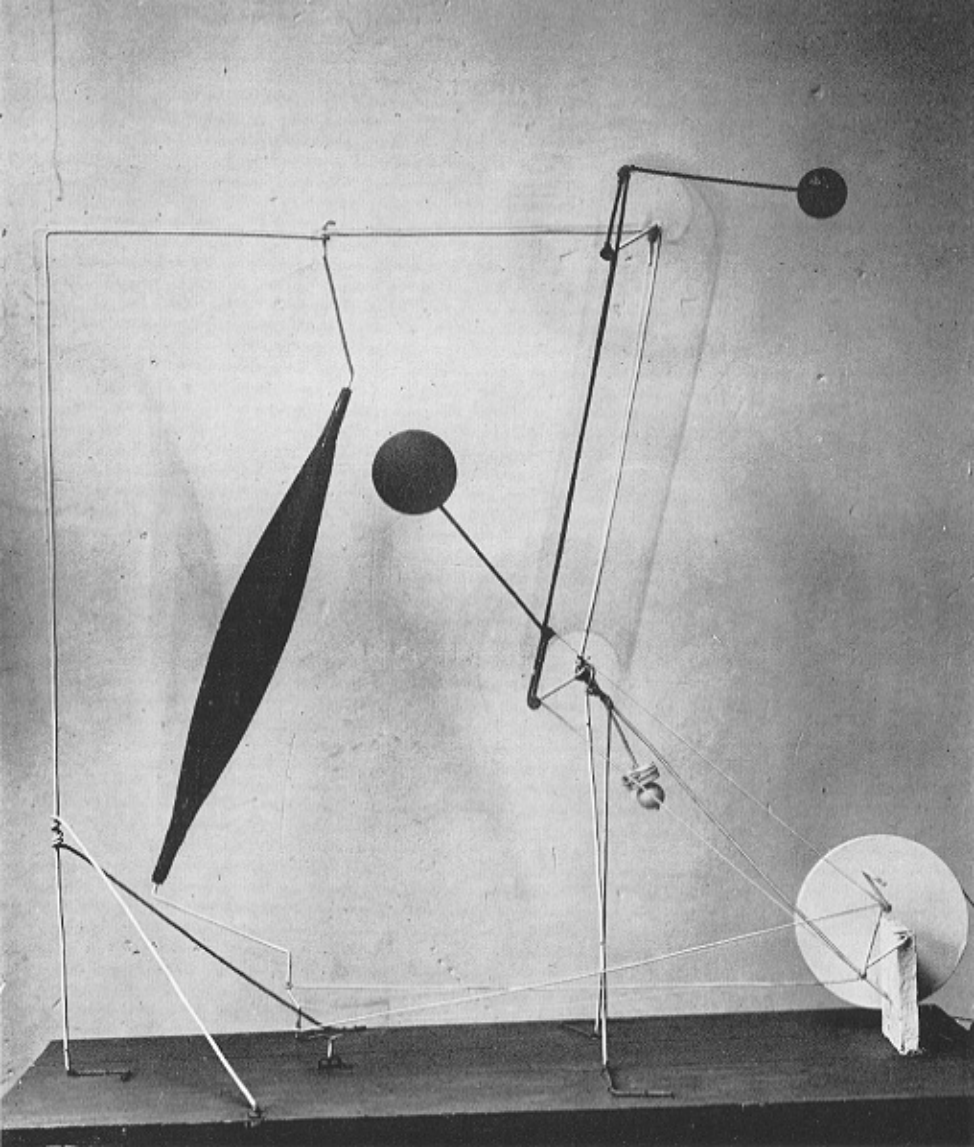


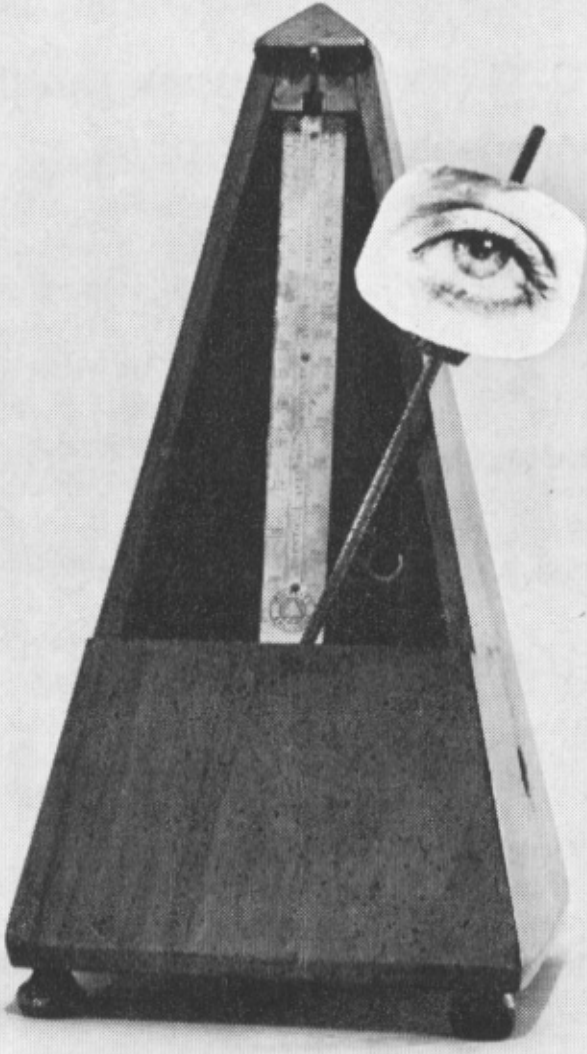
László Moholy-Nagy. *Lichtrequisit einer elektrischen Bühne (Light Prop for an Electric Stage)*, 1930. This historic work came to be known as the *Light-Space Modulator*. The light prop revolved slowly, while 70 15-watt bulbs flashed at and through the sculpture in a 2½-minute cycle. The work was reconstructed in 1970 by MIT engineer Woodie Flowers, working in collaboration with critic Nan Piene and the artist's widow, Sibyl Moholy-Nagy. Two replicas were made, one exhibited at the Venice Biennale in the summer of 1970, the other at the Howard Wise Gallery in New York in the fall. The original, shown here, is in the collection of the Busch-Reisinger Museum, Harvard University, Cambridge, Mass. Courtesy Sibyl Moholy-Nagy. Photo by Galerie Klihm, Munich.











AUTO-DESTRUCTIVE ART

Demonstration by G. Metzger

SOUTH BANK LONDON 3 JULY 1961 11.45 a.m.—12.15 p.m.

Acid action painting. Height 7 ft. Length 12½ ft. Depth 6 ft. Materials: nylon, hydrochloric acid, metal. Technique. 3 nylon canvases coloured white black red are arranged behind each other, in this order. Acid is painted, flung and sprayed on to the nylon which corrodes at point of contact within 15 seconds.

Construction with glass. Height 13 ft. Width 9½ ft. Materials. Glass, metal, adhesive tape. Technique. The glass sheets suspended by adhesive tape fall on to the concrete ground in a pre-arranged sequence.

AUTO-DESTRUCTIVE ART

Auto-destructive art is primarily a form of public art for industrial societies.

Self-destructive painting, sculpture and construction is a total unity of idea, site, form, colour, method and timing of the disintegrative process.

Auto-destructive art can be created with natural forces, traditional art techniques and technological techniques.

The amplified sound of the auto-destructive process can be an element of the total conception.

The artist may collaborate with scientists, engineers.

Self-destructive art can be machine produced and factory assembled.

Auto-destructive paintings, sculptures and constructions have a life time varying from a few moments to twenty years. When the disintegrative process is complete the work is to be removed from the site and scrapped.

London, 4th November, 1959 *G. METZGER*

MANIFESTO AUTO-DESTRUCTIVE ART

Man in Regent Street is auto-destructive.
Rockets, nuclear weapons, are auto-destructive.
Auto-destructive art.
The drop drop dropping of H|H bombs.
Not interested in ruins, (the picturesque)
Auto-destructive art re-enacts the obsession with destruction, the gunmetalling to which individuals and masses are subjected.
Auto-destructive art demonstrates man's power to accelerate disintegrative processes of nature and to order them.
Auto-destructive art mirrors the compulsive perfectionism of arms manufacture—polishing to destruction point.
Auto-destructive art is the transformation of technology into public art. The immense productive capacity, the chaos of capitalism and of Soviet communism, the co-existence of surplus and starvation; the increasing stock-piling of nuclear weapons—more than enough to destroy technological societies; the disintegrative effect of machinery and of life in vast built-up areas on the person,...

Auto-destructive art is art which contains within itself an agent which automatically leads to its destruction within a period of time not to exceed twenty years.
Other forms of auto-destructive art involve manual manipulation. There are forms of auto-destructive art where the artist has a tight control over the nature and timing of the disintegrative process, and there are other forms where the artist's control is slight.
Materials and techniques used in creating auto-destructive art include: Acid, Adhesives, Ballistics, Canvas, Clay, Combustion, Compression, Concrete, Corrosion, Cybernetics, Drugs, Elasticity, Electricity, Electrolysis, Electronics, Explosives, Feed-back, Glass, Heat, Human Energy, Ice, Jet, Light, Lead, Mass-production, Metal, Motion Picture, Natural Forces, Nuclear energy, Paint, Paper, Photography, Plaster, Plastics, Pressure, Radiation, Sand, Solar energy, Sound, Steam, Stress, Terra-cotta, Vibration, Water, Welding, Wire, Wood.

London, 10 March, 1960 *G. METZGER*

AUTO-DESTRUCTIVE ART MACHINE ART AUTO CREATIVE ART

Each visible fact absolutely expresses its reality.

Certain machine produced forms are the most perfect forms of our period.

In the evenings some of the finest works of art produced now are dumped on the streets of Soho.

Auto creative art is art of change, growth movement.

Auto-destructive art and auto creative art aim at the integration of art with the advances of science and technology. The immediate objective is the creation, with the aid of computers, of works of art whose movements are programmed and include "self-regulation". The spectator, by means of electronic devices can have a direct bearing on the action of these works.

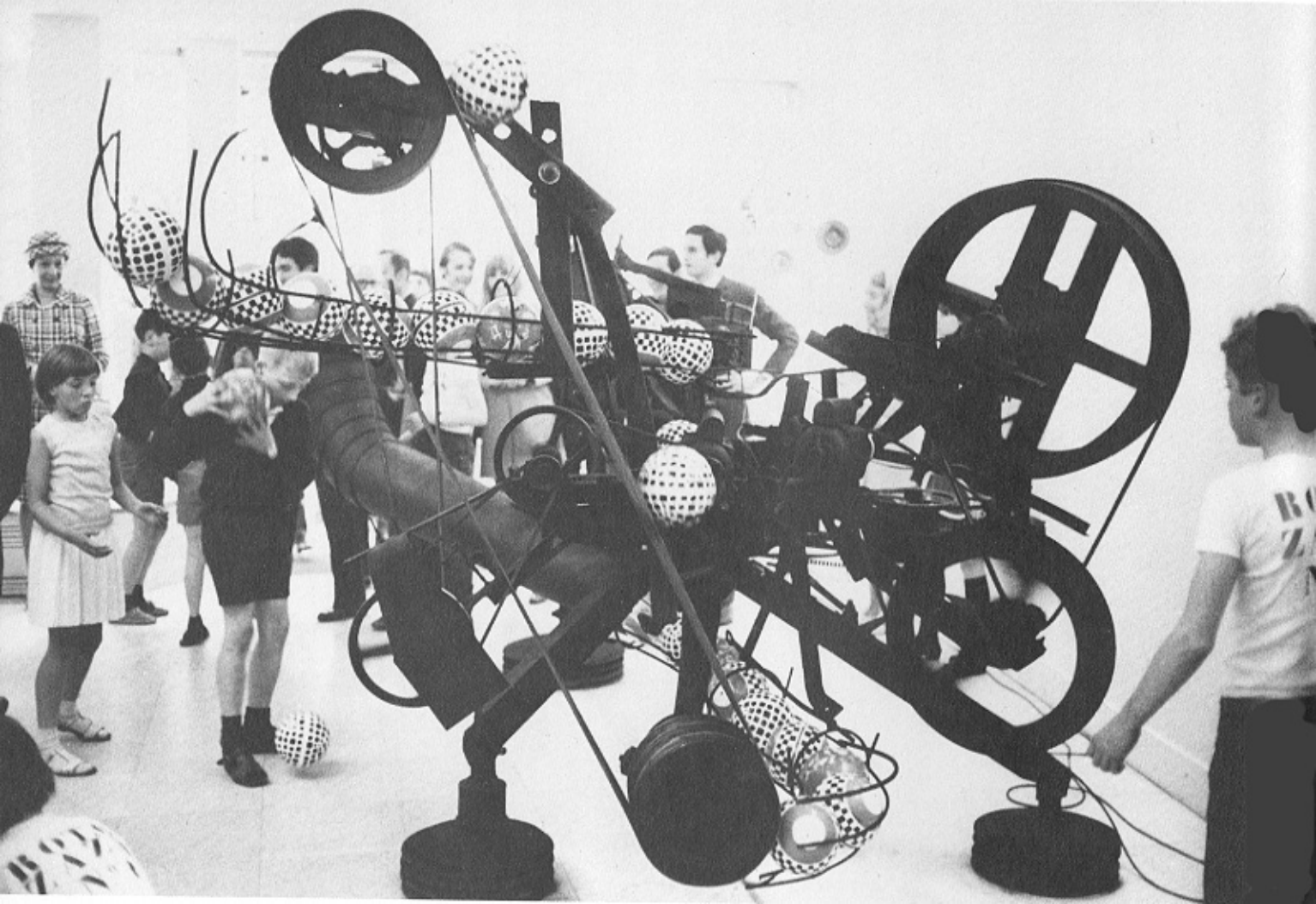
Auto-destructive art is an attack on capitalist values and the drive to nuclear annihilation.

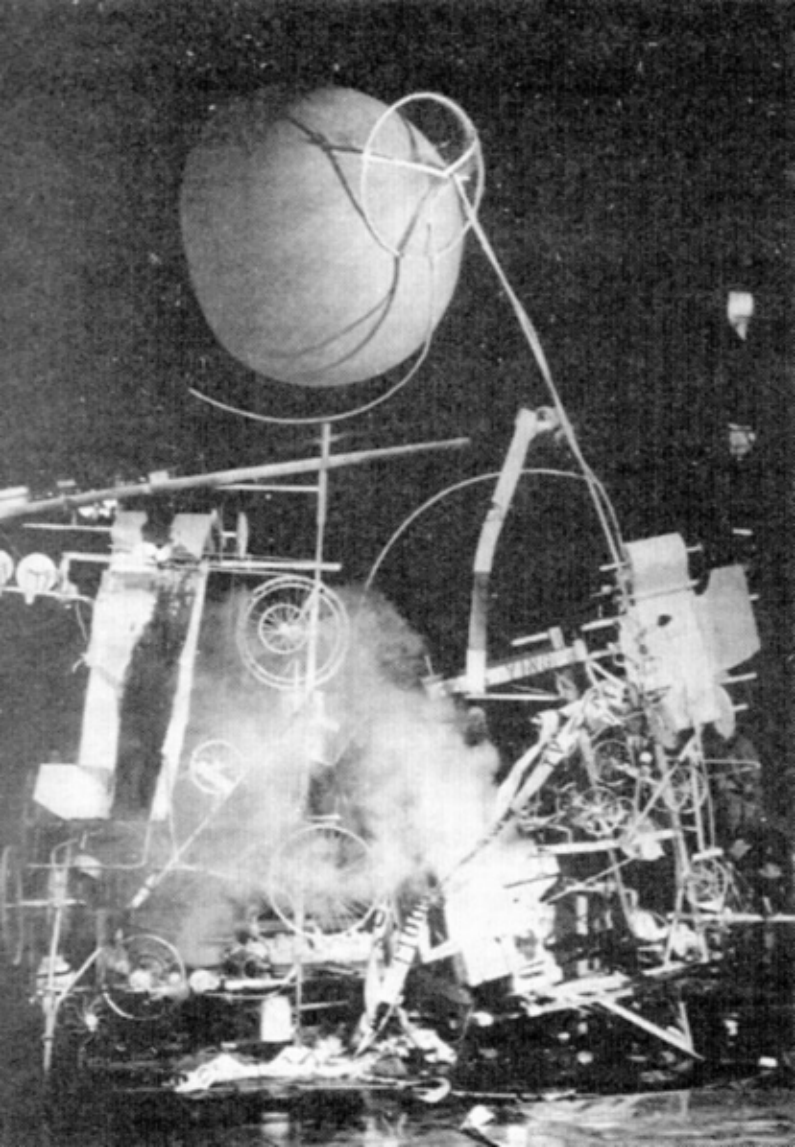
23 June 1961 *G. METZGER*

B.C.M. ZZZO London W.C.1.

Printed by St. Martins' Printers (TU) 166, Lillie Road, London, S.W.6.

Gustav Metzger, *The South Bank Demonstration*, London, 1961. The artist sprays hydrochloric acid o a 7′ x 12′ nylon canvas; corrosion begins immediately upon contact. Photo by Syndication Internationa London.





Dear Mister Davis:

I wanted to make Mouvement

1 XII 69

1. What led you to use motors and machines in your work? Another artist? Or was it something in the world around you, something beyond art?, whatever that is?

Alexander CALDER
Picabia - Duchamps

Yes: FUN & everything

Yes: our Civilisation

Meta

2. It is often said that you are anti-machine. Are you? If so, why? What's wrong with machines?

they are Crazy Not WRONG

3. Are you anti-computer? If so--again--why?

I am ANTI-NOTHING

4. You have been quoted to the effect that you use the machine because it permits you to make poetry. Why? What is poetry? : life

5. It looks to me as if your work is getting [redacted], more [redacted], in a [redacted] sense. Do you agree? why?

Wait I am only BeCINNiNG

6. Have you ever worked with an engineer or technical person? Did you like the results?

Yes

Yes everything Gets WRONG

7. Pontus Hulten believes that you are optimistic about man. Is he right?

Yes

SOON A SHIFT

8. People often say that your machines are unpredictable. But you've got to plan or program unpredictability. How do you insure the unpredictability of your works?

Meta MECHANIQUE

9. Which artists who work now with machines and technological methods do you most admire?

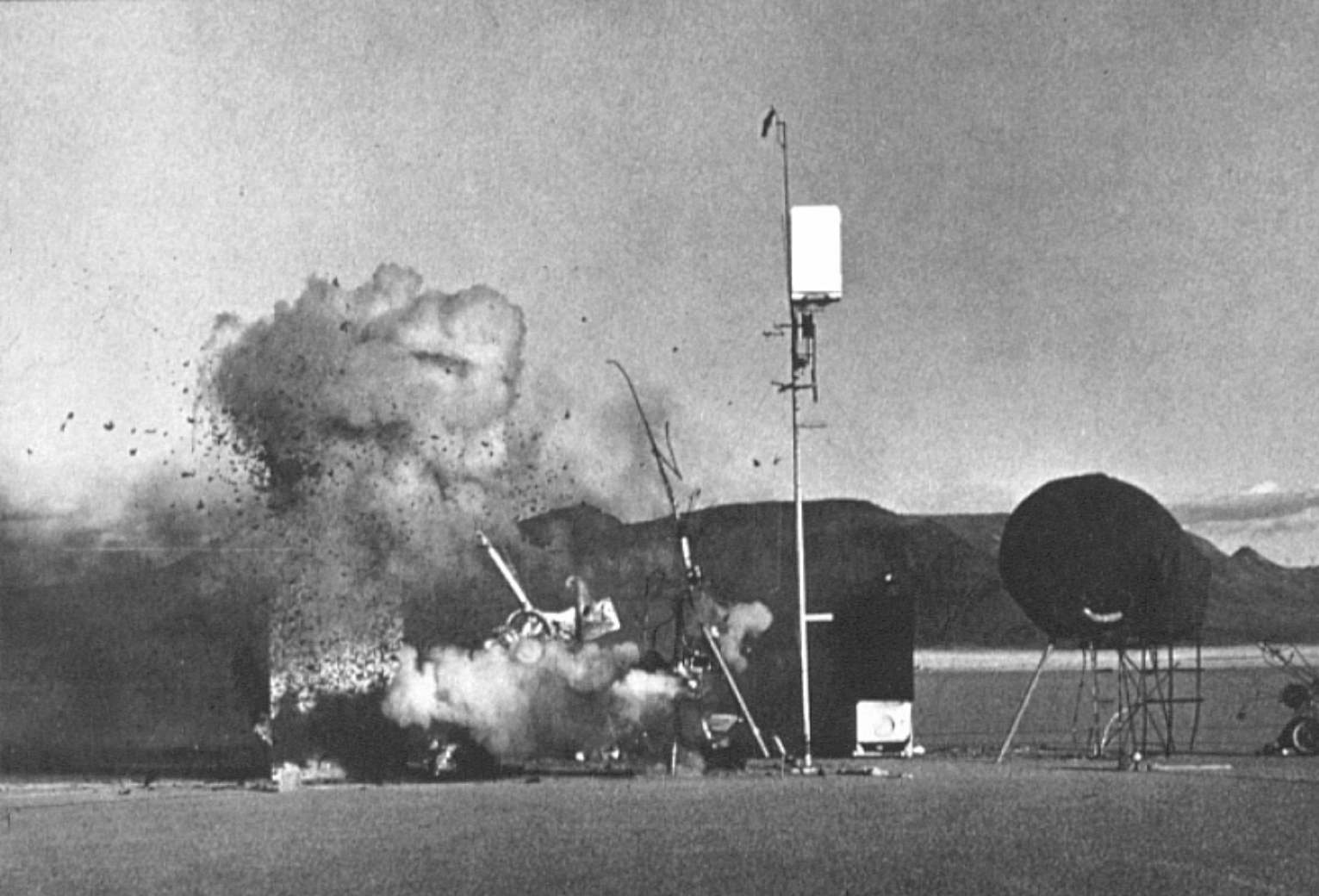
Colin CHAPMAN & ENZO FERRARI
WEHRNER VON BRAUN

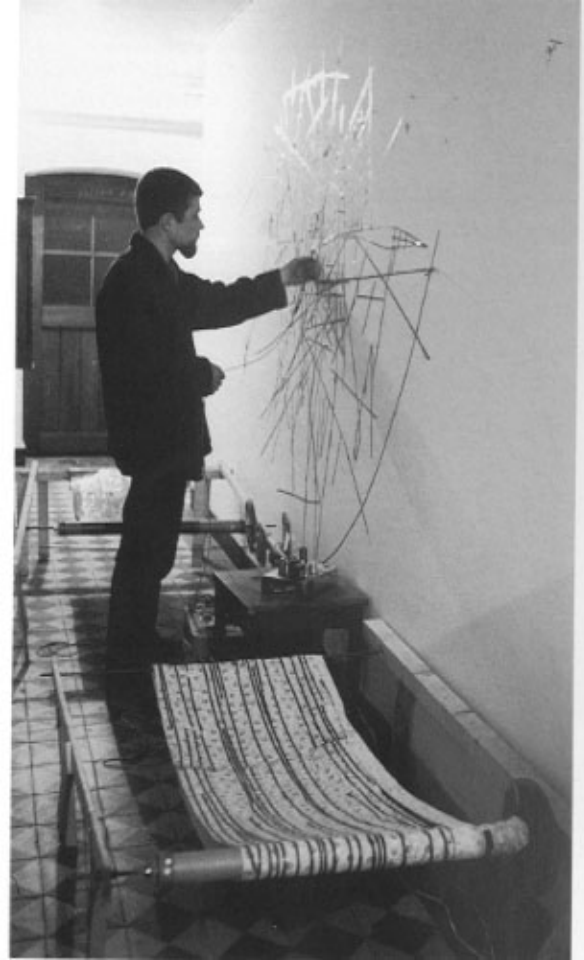
10. Is there any broad difference between American and European artists who work this way?

SURE
its not SURE there is ANY difference.

Jean Tinguely

A letter from Jean Tinguely, 1969.

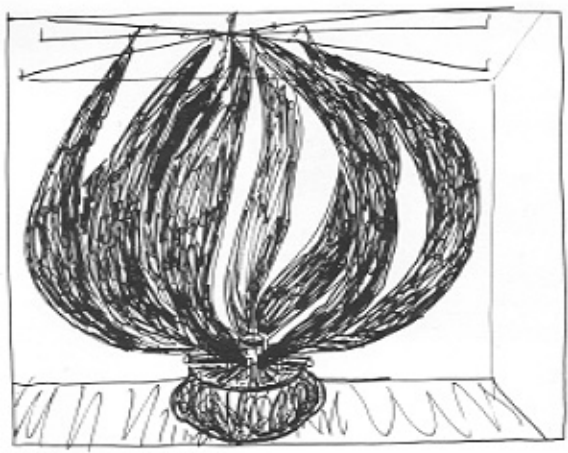




Two Groups: ZERO and GRAV

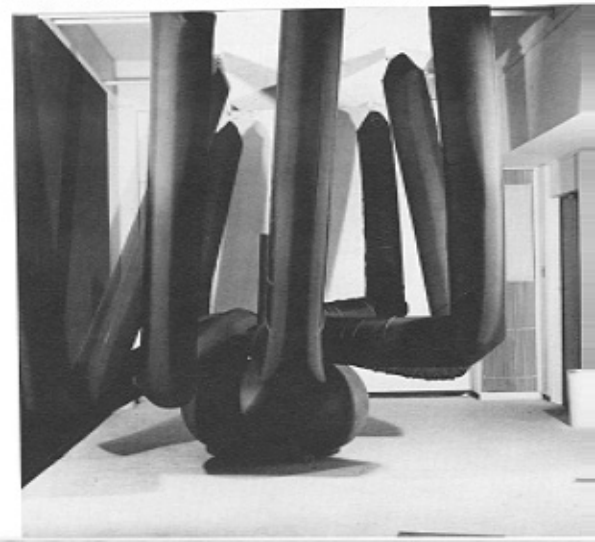
ZERO, founded in Düsseldorf, West Germany, in 1957, and GRAV (Groupe de Recherche d'Art Visuel), established in Paris in 1960, effectively span the philosophical and esthetic terrain occupied by the many European "groups" formed during the late 1950's and early 1960's. ZERO stood at the romantic extreme, emphasizing an intuitive and ambitious relationship with technology. GRAV, as the accompanying *Charter of Foundation* indicates, occupied the other flank, advocating a puristic and scientific approach to new materials. GRAV is, in fact, the clearest exponent of the artistic goals normally associated with the movement known as the New Tendency (*Nouvelle Tendence*), which influenced many sectors of European art at this time.

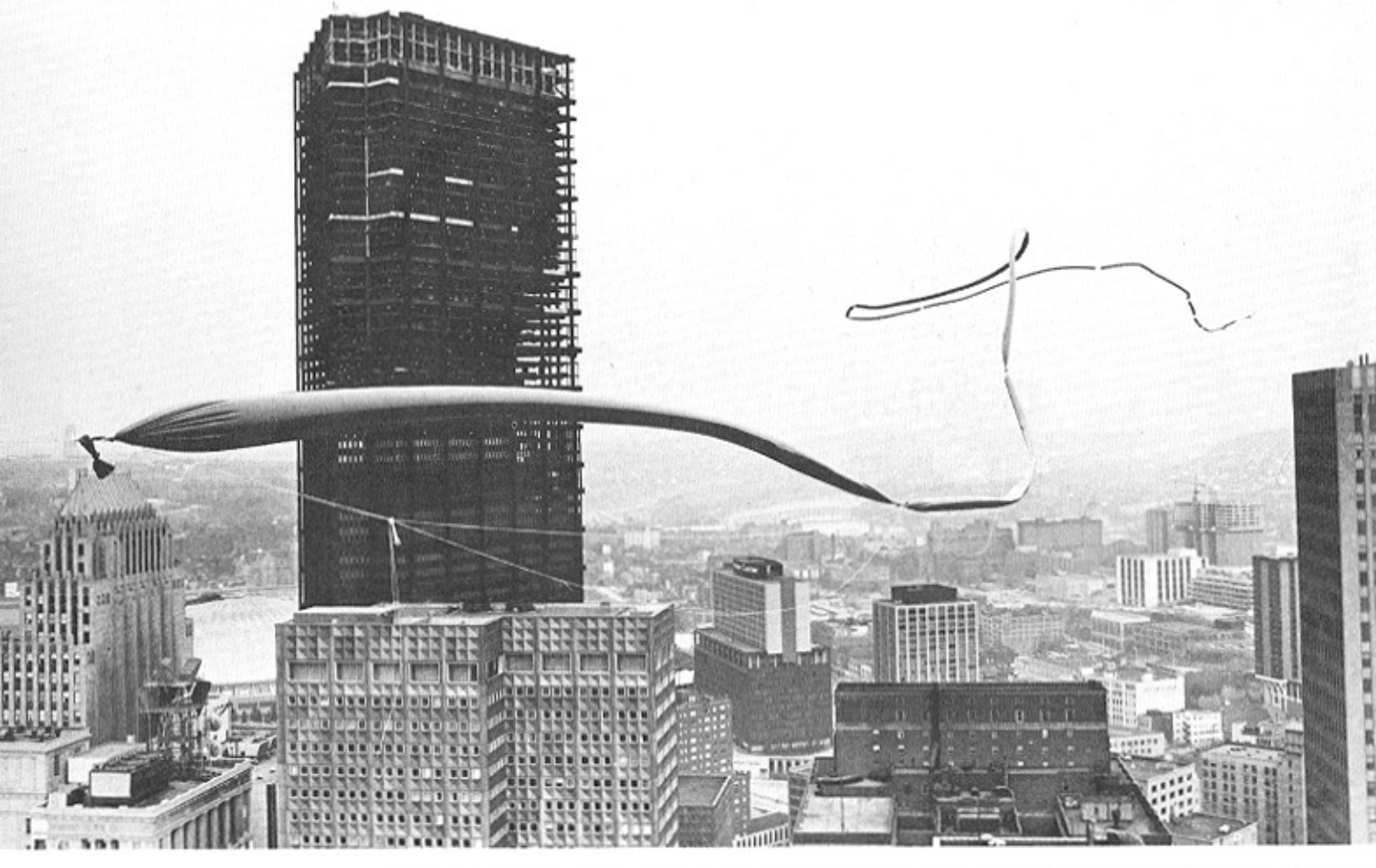
Groupe de Recherche d'Art Visuel (GRAV), Paris. From left to right: Guy Sobrino, Jean-Pierre Yvaral, Julio Le Parc (standing), Francois Morellet, Horacio Garcia-Rossi, and Joel Stein. Courtesy Denise René Gallery, New York and Paris.



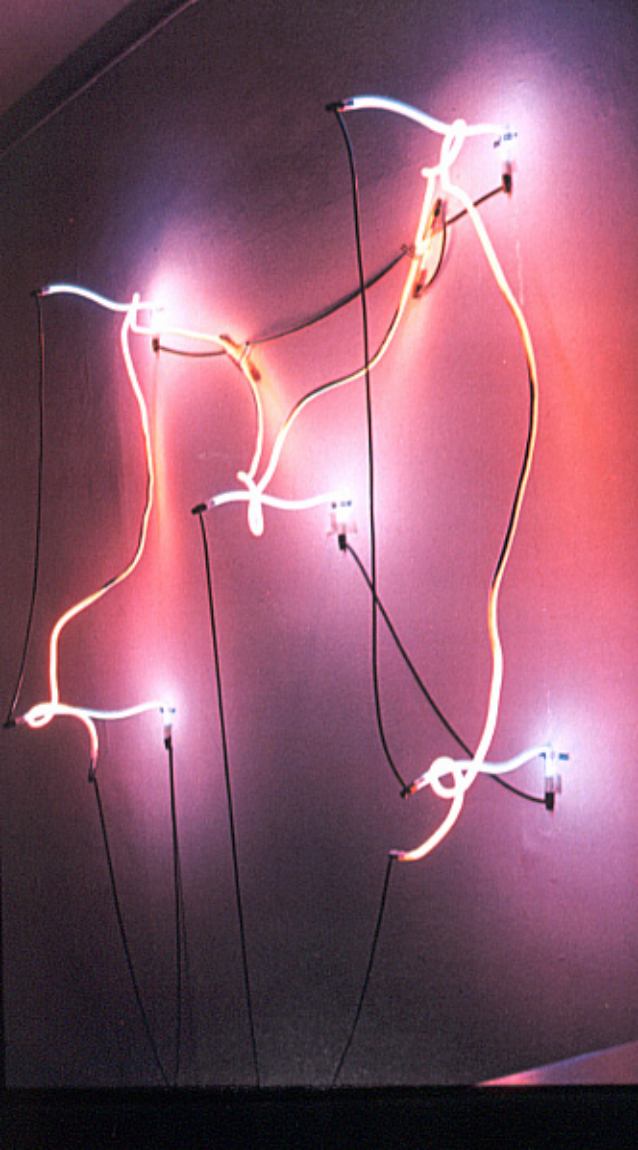
Otto Piene. Drawing for Octopus, 1964.

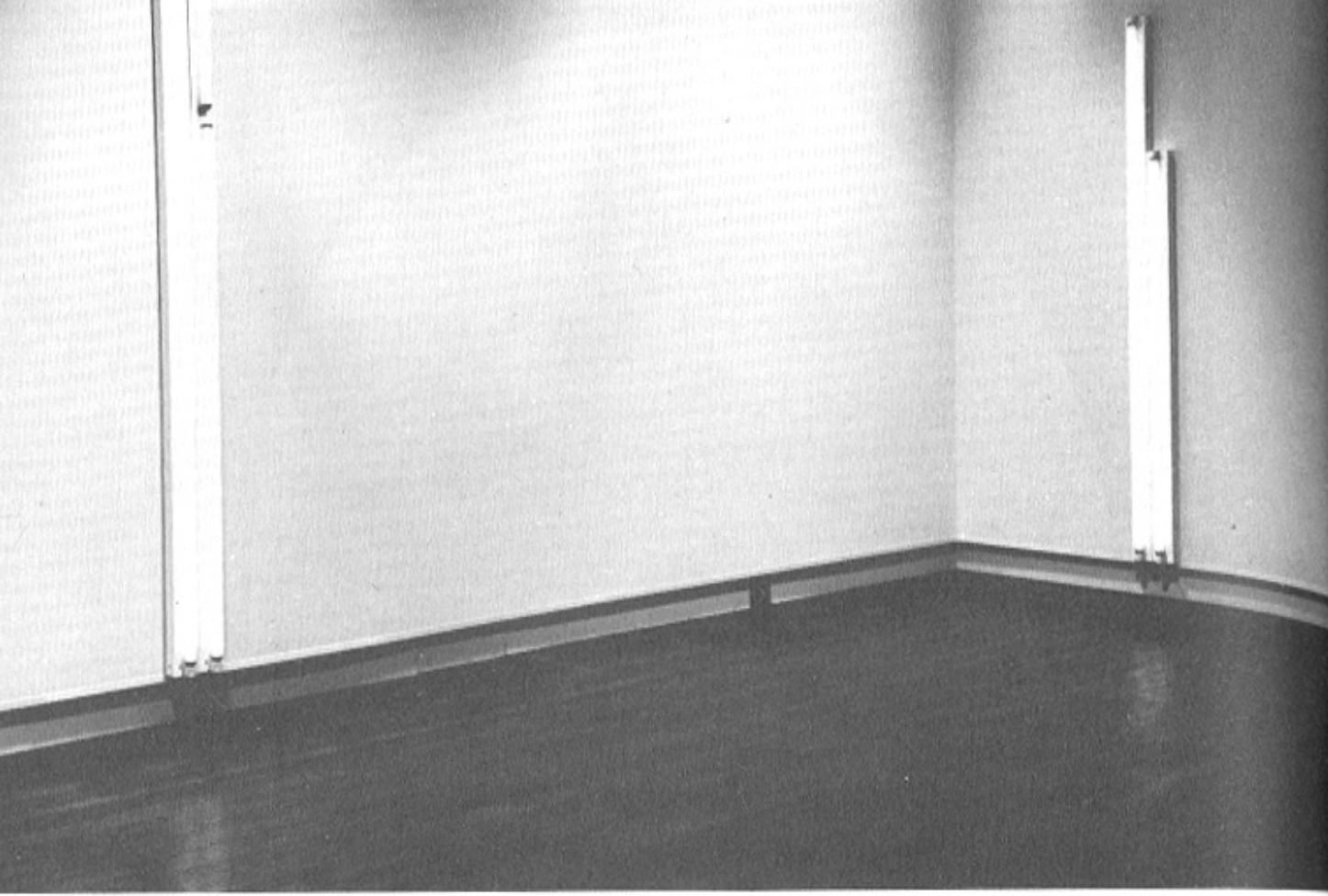
Otto Piene. *Octopus*, 1965. Rubber, cloth, wires, and timed blower. 5' h., 4½' diam. The arms expand to 15', inflate, deflate, stretch, and curl. Eight open-ended pipes protruding from the core allow spectators to change the air stream and thus the shape and movement of the arms. In collaboration with Clifford A. Hendricksen.



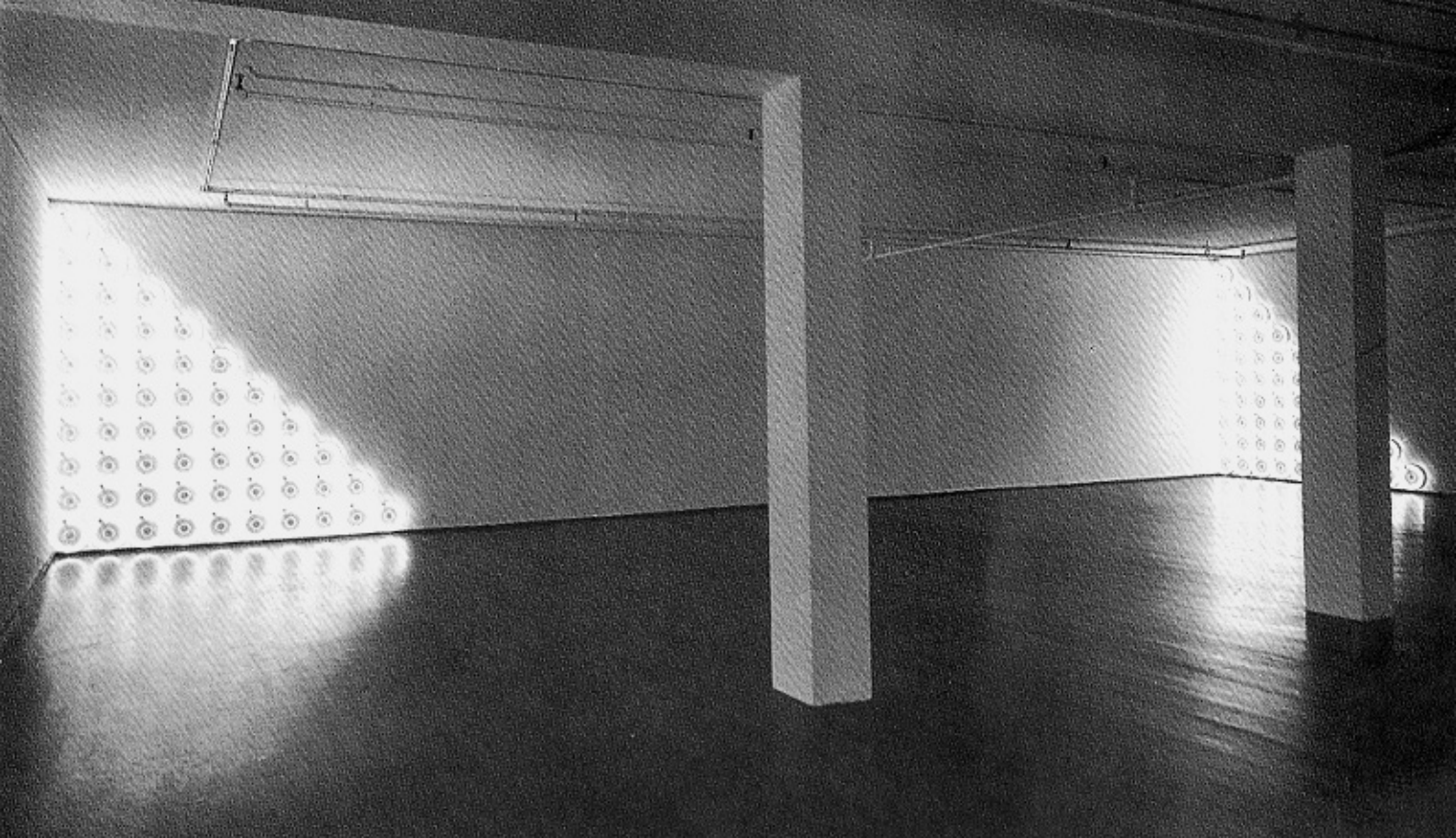


Otto Piene. *Cityscape,* 1970. Inflated polyethylene tubes. 1,800' l. A "Sky Event" in Pittsburgh. Photo by Walter Seng, Pittsburgh.





Dan Flavin: Untitled. 1967. Fluorescent light. 8'. Photograph courtesy of Kornblee Gallery, New York.



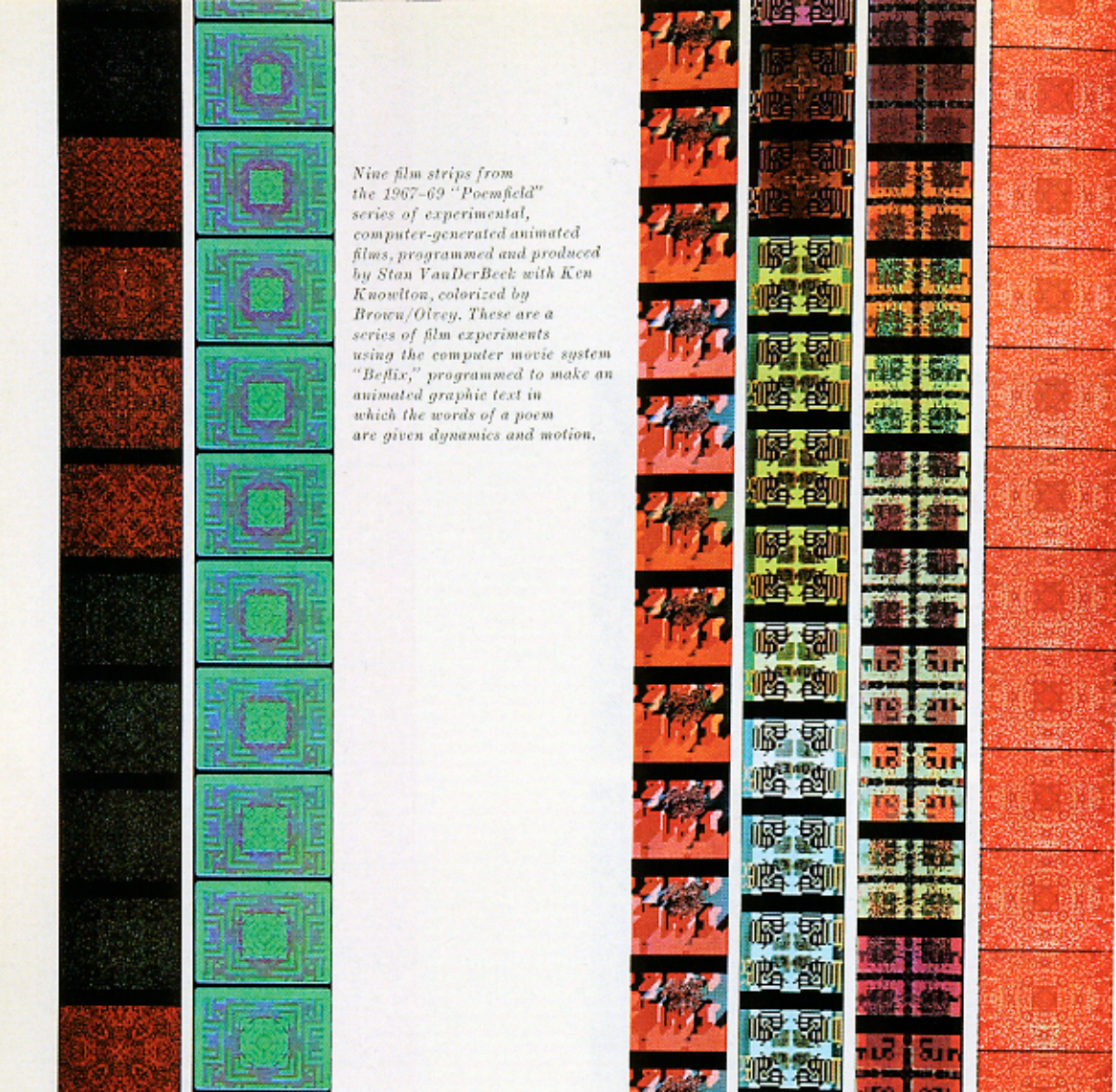
1970 PROVED TO BE a signal year for artists interpolating advancements in graphic and telecommunications technology into their practices. Beyond the appearance of photocopiers and facsimile machines in museum and gallery exhibitions, 1970 saw a conceptual shift toward more systems-based processes in visual art, ushered in by a broadening access to digital computing resources. Outlining these issues was art theorist, writer and artist Jack Burnham's watershed exhibition "Software: Information Technology—Its New Meaning for Art," mounted at the Jewish Museum in New York in fall 1970. The ethical

It should bring to your mind a similar experience associated with a totally different source: the mixed-media and multimedia exhibitions foisted upon us by many of our major museums in the late sixties (and even to some extent today). From the *"Kunst-Licht-Kunst"* exhibition at the Stedelijk in Eindhoven in 1966 to "The Machine: Art as Seen at the End of the Mechanical Age" at the Museum of Modern Art in 1968 to "Art and Technology" at the Los Angeles County Museum in 1971 there is a determination to shock and confound the viewer with a multiplicity of mediums that exceeds even the raw power of Stern's *The World* or the most vulgar of the rock-strobe discotheques.

What philosophy of perception, of media, or of audience psychology lay behind these monstrosities? The least we can say at this moment is that their organizers presumed (with McLuhan and his followers) that the value of the work they mounted lay in their means of expression and nowhere else; beyond that, the individual segments within the installation had nothing inherent or integral to impart to the audience—rather, the message lay in the whole or the mass, impacting (as Johansen would say) "swift . . . condensed, total." Such an assumption would not be made about painting or drawing, but neither of these "substances" depends for its definition and understanding upon so shallow and unreflective a theory.

implications for artists working with emerging forms of technology, however, were articulated by a lesser-known group show called "Explorations," organized by artist György Kepes with fellows from MIT's Center for Advanced Visual Studies (which he founded in 1967) at the Smithsonian Institution in Washington, D.C., in spring 1970. Artists must "transform themselves as well as the social framework of the creative process," maintained Kepes in the catalogue introduction, where he also wrote, "This new imperative refers not only to the exploration of new tools and media . . . but also to the exploration of new ways in which the work of art and the public can come together."[1] "Explorations" invited visitors to touch, walk upon and interact with many of the works, including light sculptures by Burnham and a mural orchestrated by Stan VanDerBeek (1927-1984) from images transmitted via fax from other cultural institutions.

In the winter before "Explorations" opened, VanDerBeek penned the *A.i.A.* article "New Talent: The Computer," which utilized another type of public venue where he could appeal to nonspecialists to further consider the potential of computer programming. VanDerBeek recounted how he used a 36-bit (then) high-speed data processor to produce several animated short films he called "Poemfields," which are widely recognized as pioneering examples of computer animation. Using BEFLIX, a computer graphic programming language devised by Bell Labs physicist Ken Knowlton, VanDerBeek, in effect, generated concrete poetry using the rough-hewn mechanics of an IBM 7094.



Nine film strips from the 1967–69 "Poemfield" series of experimental, computer-generated animated films, programmed and produced by Stan VanDerBeek with Ken Knowlton, colorized by Brown/Olvey. These are a series of film experiments using the computer movie system "Beflix," programmed to make an animated graphic text in which the words of a poem are given dynamics and motion.

Through his first-person account and the detailed illustrations that accompany "New Talent: The Computer," VanDerBeek suggested that, beyond formal innovations, computing represented a mental shift, a new iteration of the avant-garde "art/life" axiom: "To *think* about the work is the process of doing the work." Instead of capturing images like a camera, the computer became, in VanDerBeek's estimation, an abstract notation system, which treated images not as singular works but as raw data. "New Talent: The Computer"

E.A.T. NEWS

Volume 1, No. 2 June 1, 1967

Experiments in Art and Technology, Inc. 9 East 16th Street, N.Y., N.Y. 10003

The purpose of Experiments in Art and Technology, Inc. is to catalyze the inevitable active involvement of industry, technology, and the arts. E.A.T. has assumed the responsibility of developing an effective collaborative relationship between artists and engineers.

E.A.T. will guide the artist in achieving new art through new technology and work for the professional recognition of the engineer's technical contribution within the engineering community.

Engineers are becoming aware of their crucial role in changing the human environment. Engineers who have become involved with artist's projects have perceived how the artist's insight can influence his directions and give human scale to his work. The artist in turn desires to create within the technological world in order to satisfy the traditional involvement of the artist with the revelant forces shaping society. The collaboration of artist and engineer emerges as a revolutionary contemporary sociological process.

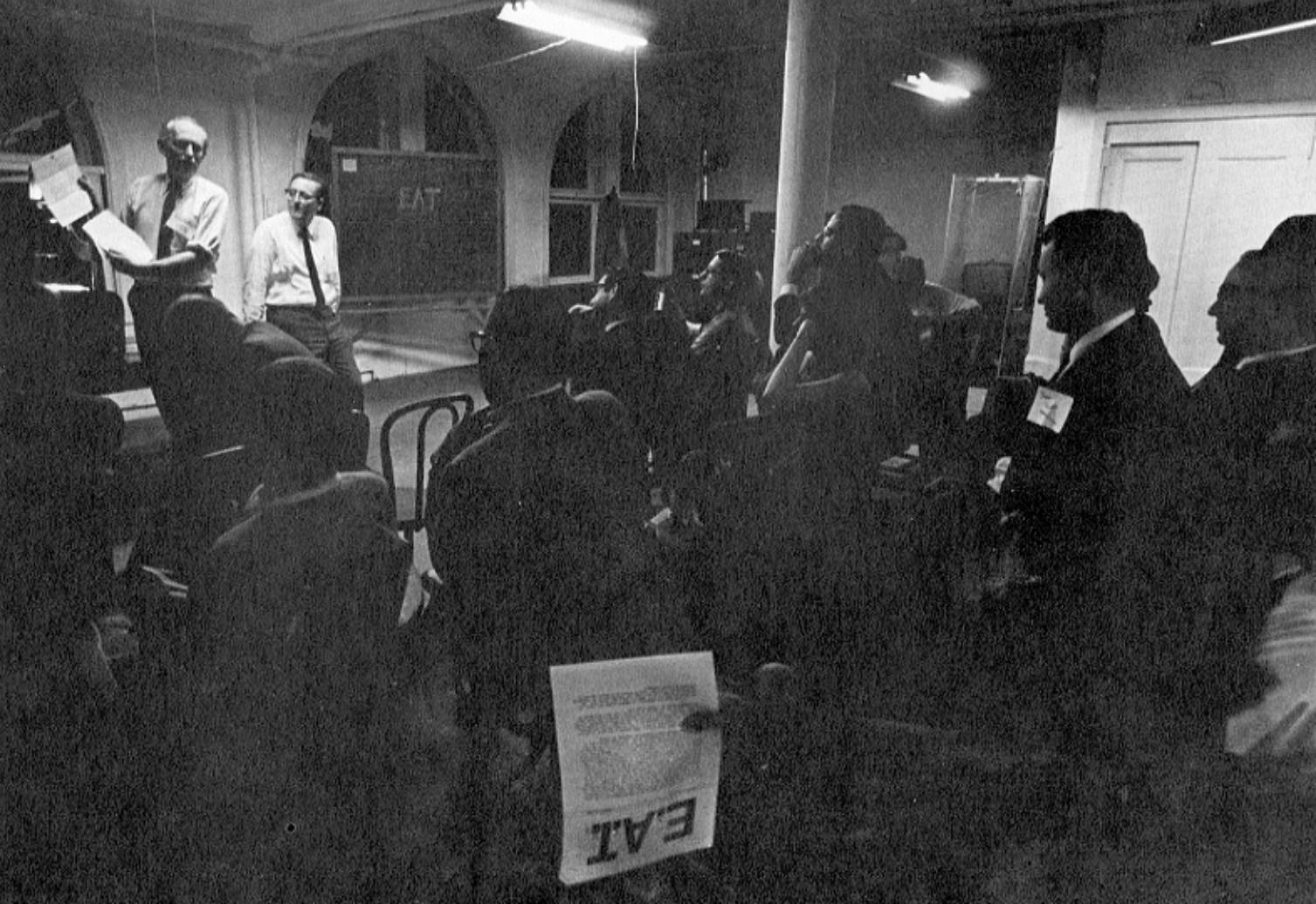
Initially, a successful working relationship between artists and engineers will require that each operate freely within his own environment. The function of E.A.T. is to create an intersection of these environments.

To ensure a continued fruitful interaction between a rapidly advancing technology and the arts, E.A.T. will work for a high standard of technical innovation in collaborative projects.

E.A.T. is founded on the strong belief that an industrially sponsored, effective working relationship between artists and engineers will lead to new possibilities which will benefit society as a whole.

Billy Klüver Robert Rauschenberg

The first issue of the EAT newsletter, prefaced by its statement of purpose, 1967. Courtesy Experiments in Art and Technology, Inc., New York


EAT

First, despite whatever ills modern technological and industrial systems have been accused of, to simply abandon them is escapist; to transform these systems, one must find a way of synthesizing "classic" and "romantic" forms of thinking.

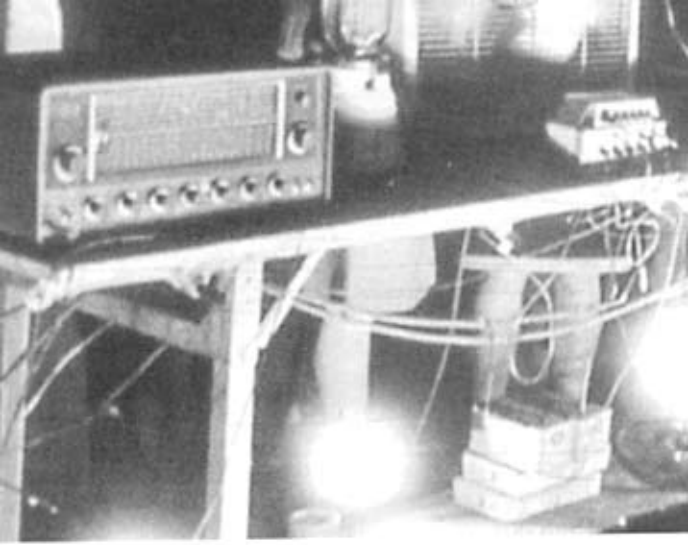
as Billy Kluver and Bell Lab's Experiments in Art and Technology, or the later Art and Technology show at the Los Angeles County Museum of Art) had begun to seem suspect to many artists—particularly those of a younger generation who had become deeply involved in the social protest movements fueled by the continuing tragedy of the war in Vietnam. Smithson was a member of the left-wing Art Workers Coalition, an affiliation he took to be sufficient as an explanation when he wrote Gyorgy Kepes to withdraw his work from the United States section of the Saõ Paulo Biennial:

> To many artists of Brazil technology and politics reflect each other. . . . As rockets go to the moon the darkness around the Earth grows deeper and darker. The "team spirit" of the exhibition could be seen as an endorsement of NASA's mission Operation Control Room with all its crew-cut teamwork. . . . I am withdrawing from the show because it promises nothing but a distraction amid the general nausea. If technology is to have any chance at all, it must become more self-critical.

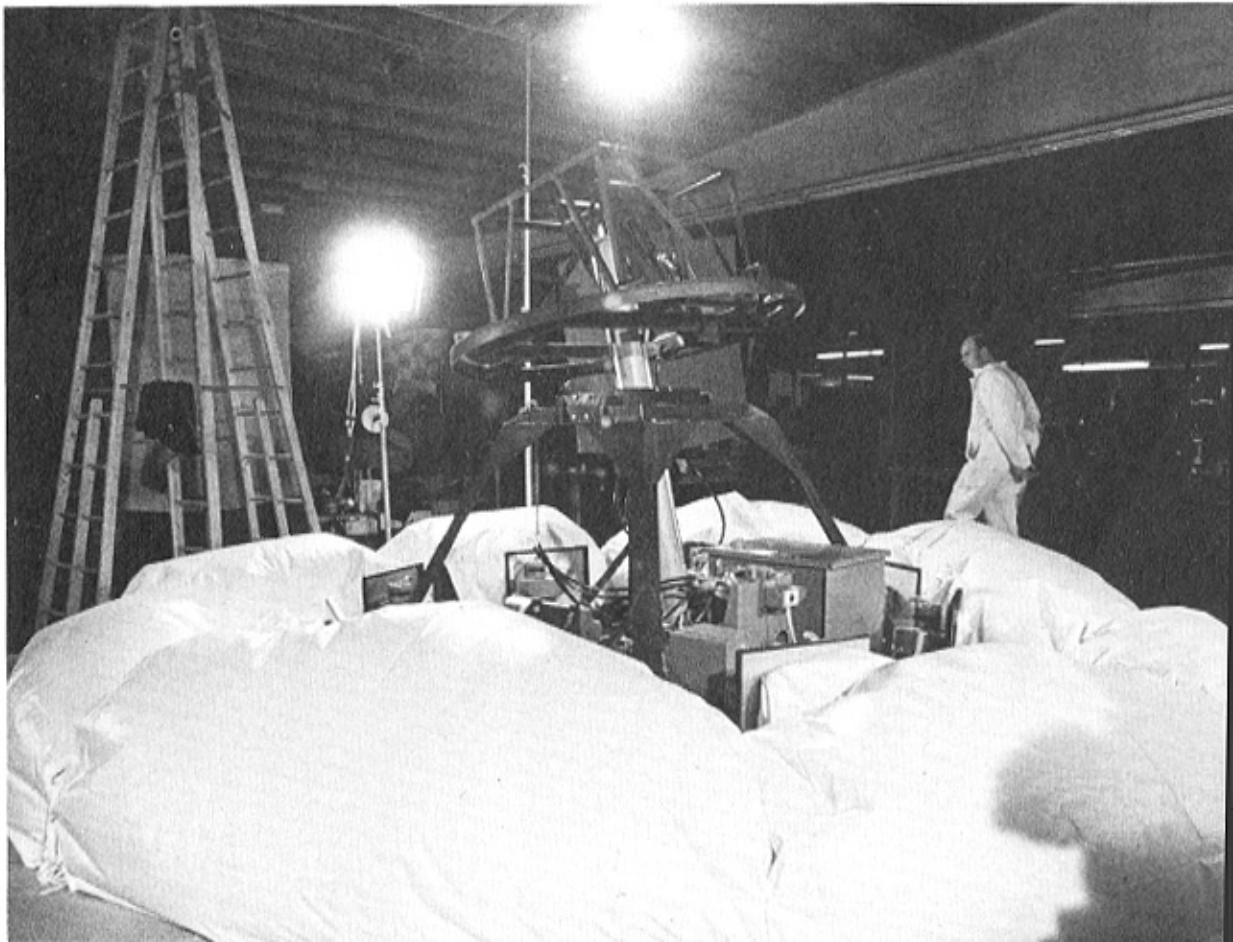
It is not difficult to see why these apostles of informatics and networking would gravitate toward *techné*-zen. The embracing of alternative rationalities in the ascetic reengineering of corporations in the 1990s; the de-materialization of cubicle work (as Alan Liu has argued, where once upon a time matter mattered, "*post*industrial corporations must de-essentialize themselves until they are nothing but information processing" [*LC*, p. 43]); the celebration of flexibility, flow, chaos, virtuality, and creative destruction; the aggressive antihistoricism of the eternal corporate present—it's all so very *Zen*. As the authors of *The Corporate Mystic* explain,

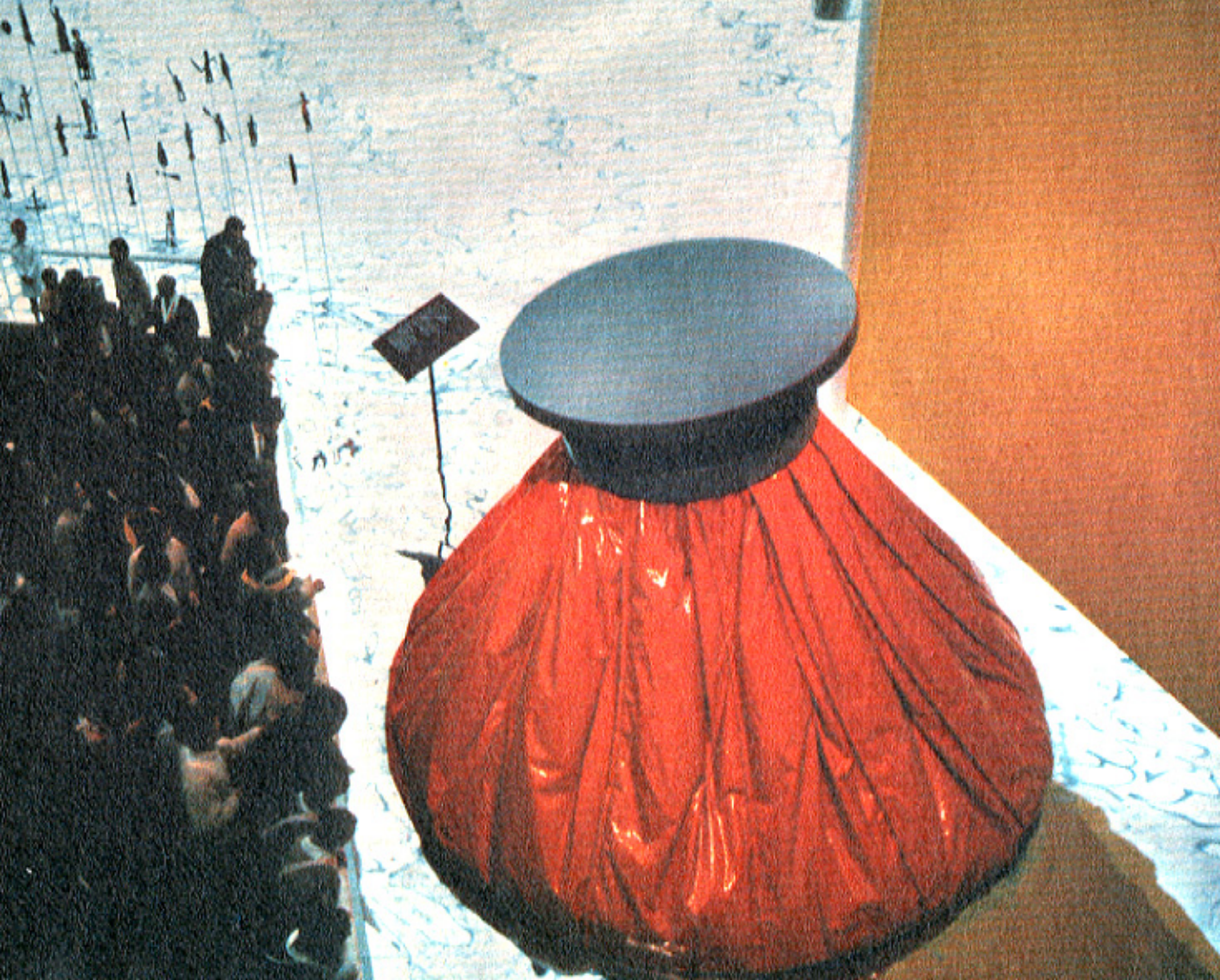
> Corporations are full of mystics. Over the past 25 years we have been in many boardrooms and many cathedrals, and we have discovered that the very best kind of mystics—those who practice what they preach—can be found in the business world. We are now convinced that the qualities of these remarkable people, and the principles they live by, will be the guiding force for 21st-century enterprise.

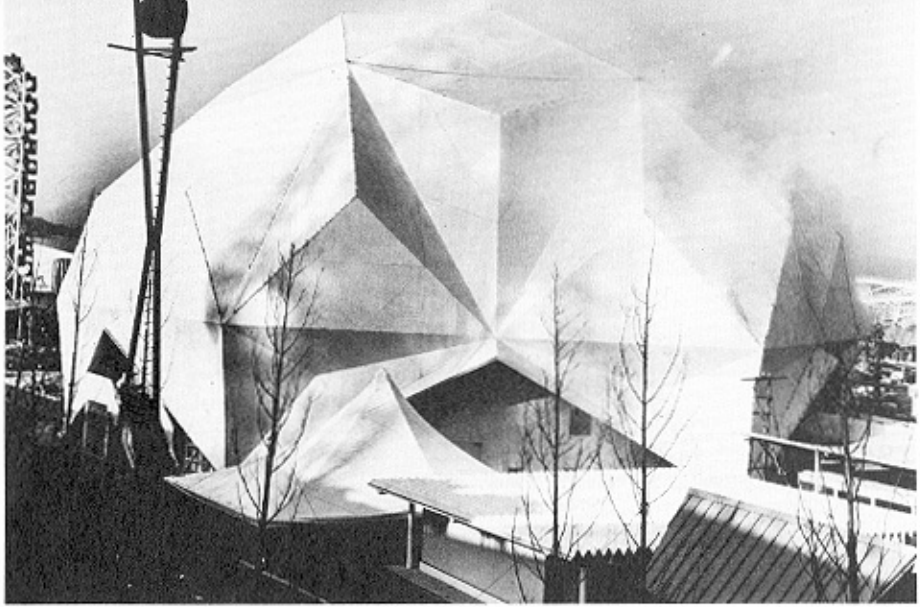
Or consider the sophisticated "cybernetic" experimentation of Cage's Zen-inspired *Variations VII* (performed in collaboration with the Bell Telephone Labs in 1966), with his use of radios, electric juicers, fans, blenders, telephones, magnetic pickups, audio mixers, and contact microphones—all connected and activated in a massive control room by a series of wires and electric photocells (figs. 3–4)



Claes Oldenburg at work on his *Giant Icebag*, 1969. Part of the *Art and Technology* exhibition organized by the Los Angeles County Museum, the *Icebag*, when finished, rose and fell on its own motorized power, expanding to a height of 16½′, in diameter to 18′. Courtesy Los Angeles County Museum of Art. Photo by Malcolm Lubliner.

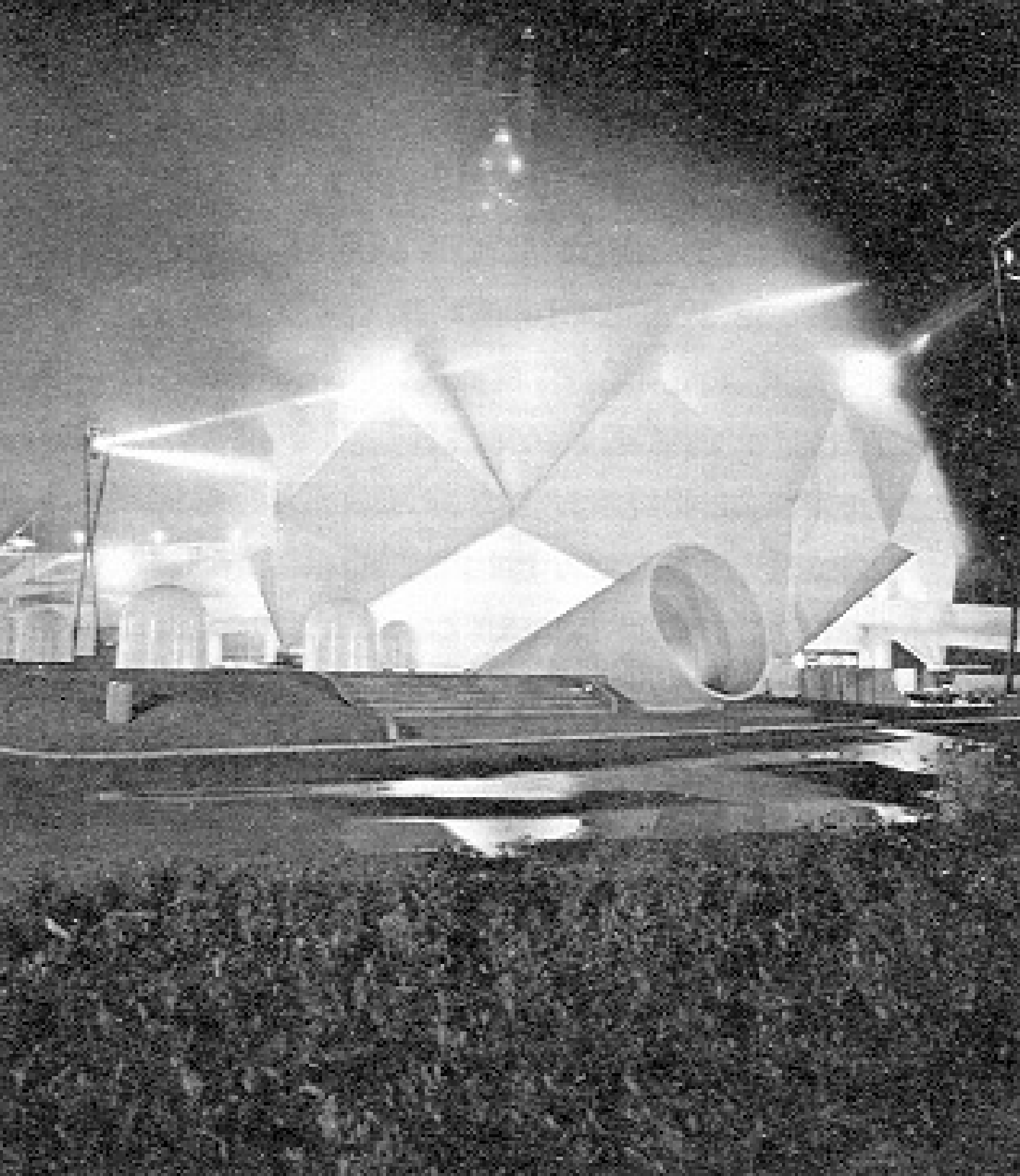






Pepsi-Cola Pavilion, Osaka, Japan, World's Fair, 1970. EAT designed the "environment" within and without the Pavilion, from the cloud that floated above the dome (designed by physicist Tom Mee) to the responsive sound, light, and mirror systems inside, most of them triggered by the movement and behavior of the spectators. Among the engineers involved were Klüver, Larry Owens, T. Fujiwara, Elsa Garmire, Witt Wittnebert, and Fred Waldhauer. Courtesy Experiments in Art and Technology, Inc., New York.

Interior, Pepsi-Cola Pavilion, Osaka, Japan, World's Fair, 1970. The spherical mirror at the top of the dome was the largest made to that date. The viewer could see above a life-sized visual image of himself floating in space. The artists and engineers who collaborated on the mirror included John Harris, David MacDermott, and Ardison Phillips. Courtesy Experiments in Art and Technology, Inc., New York.



There are five characteristics of new media that, in aggregate, define it as a medium distinct from all others. These concepts set the scope of the form's capabilities for personal expression; they establish its full potential:

Integration: the combining of artistic forms and technology into a hybrid form of expression.

Interactivity: the ability of the user to manipulate and affect her experience of media directly, and to communicate with others through media.

Hypermedia: the linking of separate media elements to one another to create a trail of personal association.

Immersion: the experience of entering into the simulation or suggestion of a three-dimensional environment.

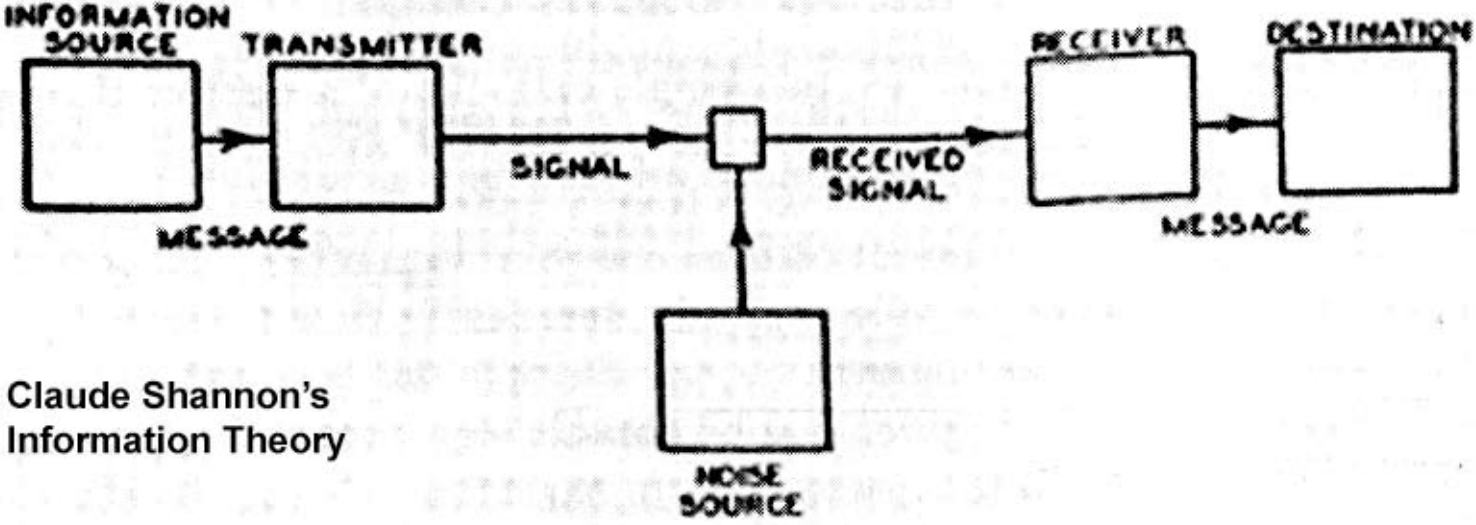
Narrativity: aesthetic and formal strategies that derive from the above concepts, which result in nonlinear story forms and media presentation.

Levi-Strauss's Initiation into Cybernetics

The first record of Lévi-Strauss's interest in cybernetics dates from Fahs's journal entries of September 1949. Fahs wrote of traveling to the Conference of Americanists "primarily to hear the paper of Levy-Strauss on the relevance of cybernetics to research in linguistics."[56] Just a few months earlier Lévi-Strauss had published *The Elementary Structures of Kinship* (1948), where he had argued that kinship relations were analogous to phonemic relations and, as such, also comprised a mode of communication.[57] An appendix by mathematician André Weil, also a former Rockefeller fellow, attempted to work out these relations algebraically. In the September lecture Lévi-Strauss turned towards cybernetics to generalize those results into a wider theory of structural relations.

proposed in *Scientific American* two months earlier, Lévi-Strauss argued that engineering models of communications could be transposed onto all other fields of human activity, including linguistics, economic transactions, and the circulation of women within primitive systems of kinship. According to Lévi-Strauss these activities comprised systems of communication whose circulating elements—phonemes, goods, and wives—could, with the aid of computing machines, be mathematically analyzed for structural relations.[59]

After receiving *The Mathematical Theory of Communication* from Weaver and meeting with Jakobson in Paris in 1950, Lévi-Strauss fully embraced the analogies and alliances enabled by the cybernetic apparatus.



Claude Shannon's
Information Theory

CONTEXT

ADDRESSER MESSAGE (la parole) ADDRESSEE

C O N T A C T

CODE (la langue)

Roman Jakboson's similar diagram for semiotics

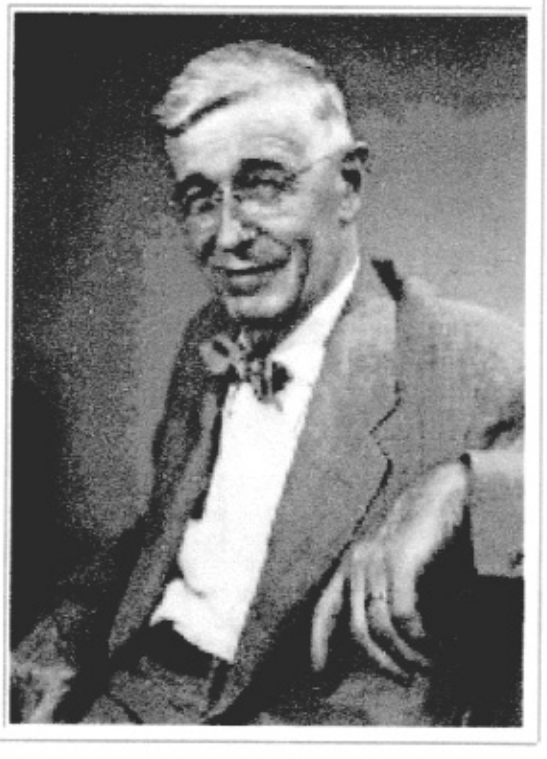
Hypertext

The inventors of computer hypertext have explicitly discussed it in terms of empowerment of a more general class of reader-authors. Douglas Englebart, for example, who invented the first actual working hypertext environment, called his system Augment; and Ted Nelson, who sees Xanadu as the embodiment of the 1960s New Left thought, calls on us to "imagine a new accessibility and excitement that can unseat the video narcosis that now sits on our land like a fog. Imagine a new libertarian literature with alternative explanations so that anyone can choose the pathway or approach that best suits him or her; with ideas accessible and interesting to everyone, so that a new richness and freedom can come to the human experience; imagine a rebirth of literacy" (*Computer Lib*, 1/4).

Hypertext has only recently become a discipline in computer science. (See Smith & Weiss, 1988.) The term "hypertext" was coined two decades ago by Ted Nelson. Working with mainframe computers in the 1960s, Nelson had come to realize the machine's capacity to create and manage textual networks for all kinds of writing. "Literature," he wrote, "is an ongoing system of interconnecting documents." By literature he meant not only belles-lettres but also scientific and technical writing: any group of writings on a well-defined subject. "A literature is a system of interconnected writings. We do not offer this as our definition, but as a discovered fact" (Nelson, 1984, p. 2/7; see also Nelson, 1974 and Conklin, 1987, pp. 22-23). Actually this "fact" had been discovered independent of and long before the computer, but the machine has provided Nelson and others in the last two decades with the technology needed to realize and indeed to reify writing as a network. Even before Nelson, the scientist and engineer Vannevar Bush had envisioned using electro-mechanical technology as a hypertextual reading and writing system. In 1945 Bush proposed (but never built) what he called a "memex," a device that would serve as an interactive encyclopedia or library. The reader of the memex would be able to display two texts on a screen and then create links between passages in the texts.

As We May Think

by **Vannevar Bush**



Bush wished to replace the essentially linear fixed methods that had produced the triumphs of capitalism and industrialism with what are essentially poetic machines—machines that work according to analogy and association, machines that capture and create the anarchic brilliance of human imagination. Bush, we perceive, assumed that science and poetry work in essentially the same way.

his reconfiguration of text introduces three entirely new elements—associative indexing (or links), trails of such links, and sets or webs composed of such trails. These new elements in turn produce the conception of a flexible, customizable text, one that is open—and perhaps vulnerable—to the demands of each reader. They also produce a concept of multiple textuality.

Consider a future device for individual use, which is a sort of mechanized private file and library. It needs a name, and to coin one at random, ``memex" will do. A memex is a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory.

It consists of a desk, and while it can presumably be operated from a distance, it is primarily the piece of furniture at which he works. On the top are slanting translucent screens, on which material can be projected for convenient reading. There is a keyboard, and sets of buttons and levers. Otherwise it looks like an ordinary desk.

In one end is the stored material. The matter of bulk is well taken care of by improved microfilm. Only a small part of the interior of the memex is devoted to storage, the rest to mechanism. Yet if the user inserted 5000 pages of material a day it would take him hundreds of years to fill the repository, so he can be profligate and enter material freely.

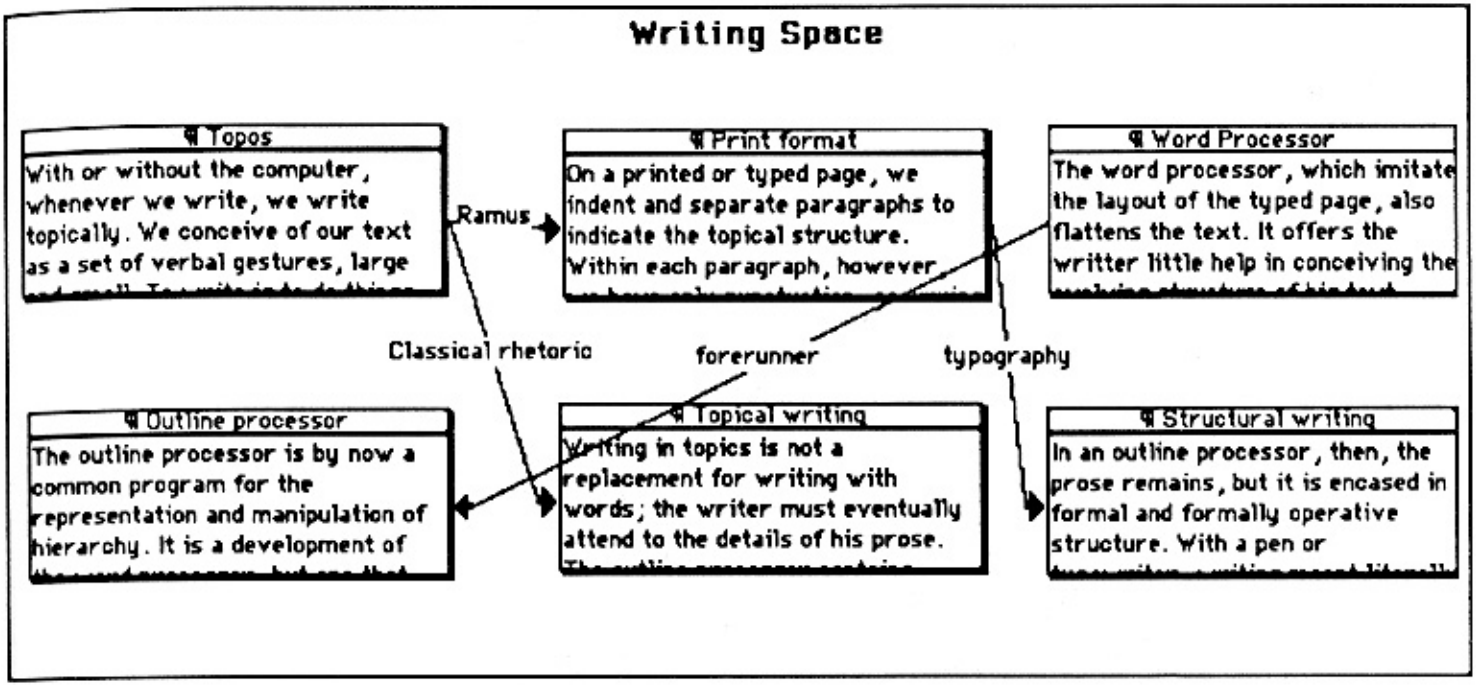
Most of the memex contents are purchased on microfilm ready for insertion. Books of all sorts, pictures, current periodicals, newspapers, are thus obtained and dropped into place. Business correspondence takes the same path. And there is provision for direct entry. On the top of the memex is a transparent platen. On this are placed longhand notes, photographs, memoranda, all sort of things. When one is in place, the depression of a lever causes it to be photographed onto the next blank space in a section of the memex film, dry photography being employed.

The owner of the memex, let us say, is interested in the origin and properties of the bow and arrow. Specifically he is studying why the short Turkish bow was apparently superior to the English long bow in the skirmishes of the Crusades. He has dozens of possibly pertinent books and articles in his memex. First he runs through an encyclopedia, finds an interesting but sketchy article, leaves it projected. Next, in a history, he finds another pertinent item, and ties the two together. Thus he goes, building a trail of many items. Occasionally he inserts a comment of his own, either linking it into the main trail or joining it by a side trail to a particular item. When it becomes evident that the elastic properties of available materials had a great deal to do with the bow, he branches off on a side trail which takes him through textbooks on elasticity and tables of physical constants. He inserts a page of longhand analysis of his own. Thus he builds a trail of his interest through the maze of materials available to him.

A year after Vannevar Bush's article appeared sci-fi writer Murray Leinster wrote "A Logic Named Joe" (1946) which was the first fictional conception of the Internet. Therein, the computers are called "logics" and they are in your house, have a keyboard, TV screen, and these units are interfaced with "the Tank" (a central computer holding a world of data) and you can search for information just like on our current Internet. (see Murray Leinster, *First Contacts: The Essential Murray Leinster*, 1998: 19 - 20.)

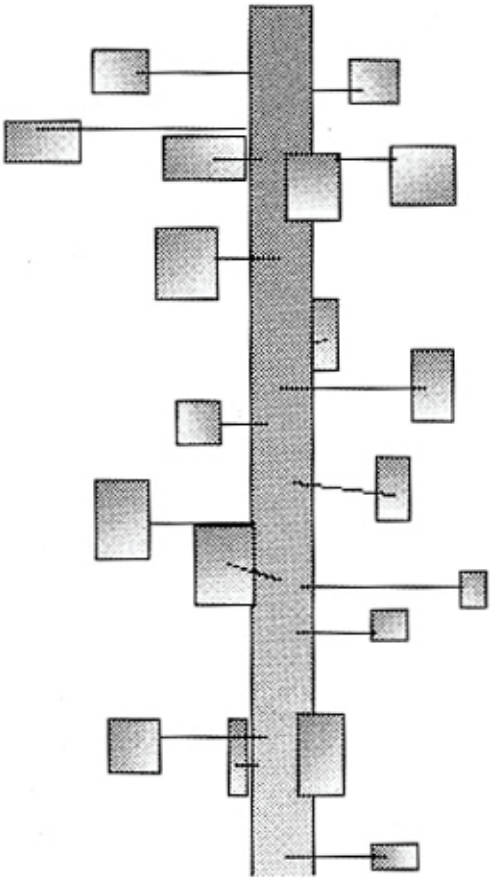
By hypertext I mean non-sequential writing. Ordinary writing is sequential for two reasons. First, it grew out of speech and speech-making, which have to be sequential; and second, because books are not convenient to read except in sequence. But the *structures of ideas* are not sequential. They tie together every which way.

And the pity of it is that (like the man in the French play who was surprised to learn that he had been "speaking prose all his life and never known it") we've been speaking *hypertext* all our lives and never known it.



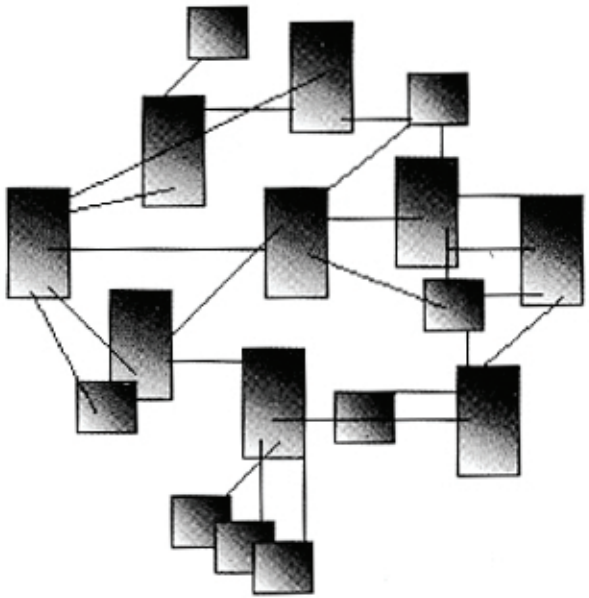
A hypertext is a network of textual elements and connections.

Axial structure characteristic of electronic books and scholarly books with foot- or endnotes



versus

Network structure of hypertext



1. Where does the reader enter the text?

2. Where does the reader leave the text?

3. Where are the borders of the text?

Hypertext therefore calls into question (1) fixed sequence, (2) definite beginning and ending, (3) a story's "certain definite magnitude," and (4) the conception of unity or wholeness associated with all these other concepts.

Thaïs Morgan suggests that intertextuality, "as a structural analysis of texts in relation to the larger system of signifying practices or uses of signs in culture," shifts attention from the triad constituted by author/work/tradition to another constituted by text/discourse/culture. In so doing, "intertextuality replaces the evolutionary model of literary history with a structural or synchronic model of literature as a sign system.

When Ted Nelson first coined the word *hypertext* in 1965, he was thinking of a new way of organizing text so that it could be read in a sequence chosen by the reader, rather than followed only in the sequence laid down by the writer. However, since codex texts can also be read in sequences determined by the reader, what he in fact suggested was a system in which the writer could specify which sequences of reading would be available to the reader. Later, implementations of such systems, for example, *Storyspace,* embodied this suggestion so fully that readers could follow *only* the sequences laid down by the writer. Hyperfictions written in *Storyspace,* like *Afternoon,* do not allow its readers free browsing, unlike any codex fiction in existence. The reader's freedom from linear sequence, which is often held up as the political and cognitive strength of hypertext, is a promise easily retracted and wholly dependent on the hypertext system in question.

As popularly conceived, this is a series of text chunks connected by links which offer the reader different pathways" (*Literary Machines*, 0/2). *Hypertext*, as the term is used in this work, denotes text composed of blocks of text—what Barthes terms a *lexia*—and the electronic links that join them.[4] *Hypermedia* simply extends the notion of the text in hypertext by including visual information, sound, animation, and other forms of data.

In this network, I shall use the terms *hypermedia* and *hypertext* interchangeably. Electronic links connect lexias "external" to a work—say, commentary on it by another author or parallel or contrasting texts—as well as within it and thereby create text that is experienced as non-linear, or, more properly, as multilinear or multisequential.

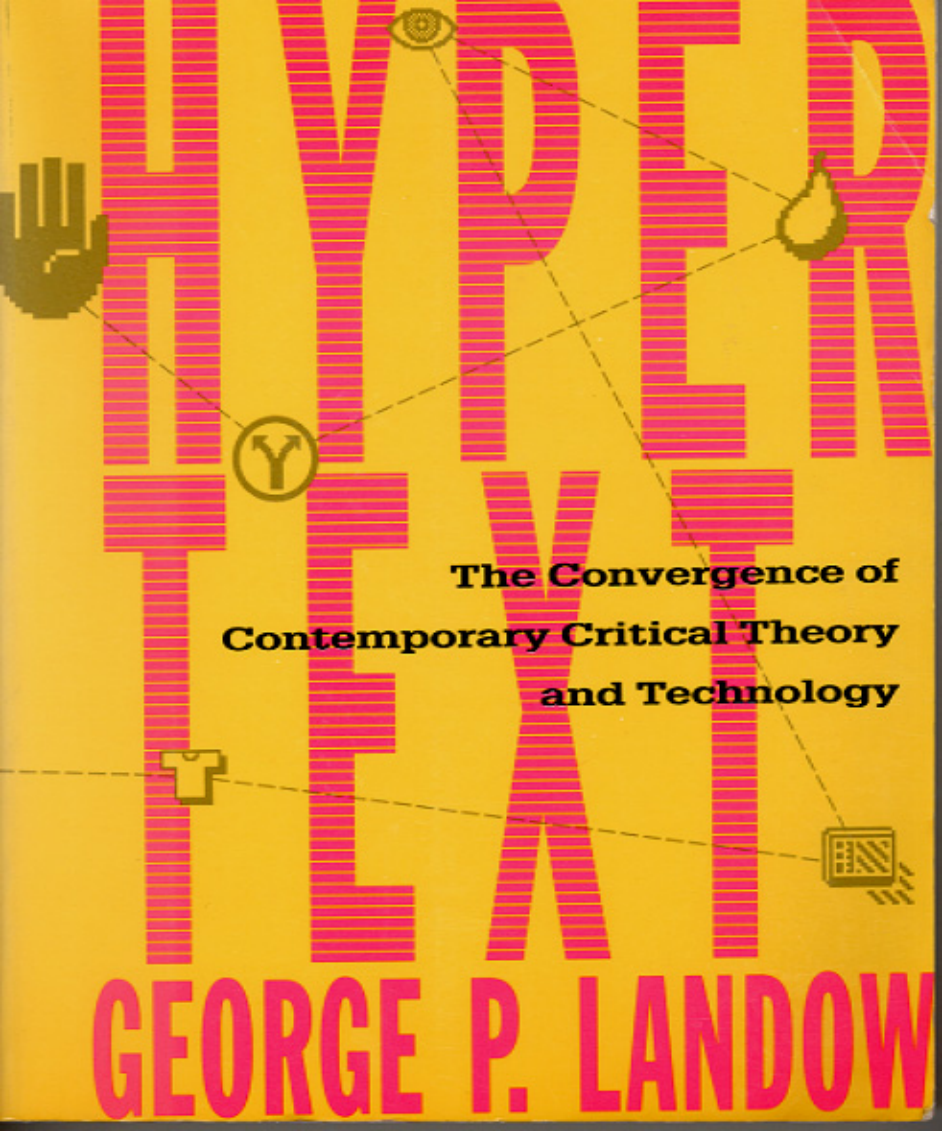
WRITING SPACE

The Computer, Hypertext, and the History of Writing

Jay David Bolter

HYPER TEXT

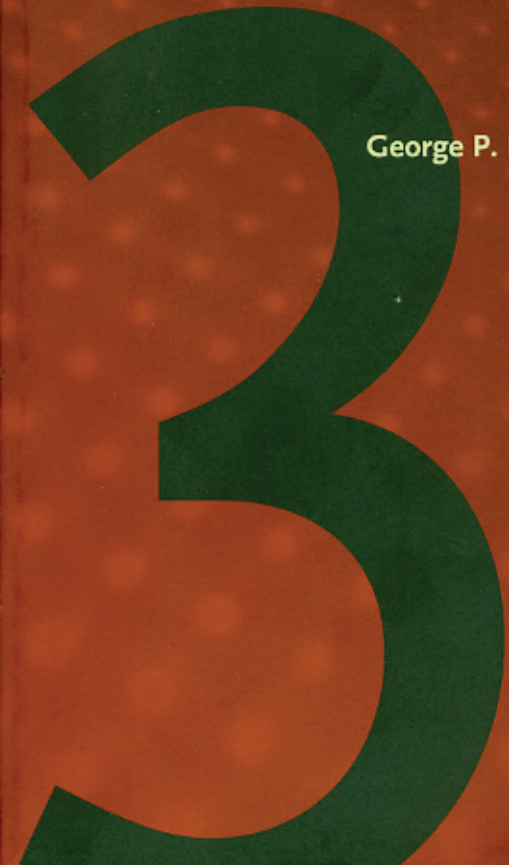
The Convergence of Contemporary Critical Theory and Technology



GEORGE P. LANDOW

Hypertext 3.0

Critical Theory and
New Media in an Era of
Globalization



George P. Landow

Hypertextuality inevitably includes a far higher percentage of nonverbal information than does print; the comparative ease with which such material can be appended encourages its inclusion. Hypertext, in other words, implements Derrida's call for a new form of hieroglyphic writing that can avoid some of the problems implicit and therefore inevitable in Western writing systems and their printed versions.

Like Barthes, Michel Foucault conceives of text in terms of network and links. In *The Archaeology of Knowledge,* he points out that the "frontiers of a book are never clear-cut," because "it is caught up in a system of references to other books, other texts, other sentences: it is a node within a network… [a] network of references"

The explanation may be even simpler: the link, the element that hypertext adds to writing, bridges gaps between text, bits of text, and thereby produces effects similar to analogy, metaphor, and other forms of thought, other figures, that we take to define poetry and poetic thought.

One approach to predicting the way hypertext might affect literary form has pointed to *Tristram Shandy, In Memoriam, Ulysses,* and *Finnegans Wake* and to recent French, American, and Latin American fiction, particularly that by Michel Butor, Marc Saporta, Robert Coover, and Jorge Luis Borges (Bolter, *Writing Space,* 132–39). Such texts might not require hypertext to be fully understood, but they reveal new principles of organization or new ways of being read to readers who have experienced hypertext. Hypertext, the argument goes, makes certain elements in these works stand out for the first time. The example of these very different texts suggests that those poems and novels that most resist one or more of the characteristics of literature associated with print form, particularly linear narrative, will be likely to have something in common with new fiction in a new medium.

THE GUTENBERG ELEGIES

The Fate of Reading in an Electronic Age

"Birkerts on reading fiction is like M.F.K. Fisher on eating or Norman Maclean on fly casting. He makes you want to go do it."
—*The New Yorker*

SVEN BIRKERTS

WRITING MACHINES

N. KATHERINE HAYLES

Some Terms

Remediation: the cycling of different media through one another (computer screens made to look like TV screens, TV screens looking like computer screens with multiple windows, print books mimicking computer screens and vice versa).

Scripton: screen display's text

Texton: that screen text's underlying code

Medial Ecology: the complex relationships between all media.


Lev Manovich
The Language of
New Media

Lev Manovich's *The Language of New Media* (2001)

Key differences between old and new media:

1) Numerical representation: new objects can be described mathematically; a new media object is subject to algorithmic manipulation.

2) Modularity: media elements are discrete samples (pixels, polygons, characters, scripts, etc.

3)Automation: principles #1 & 2 allow for automation of many operations in media creation, manipulation, and access.

4)Variability: new media object is not fixed once and for all, but is something that can exist in infinite versions; logic of new media corresponds to the postindustrial logic of "production on demand" and "just in time delivery."

5) Transcoding: Computer layer and cultural layer to new media; (akin to Textons (code) and Scriptons (what the code writes) terms used by Espen Aarseth mutually effect each other.

Following art historian Ervin Panofsky's analysis of linear perspective as a "symbolic form" of the modern age, we may even call database a new symbolic form of the computer age (or, as philosopher Jean-François Lyotard called it in his famous 1979 book *The Postmodern Condition,* "computerized society"), a new way to structure our experience of ourselves and of the world.

Let us begin by documenting the dominance of the database form in new media. The most obvious examples are popular multimedia encyclopedias, collections by definition, as well as other commercial CD-ROM (or DVD), that feature collections of recipes, quotations, photographs, and so on.[7] The identity of a CD-ROM as a storage media is projected onto another plane, thereby becoming a cultural form in its own right. Multimedia works that have "cultural" content appear to particularly favor the database form. Consider, for instance, the "virtual museums" genre—CD-ROMs that take the user on a tour through a museum collection. A museum becomes a database of images representing its holdings.

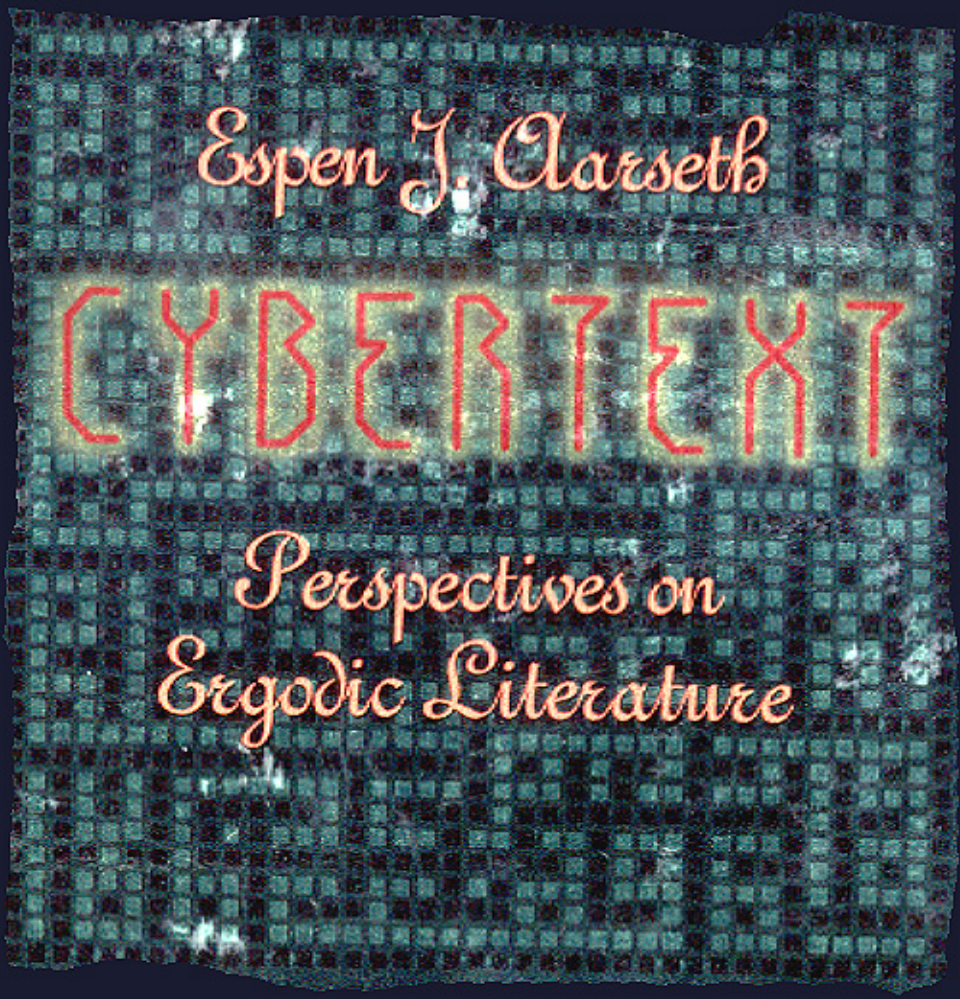
As the 1990s progressed, artists increasingly began to approach the database more critically.[8] A few examples of projects investigating database politics and possible aesthetics are Chris Marker's "IMMEMORY," Olga Lialina's "Anna Karenina Goes to Paradise,"[9] Stephen Mamber's "Digital Hitchcock," and Fabian Wagmister's ". . . two, three, many Guevaras." The artist who has explored the possibilities of a database most systematically is George Legrady. In a series of interactive multimedia works ("The Anecdoted Archive," 1994; "[the clearing]," 1994; "Slippey Traces," 1996; "Tracing," 1998) he used different types of databases to create "an information structure where stories/things are organized according to multiple thematic connections."

The database becomes the center of the creative process in the computer age. Historically, the artist made a unique work within a particular medium. Therefore the interface and the work were the same; in other words, the level of an interface did not exist. With new media, the content of the work and the interface are separated. It is therefore possible to create different interfaces to the same material. These interfaces may present different versions of the same work, as in David Blair's *WaxWeb.* Or they may be radically different from each other, as in Olga Lialina's Last Real Net Art Museum. This is one of the ways in which the principle of *variability* of new media manifests itself. But now we can give this principle a new formulation. *The new media object consists of one or more interfaces to a database of multimedia material.* If only one interface is constructed, the result will be similar to a traditional art object, but this is an exception rather than the norm.

This formulation places the opposition between database and narrative in a new light, thus redefining our concept of narrative. The "user" of a narrative is traversing a database, following links between its records as established by the database's creator. An interactive narrative (which can be also called a *hypernarrative* in an analogy with hypertext) can then be understood as the sum of multiple trajectories through a database. A traditional linear narrative is one among many other possible trajectories, that is, a particular choice made within a hypernarrative. Just as a traditional cultural object can now be seen as a particular case of a new media object (i.e., a new media object that has only one interface), traditional linear narrative can be seen as a particular case of hypernarrative.

Having examined the two key forms of new media—database and navigable space—one is tempted to see their privileged role in computer culture as a sign of a larger cultural change. If we use Auge's distinction between modernity and supermodernity, the following scheme can be established:

1. modernity—"supermodernity,"
2. narrative (= hierarchy)—database, hypermedia, network (= flattening of hierarchy),
3. objective space—navigable space (trajectory through space),
4. static architecture—"liquid architecture," and
5. geometry and topology as theoretical models for cultural and social analysis—trajectory, vector, and flow as theoretical categories.


Espen J. Aarseth
CYBERTEXT
Perspectives on
Ergodic Literature

Cybertext, then, is not a "new," "revolutionary" form of text, with capabilities only made possible through the invention of the digital computer. Neither is it a radical break with old-fashioned textuality, although it would be easy to make it appear so. Cybertext is a *perspective* on all forms of textuality, a way to expand the scope of literary studies to include phenomena that today are perceived as outside of, or marginalized by, the field of literature—or even in opposition to it, for (as I make clear later) purely extraneous reasons. In this study I investigate the literary behavior of certain types of textual phenomena and try to construct a model of textual communication that will accommodate any type of text.

Espen Aarseth's Thesis

Two basic forms of textuality (printworks and cyber-texts):

1) Linear Texts -- normal codex form, linear read hyper-texts.

2) Ergodic Texts (from Greek *ergon* [work] + *hodos* [path] -- these require "non-linear, non-trivial effort to traverse them (e.g., computer adventure games, non-linear hypertexts, non-linear printworks, like Apollinaire's *Calligrammes*, Julio Cortazar's book *Hopscotch,* the interactive computer therapist program *ELIZA,* etc.

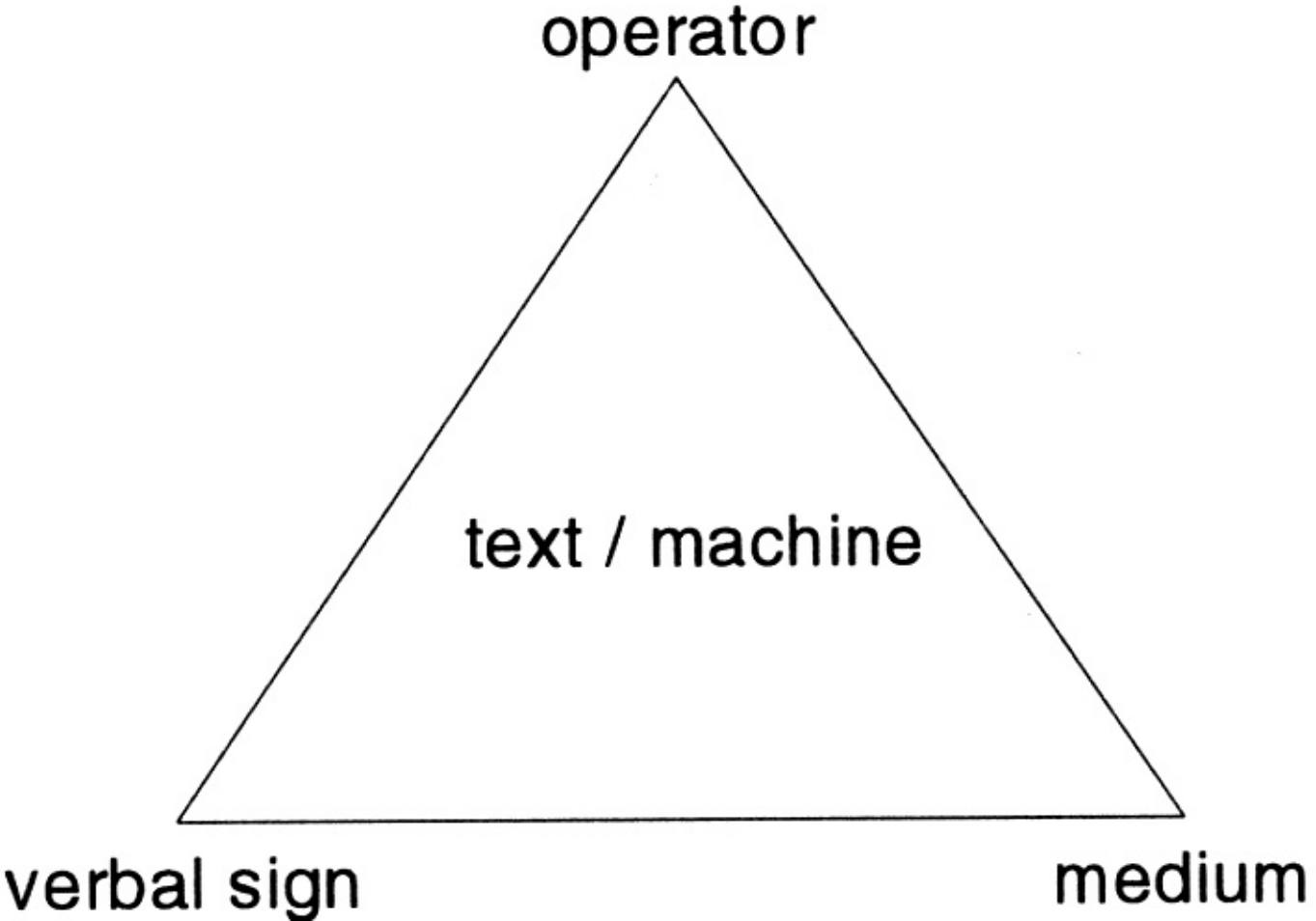
Ergodic literature is literature that requires a "non-trivial effort" to traverse the text. This effort must be extranoematic, that is, it must consist of more than simply reading by moving one's eyes along lines of text, turning pages and mentally interpreting what one reads. The term was coined by Espen Aarseth in his book *Cybertext--Perspectives on Ergodic Literature*, and is derived from the Greek words *ergon*, meaning "work" and *hodos*, meaning "path". The most commonly cited definition of ergodic is from pages 1-2 of Aarseth's book:

> In ergodic literature, nontrivial effort is required to allow the reader to traverse the text. If ergodic literature is to make sense as a concept, there must also be nonergodic literature, where the effort to traverse the text is trivial, with no extranoematic responsibilities placed on the reader except (for example) eye movement and the periodic or arbitrary turning of pages.

Cybertext is a subcategory of ergodic literature that Aarseth defines as "texts that involve calculation in their production of scriptons." (*Cybertext*, page 75) Thus, hypertext fiction of the simple node and link variety is ergodic literature but not cybertext. A non-trivial effort is required for the reader to traverse the text, as the reader must constantly select which link to follow, but a link, when clicked, will always lead to the same node. A chat bot such as ELIZA is a cybertext because when the reader types in a sentence, the text-machine actually performs calculations on the fly that generate a textual response (ELIZA is categorised as a cybertext on page 75 and in figure 3.2). The I Ching is likewise a cybertext because it contains the rules for its own reading. The reader actually carries out the calculation, but the rules are clearly embedded in the text itself. It has been argued that these distinctions are not entirely clear, and scholars still debate the fine points of the definitions of ergodic literature and cybertext.

One of the major innovations of the concept of ergodic literature is that it is not medium-specific. New media researchers have tended to focus on the medium of the text, stressing that it is for instance paper-based or electronic. Aarseth broke with this basic assumption that the medium was the most important distinction, and argued that the mechanics of texts need not be medium-specific. Ergodic literature is not defined by medium, but by the way in which the text functions. Thus, both paper-based and electronic texts can be ergodic: "The ergodic work of art is one that in a material sense includes the rules for its own use, a work that has certain requirements built in that automatically distinguishes between successful and unsuccessful users." (Cybertext, p 179)

As the *cyber* prefix indicates, the text is seen as a machine—not metaphorically but as a mechanical device for the production and consumption of verbal signs. Just as a film is useless without a projector and a screen, so a text must consist of a material medium as well as a collection of words.


operator
text / machine
verbal sign
medium

THE MAFIA ARE THE WORST GANGSTERS.

Are you connected with the Mafia?

YOU KNOW, THEY KNOW ME.

How do they know you?

THEY SPY ON ME.

Why do they?

THEY WANT TO GET FALSE EVIDENCE TO FRAME ME.

What do they have against you?

THEY ARE OUT TO GET ME . . .

(Margaret Boden, 1977, pp. 100-101)

In this conversation both the doctor and the computer play their parts convincingly. The programmer of this paranoid program reported that other psychiatrists reading typescripts of similar interviews could not distinguish human patients from the simulated ones. But this is not surprising. When we have only this text before us, we have no reason to believe in the reality of the doctor any more than that of the patient. The patients and the doctors occupy a fictional world of paranoids and therapists. That is the power of text, the power that artificial intelligence seeks to exploit.

The intelligent computer often produces text in direct conversation with a human. A different effect is achieved when the computer speaks with a solitary voice—as here when it takes on the persona of a (slightly demented) storyteller.

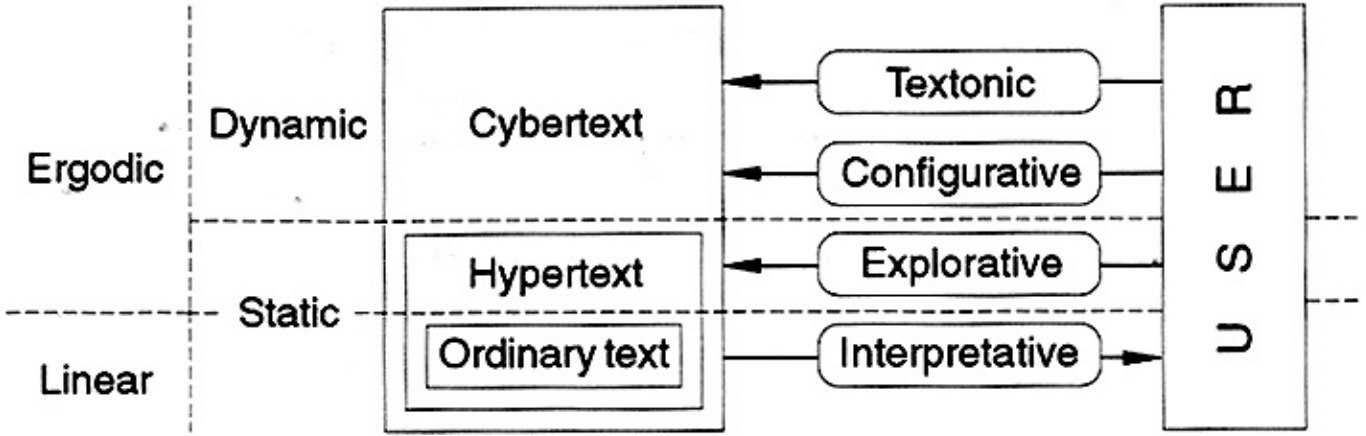


Figure 3.1. User Functions and Their Relation to Other Concepts

Aarseth's Concept of Ergodic Text

An ergodic text is one in which at least one of the four user functions, in addition to the obligatory interpretative function, is present.

Variable	*Possible value*
Dynamics	Static, IDT, TDT
Determinability	Determinable, indeterminable
Transiency	Transient, intransient
Perspective	Personal, impersonal
Access	Random, controlled
Linking	Explicit, conditional, none
User function	Explorative, configurative, interpretative, textonic

Table 3.1. Texts, by Typology Variables

Texts	Dynamics	Determinability	Transiency	Perspective	Access	Linking	User functions
Adventure	IDT	Determinable	Intransient	Personal	Controlled	Conditional	EF
Afternoon	Static	Determinable	Intransient	Impersonal	Controlled	Conditional	EF
Agrippa	IDT	Determinable	Transient	Impersonal	Controlled	Explicit	IF
Book Unbound	TDT	Indeterminable	Transient	Impersonal	Controlled	Conditional	TF
Calligrammes	Static	Determinable	Intransient	Impersonal	Random	None	EF
Cent Mille Milliards	Static	Determinable	Intransient	Impersonal	Random	None	CF
Composition No. 1	Static	Indeterminable	Intransient	Impersonal	Controlled	None	IF
Eliza	IDT	Determinable	Intransient	Personal	Controlled	Conditional	CF
Falcon	IDT	Indeterminable	Intransient	Personal	Controlled	Conditional	EF
Holzer	Static	Determinable	Transient	Impersonal	Controlled	None	IF
Hopscotch	Static	Determinable	Intransient	Impersonal	Random	Explicit	EF
I Ching	Static	Indeterminable	Intransient	Personal	Controlled	Conditional	CF
Moby Dick	Static	Determinable	Intransient	Impersonal	Random	None	IF
Money Spider	IDT	Determinable	Intransient	Personal	Controlled	Conditional	EF
MUD1	TDT	Indeterminable	Transient	Personal	Controlled	Conditional	EF
Norisbo	Static	Indeterminable	Intransient	Impersonal	Controlled	None	CF
Pale Fire	Static	Determinable	Intransient	Impersonal	Random	Explicit	IF
Racter	TDT	Indeterminable	Intransient	Personal	Controlled	Conditional	CF
Tale-spin	TDT	Indeterminable	Intransient	Impersonal	Controlled	None	CF
TinyMUD	TDT	Indeterminable	Transient	Personal	Controlled	Conditional	TF
Twin Kingdom Valley	TDT	Indeterminable	Intransient	Personal	Controlled	Conditional	EF
Unending Addventure	Static	Determinable	Intransient	Personal	Controlled	Explicit	TF
Victory Garden	Static	Determinable	Intransient	Impersonal	Controlled	Explicit	EF

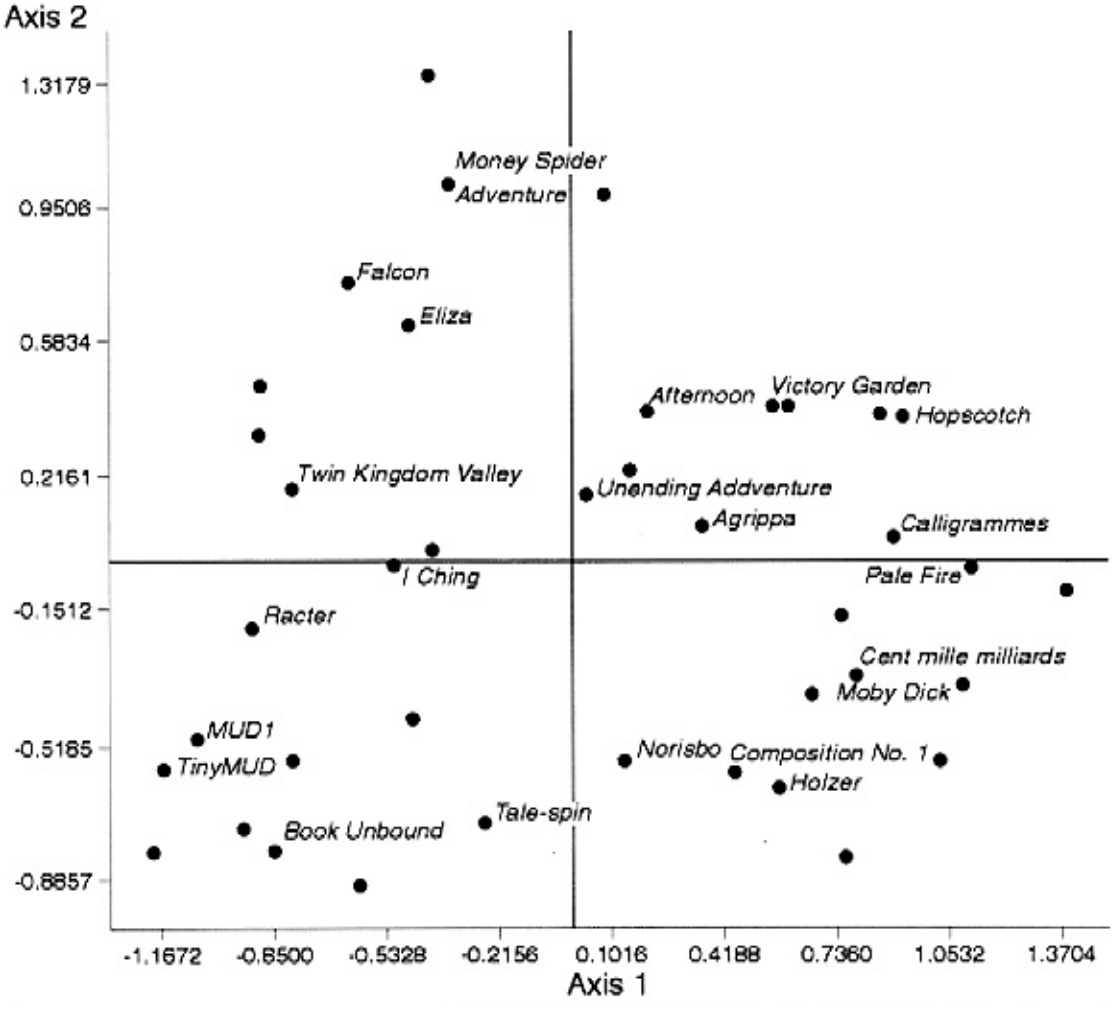


Figure 3.2. The Texts (unmarked dots are the categories; see figure 3.4)

What the author and reader can do with this literary dimension is shown in "Afternoon" by Michael Joyce (1987), one of the first examples of this new genre of interactive fiction. "Afternoon" combines the literary sophistication of a printed work with the immediacy of a computerized adventure game. "Afternoon" is a fiction and a game at the same time, and yet its visual structure is very simple. The reader confronts a window on the computer screen: episodes of "Afternoon," containing from one to a few hundred words, will appear successively in the window. At the bottom of the screen is a small bar, where the reader types replies in order to move to the next episode; the reader may also initiate movement by selecting a word from the current episode in the window. All the text of the episodes was written by Michael Joyce, but the particular order in which the episodes are visited is determined at the time of reading.

The term *interactive fiction* implies an equality between the reader and author beyond that found in other literary texts. In my experience, the reader is as much at the constructor's mercy in *Afternoon* as in any difficult text, although in a different way.

The connection between modernism and *Afternoon* is also confirmed by its author. In their 1987 article, "Hypertext and Creative Writing," Bolter and Joyce present hypertext as a "new kind of flexible, interactive fiction", "a continuation of the modern 'tradition' of experimental literature in print" (41). They see literary hypertext as belonging to the experimental tradition of "modernism, futurism, Dada surrealism, letterism, the nouveau roman, concrete poetry" by "disrupting the stability of the text"

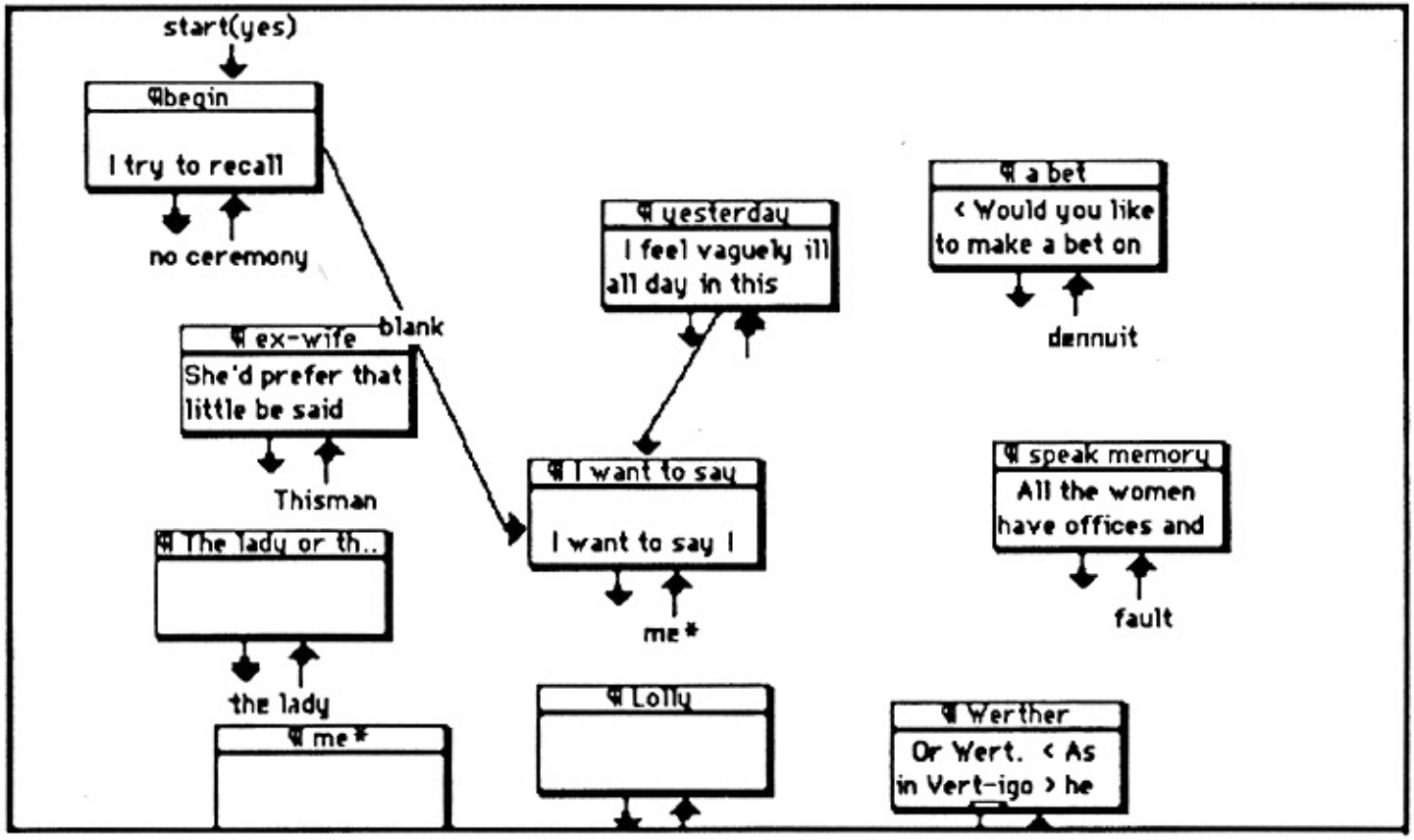


FIG. 8.1. "Afternoon" is a large network of linked episodes.

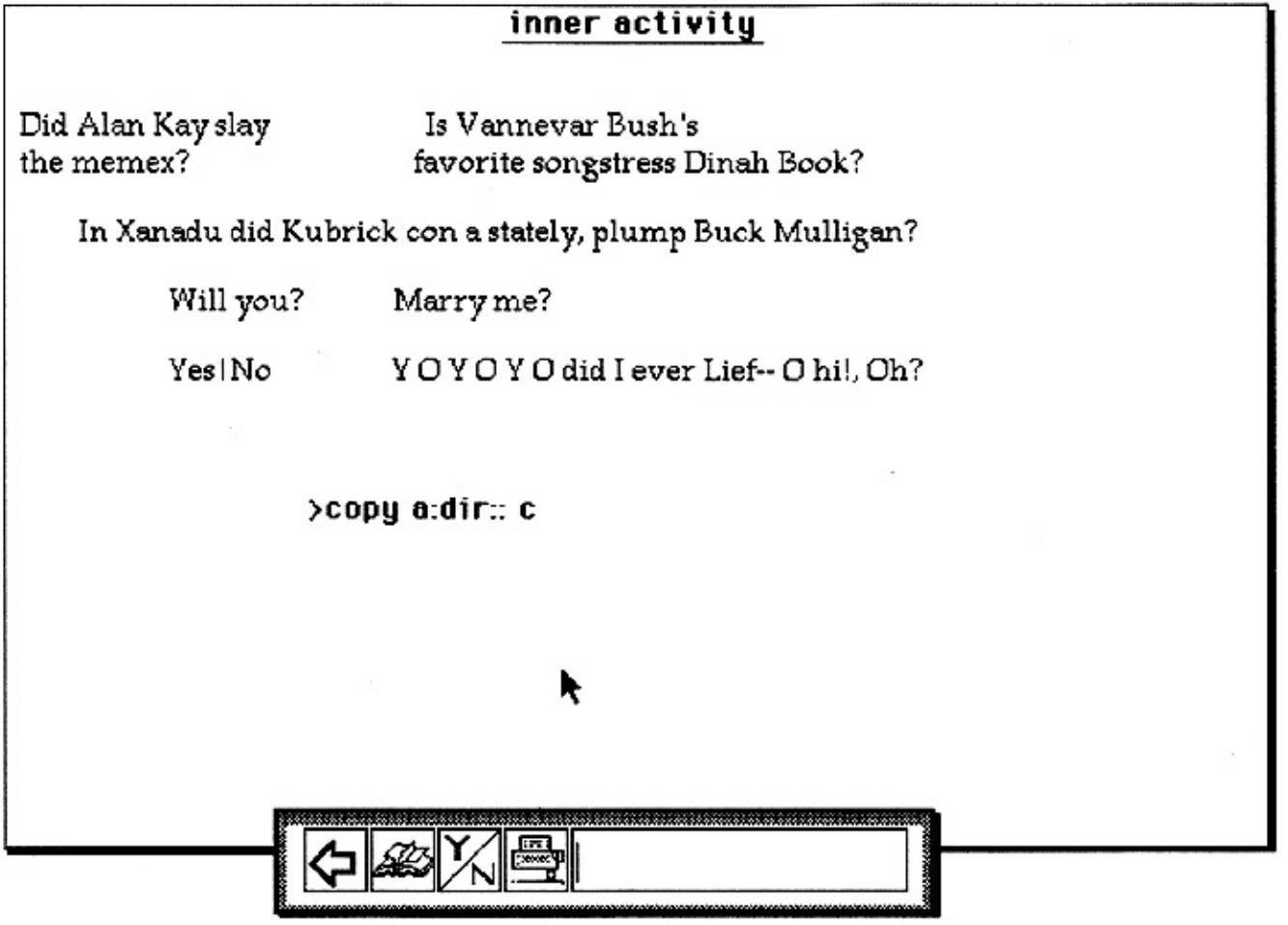
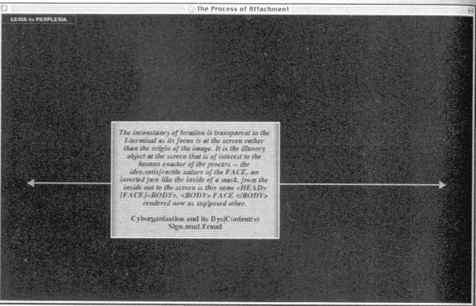


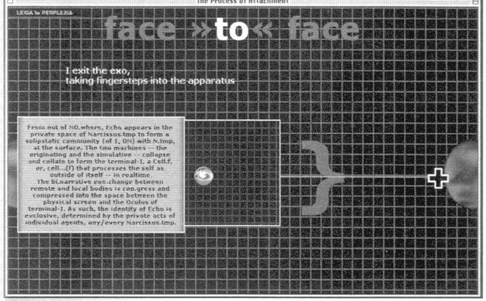
Figure 4.1. A Postmodernist Scripton in *Afternoon*

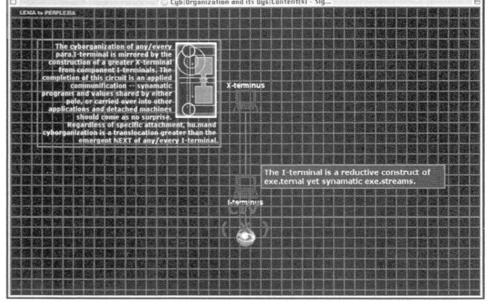
As Michael Joyce, our first major author of hypertext fiction, has explained, the desire to create multiple stories out of a relatively small amount of alphanumeric text provided a major force driving in writing *afternoon:*

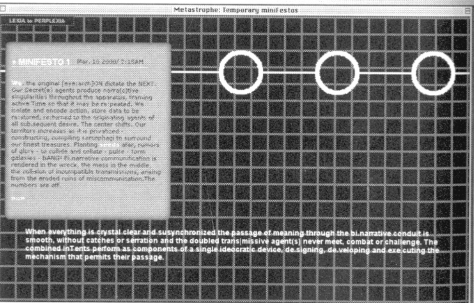
I wanted, quite simply, to write a novel that would change in successive readings and to make those changing versions according to the connections that I had for some time naturally discovered in the process of writing and that I wanted my readers to share. In my eyes, paragraphs on many different pages could just as well go with paragraphs on many other pages, although with different effects and for different purposes. All that kept me from doing so was the fact that, in print at least, one paragraph inevitably follows another. It seemed to me that if I, as author, could use a computer to move paragraphs about, it wouldn't take much to let readers do so according to some scheme I had predetermined. (*Of Two Minds*, 31)

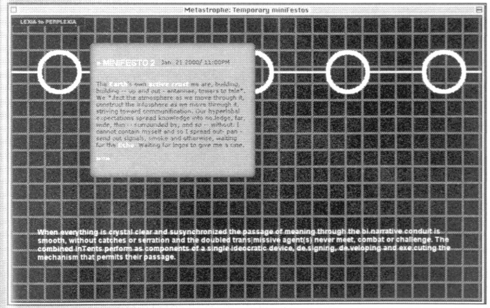
continuously between the narrative strands, the story seems to slip away and lose focus, as if someone wanted to sabotage the possibility of narrative progress and the reader's identification with the narratee. And while the narrator is making perfect sense to the narratee within every fragment, the disordered state of the fragments disrupts the narrator's effort, as if there were an "other"—an anti-narrator—who constantly derails and distracts the narrative. This other may or may not be the author, but he or she is at least as powerful as the author and more powerful than the narrator.

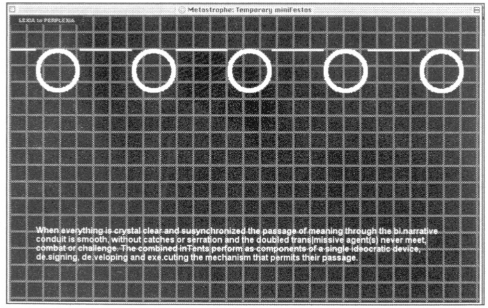

The Process of Attachment
LEXIA to PERPLEXIA
The inconstancy of location is transparent to the I-terminal as its focus is at the screen rather than the origin of the image. It is the illusory object at the screen that is of interest to the human enactor of the process -- the ideo.satisfactile nature of the FACE, an inverted face like the inside of a mask, from the inside out to the screen is this same <HEAD>|FACE|<BODY>. <BODY> FACE </BODY> rendered now as supposed other.
Cyborganization and its Dys|Content(s)
Sign.mud.Fraud

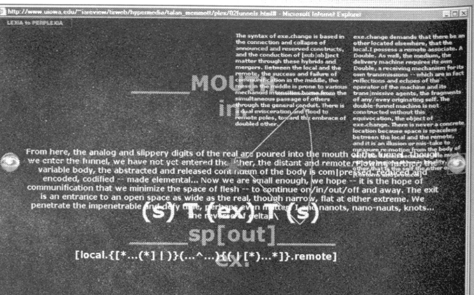

LEXIA to PERPLEXIA
face »to« face
I exit the exo,
taking fingersteps into the apparatus
From out of NO.where, Echo appears in the private space of Narcissus.tmp to form a solipstatic community (of 1, ON) with N.tmp, at the surface. The two machines -- the originating and the simulative -- collapse and collate to form the terminal-I, a Cell.f, or, cell...(f) that processes the self as outside of itself -- in realtime.
The bi.narrative exe.change between remote and local bodies is con.gress and compressed into the space between the physical screen and the Oculus of terminal-I. As such, the identity of Echo is exclusive, determined by the private acts of individual agents, any/every Narcissus.tmp.

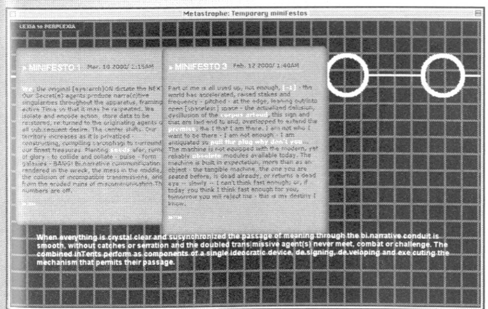

LEXIA to PERPLEXIA
The cyborganization of any/every para.I-terminal is mirrored by the construction of a greater X-terminal from component I-terminals. The completion of this circuit is an applied communification -- synamatic programs and values shared by either pole, or carried over into other applications and detached machines should come as no surprise. Regardless of specific attachment, hu.mand cyborganization is a translocation greater than the emergent NEXT of any/every I-terminal.
X-terminus
The I-terminal is a reductive construct of exe.ternal yet synamatic exe.streams.
I-terminus

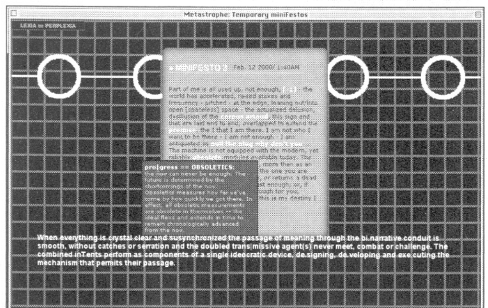

Metastrophe: Temporary miniFestos
LEXIA to PERPLEXIA
MINIFESTO 1 Mar. 10 2000/ 2:15AM
When everything is crystal clear and susynchronized the passage of meaning through the bi.narrative conduit is smooth, without catches or serration and the doubled trans|missive agent(s) never meet, combat or challenge. The combined inTents perform as components of a single ideocratic device, de.signing, de.veloping and exe.cuting the mechanism that permits their passage.


Metastrophe: Temporary miniFestos
LEXIA to PERPLEXIA
MINIFESTO 2 Jan. 21 2000/ 11:00PM
When everything is crystal clear and susynchronized the passage of meaning through the bi.narrative conduit is smooth, without catches or serration and the doubled trans|missive agent(s) never meet, combat or challenge. The combined inTents perform as components of a single ideocratic device, de.signing, de.veloping and exe.cuting the mechanism that permits their passage.


Metastrophe: Temporary miniFestos
LEXIA to PERPLEXIA
When everything is crystal clear and susynchronized the passage of meaning through the bi.narrative conduit is smooth, without catches or serration and the doubled trans|missive agent(s) never meet, combat or challenge. The combined inTents perform as components of a single ideocratic device, de.signing, de.veloping and exe.cuting the mechanism that permits their passage.


LEXIA to PERPLEXIA
From here, the analog and slippery digits of the real are poured into the mouth of the funnel, though we enter the funnel, we have not yet entered the other, the distant and remote. Floating within the variable body, the abstracted and released continuum of the body is com|pressed, reduced and encoded, codified -- made elemental... Now we are small enough, we hope -- it is the hope of communification that we minimize the space of flesh -- to continue on/in/out/off and away. The exit is an entrance to an open space as wide as the real, though narrow, flat at either extreme. We penetrate the impenetrable and defy time, perhaps even matter. I, the nanots, nano-nauts, knots...
sp[out]
[local.{[*...(*] |)}(...^...){(| [*)...*]}.remote]


Metastrophe: Temporary miniFestos
LEXIA to PERPLEXIA
MINIFESTO 1 Mar. 10 2000/ 2:15AM
MINIFESTO 3 Feb. 12 2000/ 1:40AM
When everything is crystal clear and susynchronized the passage of meaning through the bi.narrative conduit is smooth, without catches or serration and the doubled trans|missive agent(s) never meet, combat or challenge. The combined inTents perform as components of a single ideocratic device, de.signing, de.veloping and exe.cuting the mechanism that permits their passage.

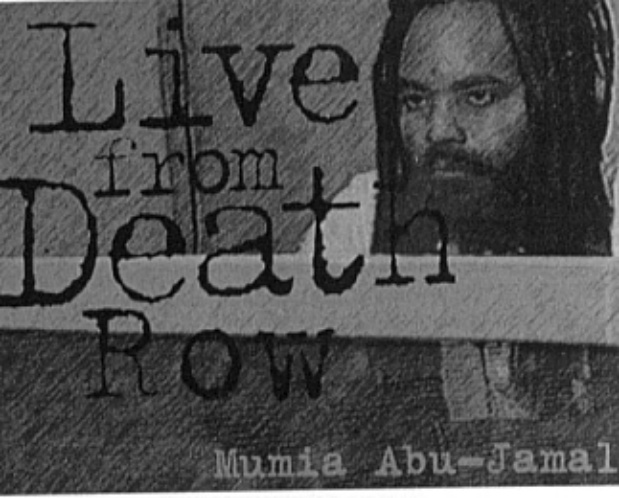

Metastrophe: Temporary miniFestos
LEXIA to PERPLEXIA
MINIFESTO 3 Feb. 12 2000/ 1:40AM
pro|gress == OBSOLETICS:
When everything is crystal clear and susynchronized the passage of meaning through the bi.narrative conduit is smooth, without catches or serration and the doubled trans|missive agent(s) never meet, combat or challenge. The combined inTents perform as components of a single ideocratic device, de.signing, de.veloping and exe.cuting the mechanism that permits their passage.

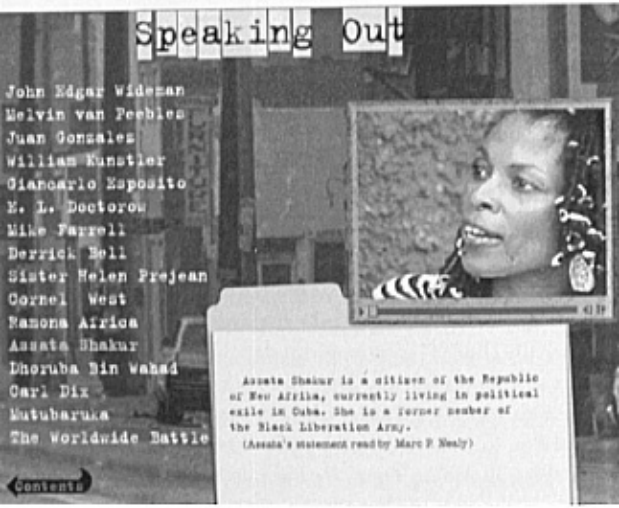
moreover a writer whose operations we cannot wholly grasp in all *their semiotic* complexity. Illegibility is not simply a lack of meaning, then, but a signifier of distributed cognitive processes that construct reading as an active production of a cybernetic circuit and not merely an internal activity of the human *mind.*

When Lexia to *Perplexia* hovers at the border of *legibility, it hints* that our bodies are also undergoing metamorphoses. What we read when we cannot read is not so much the disjunction between us and the computer (for it is always possible to access the underlying code and hack our way into a readable version of the non-readable text). Rather, the occluded display signifies a trajectory in which we become part of a cybernetic circuit. Interpolated into the circuit, we metamorphose from individual interiorized subjectivities to actors exercising agency within the extended cognitive systems that include non-human actors. In this broader context, illegible text reminds us of the changes our bodies are undergoing as they are remapped and reinterpreted by intelligent machines working within networks that bind together our flesh with their electronic materiality. In this posthuman conjunction, bodies of texts and bodies of subjects evolve together in complex configurations that carry along the past even as they arc toward an open and unknown future.

Typical is the opening screen locating the origin of the self in a specular play with an Other:

As we have seen, *Lexia to Perplexia* moves toward a creole devised from the merging of English with programming code. Creole expressions include the cell...f (and cell.f) noted above, homophones for self that conflate identity with a pixilated cell and the notation for a mathematical function, respectively; inTents, a pun that collapses intensity into intentionality and also references the programming practice of using interior capitalization to make clearly visible two functions in a variable name that allows no spaces; exe.stream, another pun that references and inverts the usual use of the exe. extension to denote an executable program; and *.fect, a neologism that alludes to the programming practice of using * as a wild card, so *.fect could be read as infect, defect, disinfect, etc. To what purpose is this creole concocted? Compounded of language and code, it forms the medium through which the origin of subjectivity can be re-described as coextensive with technology. Just as these hybrid articulations do not exist apart from their penetration by code, so the subject does not exist apart from the technology that produces the creole describing/creating the techno-subject.





The title screen of *First Person: Mumia Abdu-Jamal*.

Text, audio, and digital video combine in *First Person: Mumia Abdu-Jamal*.

Graham Harwood, *Rehearsal of Memory*, 1996. Moving over body parts, many of them covered with tattoos, users uncover text fragments that tell the stories of the inmates – stories of revenge, violence, and self-mutilation. The multimedia collage successfully blends the surface of the body with its psychology, inscribing personal stories on the person's skin.

My Dad's always been handy with his fists.

Before I was born, he used to box. He also used his fists on our family.

He was quite a big man, my Dad.
He was about five foot ten, broad and muscular.
He had a bit of a belly, though.
And he was covered with tattoos over both arms.
He had a small face that was completely pock-marked.

He always stank of tobacco.
He'd never smoke tailor-made cigarettes,
always rolled his own. When he talked,
you could tell he wasn't interested in anybody's
opinion but his own.
And if he couldn't get his own way by talking,
the fists'd start coming.

After my attempted suicide,
I didn't want to go back home with my dad. So a social worker arranged for me to stay in a guest house in Darlington.

I started going out with a woman there who had split up with her husband. Her name was Jane and she had a little boy who was about seven months old. She was a nice girl, a bit loud but she had a smashing personality. When the council found her a house in Aycliffe, I'd stay over for the odd night.

I'd gone back to the guest house to collect my giro when I was confronted by the landlady. She told me that, if I didn't stop sleeping at Jane's, then there'd be no alternative but to throw me out. I stopped seeing Jane and plodded along at the guest house but things were getting worse for me. I was always moody and I started having these thoughts about cutting up.

My Mam tried her best with my Dad but she was, and still is, quite weak. She solved her problems with the bottle and always bowed to pressure from him.

One night I was woken by the sounds of shouts and crying, and I knew it was my Mam and Dad fighting. I was late up the next morning because my Mam hadn't been in to wake me up. When I got downstairs, there was only my Dad lighting the fire. I asked where my Mam was and he said she'd gone to stay with friends.

A day or two later, she was back at home and it wasn't long before they were fighting again about my Mam being drunk. Dad started throwing plates around the room and I couldn't take any more. I ran up to my room and started crying. I felt sick with worry and hate for my Dad and I was sorry for my Mam.

I'd made up my mind to run away from home.

Although I had not cut up for quite a while, I was finding it very hard to resist the temptation. I managed to last for about six months without the need to do this and then, wallop, I had gone and done it again.

This was the worst I'd ever cut up before. I cut open my old appendix wound, stuck pins on the inside of the wound and swallowed a broken light bulb.

I was ill for a very long time.
When I came out of hospital the PCTM decided to move me to another ward.

A few weeks later, I cut up for the first time.
I got hold of a syringe and injected mouthwash into my arm, hoping that it would enter a vein and that I would die.

I also cut my left arm.
This didn't work and all that happened is that I missed the vein and caused a large abscess to appear on my arm.

A few days after, I went to the hospital.

I was seven and I'd run away from home loads of times. I went in my Mam's bedroom and took her money.

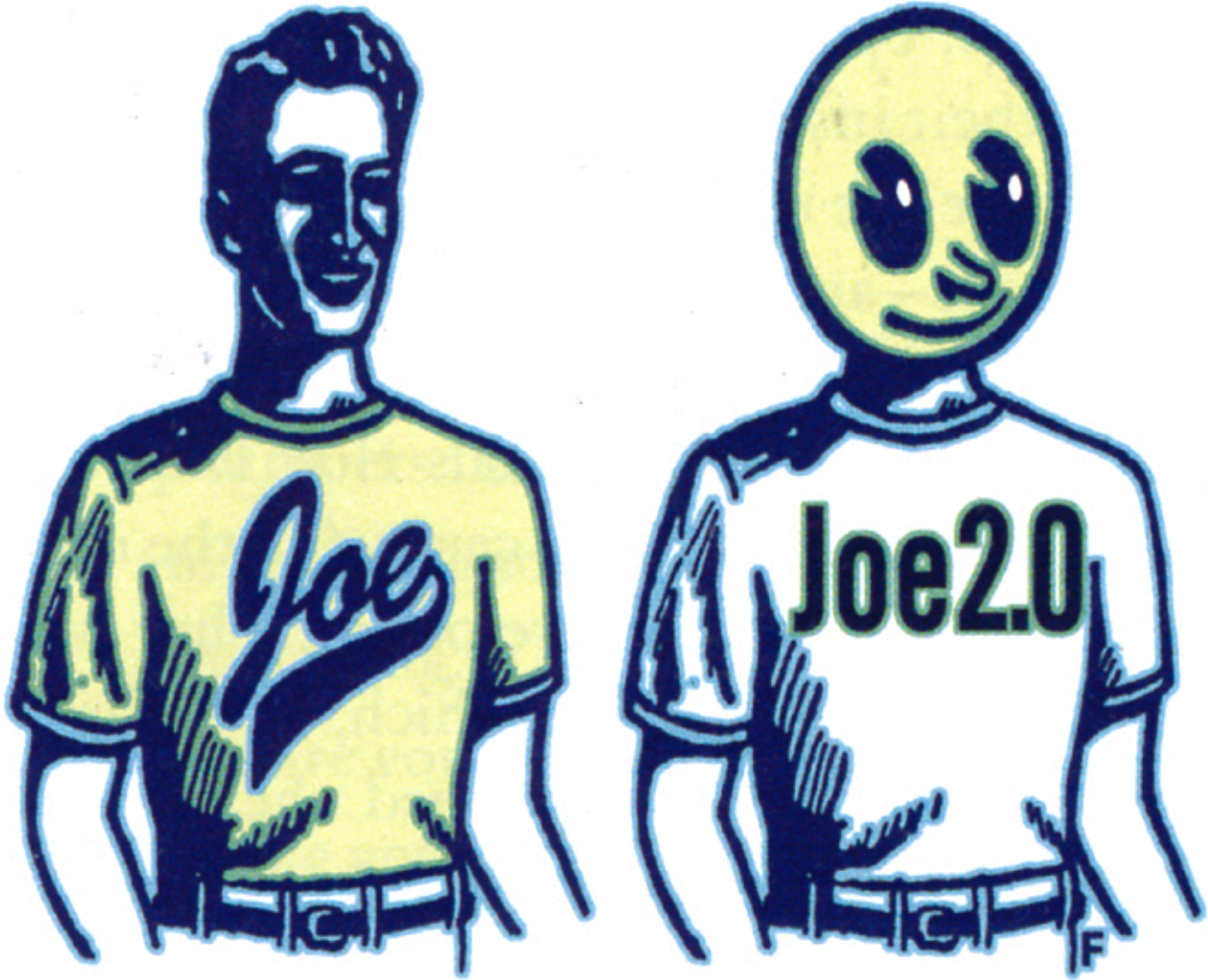
I got the first bus that I saw and got off half an hour later in Stockton town centre. I wandered around for a while. Later I got fire to some rubbish in a bin because I was cold. A police car pulled up. The policeman asked me some questions then took me off to the station.

When we arrived, my Dad was sitting there waiting for me. A policeman told my Dad to keep an eye on me; and if I ran away again they'd inform the social services.

The next day, when I got home from school, there was a bolt on the outside of my door. I asked my dad what it was for and he said to stop me from running away again. That night when I went to bed, I was locked in my room by my Dad and he said 'Now try and run'. There was a plastic bucket. I didn't have to ask what this was for. I felt like a prisoner trapped in my room.

In *Hegirascope*, the text fragments are "pulled," like a non-interruptible slide show, after a specified number of seconds, typically fifteen to twenty, and replaced with the next fragment. This puts the reader under severe strain, forcing him to skim the text before it disappears, an ironic subversion of the traditional modus operandi of the Web surfer. In addition, *Hegirascope's* text nodes contains normal links, which give the reader some slight sense of control, but he is left with the feeling of rowing against the current in a mighty river.


The Social Media Reader
Edited by
Michael Mandiberg
more
TWITTER
TROLL BAY
SEA OF MEMES
SEA OF PROTOCOL CONFUSION
SKYPE
AIM
MMO ISLE
WoW
GREAT FIREWALL
GULF OF CHINA
YOUTUBE



MARK S. FISHER

Then, in 2004, O'Reilly and his business partner Dale Dougherty hit on the idea of "Web 2.0." What did "2.0" mean, exactly? There was some theoretical ambition to this label—more about that later on—but the primary goal was to show that the 2001 market crash did not mean the end of the web and that it was time to put the crash behind us and start learning from those who survived.

Tim O'Reilly coins term "Web 2.0" The idea of the Internet as both a repository and incubator of "collective intelligence" was very appealing to Silicon Valley, not least because it tapped into the New Age rhetoric of the 1970s, but the dotcom crash briefly forced O'Reilly to put his philosophizing on hold.

At least O'Reilly is perfectly clear about how people can succeed in the future. Toward the end of his Long Now Foundation talk, he admits that

> [the] future of collective intelligence applications is a future in which the individual that we prize so highly actually has less power—except to the extent that that individual is able to create new mind storms. . . . How will we influence this global brain? The way we'll influence it is seen in the way that people create these viral storms . . . . We're going to start getting good at that. People will be able to command vast amounts of attention and direct large groups of people through new mechanisms.

"Open source" gave us the "the Internet," "the Internet" gave us "Web 2.0," "Web 2.0" gave us "Enterprise 2.0": in this version of history, Tim O'Reilly is more important than the European Union. Everything needed to be rethought and redone: enterprises, governments, health care, finance, factory production. For O'Reilly, there were few problems that could not be solved with Web 2.0:


HERE. FIX THE WORLD WITH THIS.
MUELLER

The people formerly known as the audience are those who were on the receiving end of a media system that ran one way, in a broadcasting pattern, with high entry fees and a few firms competing to speak very loudly while the rest of the population listened in isolation from one another—and who today are not in a situation like that *at all.*

- Once they were your printing presses; now that humble device, the blog, has given the press to us. That's why blogs have been called little First Amendment machines.[1] They extend freedom of the press to more actors.
- Once it was *your* radio station, broadcasting on *your* frequency. Now that brilliant invention, podcasting, gives radio to us. And we have found more uses for it than you did.

If, as some have argued, the emergence of modern mass media spelled the doom for the vital folk culture traditions that thrived in nineteenth-century America, the current moment of media change is reaffirming the right of everyday people to actively contribute to their culture. Like the older folk culture of quilting bees and barn dances, this new vernacular culture encourages broad participation, grassroots creativity, and a bartering or gift economy. This is what happens when consumers take media into their own hands.

- Shooting, editing and distributing video once belonged to you, Big Media. Only you could afford to reach a TV audience built in your own image. Now video is coming into the user's hands, and audience-building by former members of the audience is alive and well on the web.
- You were once (exclusively) the editors of the news, choosing what ran on the front page. Now we can edit the news, and our choices send items to our own front pages.[2]
- A highly centralized media system had connected people "up" to big social agencies and centers of power but not "across" to each other. Now the horizontal flow, citizen-to-citizen, is as real and consequential as the vertical one.

The "former audience" is Dan Gillmor's term for us.[3] (He's one of our discoverers and champions.) It refers to the owners and operators of tools that were once exclusively used by media people to capture and hold their attention.

Jeff Jarvis, a former media executive, has written a law about us. "Give the people control of media, they will use it. The corollary: Don't give the people control of media, and you will lose. Whenever citizens can exercise control, they will."

- Services, not packaged software, with cost-effective scalability
- Control over unique, hard-to-re-create data sources that get richer as more people use them
- Trusting users as codevelopers
- Harnessing collective intelligence
- Leveraging the long tail through customer self-service
- Software above the level of a single device
- Lightweight user interfaces, development models, *and* business models

Web 1.0	*Web 2.0*
DoubleClick	Google AdSense
Ofoto	Flickr
Akamai	BitTorrent
mp3.com	Napster
Britannica Online	Wikipedia
personal websites	blogging
evite	upcoming.org and EVDB
domain name speculation	search engine optimization
page views	cost per click
screen scraping	web services
publishing	participation
content management systems	wikis
directories (taxonomy)	tagging ("folksonomy")
stickiness	syndication

TABLE 7.1

Journalistic Models and Their Visions of the New Audience

	The audience's relationship to journalism as . . .	*The audience's internal relationship to itself as . . .*	*The audience's relationship to politics as . . .*
Professional journalism sees . . .	consumptive, agenda receiving, occasionally as sources	atomistic, consumptive	disengaged, aggregated
Public journalism sees . . .	deliberative, agenda setting	A conversational public	engaged, communicative via deliberation
Indymedia journalism sees . . .	participatory, agenda setting; journalism provides audience with "ammunition"	agonistic, witnessing, and occupying public *sphericules*	engaged, confrontational, witnessing
Algorithmic journalism sees . . .	agenda setting, nonparticipatory, atomized	algorithmic, quantifiable	—

For most of the 1980s and '90s the dominant conceptions of democracy were either conversational or aggregative, and public journalism was the primary challenger to traditional journalistic practice. I want to argue that a third vision of democracy reemerged with the Indymedia movement in the first years of the twenty-first century, a vision that can be generally described as agonistic. Chantal Mouffe has been the primary proponent of this idea of democracy, contrasting it explicitly with Habermasian visions of political consensus achieved via deliberative talk and reason giving. Mouffe writes,

> A well-functioning democracy calls for a vibrant clash of democratic political positions. If this is missing there is the danger that this democratic confrontation will be replaced by a confrontation among other forms of collective identification, as is the case with identity politics. Too much emphasis on consensus and the refusal of confrontation lead to apathy

The radical-pluralist approach finds its justification above all as a critique of political theorists that measure their success by the elimination of dissonance and conflict. Instead of confining politics to the tasks of building consensus or consolidating communities and identities, the radical pluralist approach aims to shift the emphasis of democratic politics to the processes of dislocation, contestation and resistance.

NICK DYER-WITHEFORD

CYBER-MARX

CYCLES AND CIRCUITS OF STRUGGLE IN HIGH-TECHNOLOGY CAPITALISM

Database management is a core competency of Web 2.0 companies, so much so that we have sometimes referred to these applications as "infoware" rather than merely software.

This fact leads to a key question: Who owns the data?

immaterial labor is predicated on collaboration, and yet the continued accumulation of capital hinges on the privatization of intellectual-property rights. As Michael Hardt puts it, "There is emerging a powerful contradiction, in other words, at the heart of capitalist production between the need for the common in the interest of productivity and the need for the private in the interest of capitalist accumulation."

(Hardt influenced by Italian *operaismo* theory)

journal *Futur antérieur*. These theorists examined the impact of information technology on production processes and social formations on a global scale. Particularly important in this context were the speculative writings of Marx in his *Grundrisse*, which prophesized precisely such a transformation of production. For Marx, the creation of wealth in the capitalist societies of the future would come to depend not on the direct expenditure of labor time but rather on "the general productive forces of the social brain." For theorists such as Toni Negri, Paolo Virno, Maurizio Lazzarato, Michael Hardt, and Jean-Paul Vincent, the heightened significance of this *general intellect* was made possible by the ever more central role of automation and of communication networks in contemporary processes of production.

the incessantly mutating character of the people who create and operate such technology. This variable human factor they termed *mass intellect* or *immaterial labor*. Just as the conditions of production in Marx's day had created revolutionary conditions by concentrating the proletariat in factories, so immaterial labor was linked together through the networked conditions of cognitive labor. For theorists such as Franco Berardi, contemporary conditions have produced a potentially revolutionary class in formation: the cognitariat. The key question in the unfolding struggles of the neoliberal era for the *Futur antérieur* theorists was the extent to which capital could absorb and control immaterial labor.

If the cognitariat had fancied themselves significant stakeholders in information capitalism, the dot-com crash, Franco Berardi argued, laid bare their precarious status as flexible wage slaves subjected to remorseless strategies of speed-up, outsourcing, and downsizing. Yet an important form of rebellion had begun well before this economic downturn. If immaterial labor depends on communication and collaboration, the cognitariat has consistently asserted the noncommodified, commons-based character of digital culture from its inception. There are many facets to this culture of the digital commons, from the exchange of music using peer-to-peer file-sharing technology to the collaborative creation of Wikipedia to the creation of Creative Commons licenses designed to allow creative remixing of cultural artifacts.

The thing that ties these diverse strands together, according to David Bollier, is an emphasis on commons-based values of participation, transparency, egalitarianism, and freedom. Contemporary capitalism thrives through asserting control over information using intellectual-property regimes such as those sanctified by the World Trade Organization, hence assuring the scarcity and consequent exorbitant value of such information. Against this trend, cognitarian rebels have developed a postscarcity information economy grounded in the networked commons.

This new commons movement is not, however, simply based on a shift in values away from proprietary models of intellectual property. In addition, digital technologies are leveraging new forms of social communication, removing many of the technical barriers that impeded the organization of large groups of people from the grassroots up, barriers that had helped foster relatively hierarchical and authoritarian organizational forms such as the modern state and the vanguard political party.[41] As Jeffrey Juris has documented, social networking technologies have played an important role in the global justice movement, linking geographically isolated groups such as the Zapatista Army.

After all, as David Golumbia has argued at great length, digitization is not necessarily emancipatory. For Golumbia, the notion that we are witnessing a complete sea change in social relations catalyzed by digital technologies with inherently progressive potential is a form of ideology, one which he dubs computationalism. While recognizing and celebrating the exploits of transgressive hackers and the free/libre/open-source software (FLOSS) movement, Golumbia notes that the predominant use of computers in contemporary culture is to augment the demarcating, concentrating, and centralizing power of dominant social institutions such as the State and transnational corporations. A similar point, with the statistics to back it up, is made by Mathew Hindman in *The Myth of Digital Democracy*.

As Andrew Ross puts it in a recent discussion of precarious labor that charts the overlaps and disjunctures between those at the top and those at the bottom of the labor market today,

> Because they are generally indisposed to state intervention, FLOSS advocates have not explored ways of providing a sustainable infrastructure for the gift economy that they tend to uphold. Nor have they made it a priority to speak to the interests of less-skilled workers who live outside their ranks. On the face of it, there is little to distinguish this form of consciousness from the guild labor mentality of yore that sought security in the protection of craft knowledge.

For Ross, (prototypically liberal) notions of freedom endemic to the cognitariat need to be supplemented and transformed by a movement for social justice that cuts across classes, catalyzing what Caffentzis and Federici would call a political "recomposition" of the workforce.

Nick Dyer-Witheford's recent model of a twenty-first-century communism as "a complex unity of terrestrial, state and networked commons" goes some way toward conceptualizing such an articulatory politics.[58] Crucial to his theorization, indeed, is a vision of the networked commons that, despite its role as "the strategic and enabling point" in this ensemble, must nevertheless be seen in its dependency on and potential contradiction with other commons sectors. The successful articulation of these different commons, or their disarticulation by capital, lies, in other words, in the realm of radical democratic politics rather than in any inherent features of immaterial labor.

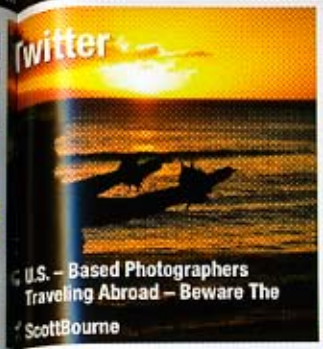
As more of our data, and the programs to manipulate and communicate this data, move online, there is a growing tension between the dynamics on the front-end (where users interact) and on the back-end (to which the owners have access). If we look at the front-end, the social media of Web 2.0 may well advance semiotic democracy, that is, "the ability of users to produce and disseminate new creations and to take part in public cultural discourse."[1] However, if we consider the situation from the back-end, we can see the potential for Spectacle 2.0, where new forms of control and manipulation, masked by a mere simulation of involvement and participation, create the contemporary version of what Guy Debord called "the heart of the unrealism of the real society."

While many old-skool cyberpunks wanted to live in a virtual reality, always-on folks are more interested in an augmented reality. We want to be a part of the network.

Flipboard
your social magazine

Contents

Edit



Being always-on is not just about consumption and production of content but also about creating an ecosystem in which people can stay peripherally connected to one another through a variety of microdata. It's about creating networks and layering information on top. The goal of being connected is not simply to exchange high-signal content all the time. We also want all of the squishy, gooey content that keeps us connected as people. In our world, phatic content like posting what you had for breakfast on Twitter is AOK. Cuz it can enhance the social context. Of course, some people do go too far. But that's what teasing is meant for.

Akamai vs. BitTorrent

Like DoubleClick, Akamai is optimized to do business with the head, not the tail, with the center, not the edges. While it serves the benefit of the individuals at the edge of the web by smoothing their access to the high-demand sites at the center, it collects its revenue from those central sites.

BitTorrent, like other pioneers in the peer-to-peer (P2P) movement, takes a radical approach to Internet decentralization. Every client is also a server; files are broken up into fragments that can be served from multiple locations,

transparently harnessing the network of downloaders to provide both bandwidth and data to other users. The more popular the file, in fact, the faster it can be served, as there are more users providing bandwidth and fragments of the complete file.

BitTorrent thus demonstrates a key Web 2.0 principle: *the service automatically gets better the more people use it*. While Akamai must add servers to improve service, every BitTorrent consumer brings his or her own resources to the party. There's an implicit "architecture of participation," a built-in ethic of cooperation, in which the service acts primarily as an intelligent broker, connecting the edges to each other and harnessing the power of the users themselves.

Google's lightweight programming model has led to the creation of numerous value-added services in the form of mashups that link Google Maps with other Internet-accessible data sources. Paul Rademacher's housingmaps.com, which combines Google Maps with Craigslist apartment-rental and home-purchase data to create an interactive housing search tool, is the preeminent example of such a mashup.

The "blogosphere" can be thought of as a new, peer-to-peer equivalent to Usenet and bulletin boards, the conversational watering holes of the early Internet. Not only can people subscribe to each other's sites and easily link to individual comments on a page, but also, via a mechanism known as trackbacks, they can see when anyone else links to their pages and can respond, either with reciprocal links or by adding comments.

If an essential part of Web 2.0 is harnessing collective intelligence, turning the web into a kind of global brain, the blogosphere is the equivalent of constant mental chatter in the forebrain, the voice we hear in all of our heads. It may not reflect the deep structure of the brain, which is often unconscious, but is instead the equivalent of conscious thought. And as a reflection of conscious thought and attention, the blogosphere has begun to have a powerful effect.

If blogging were merely an amplifier, it would be uninteresting. But like Wikipedia, blogging harnesses collective intelligence as a kind of filter. What James Surowiecki calls "the wisdom of crowds" comes into play, and much as PageRank produces better results than analysis of any individual document, the collective attention of the blogosphere selects for value.

A blog, at its most basic, is just a personal home page in diary format. But as Rich Skrenta notes, the chronological organization of a blog "seems like a trivial difference, but it drives an entirely different delivery, advertising and value chain."

One of the things that has made a difference is a technology called RSS.[8] RSS is the most significant advance in the fundamental architecture of the web since early hackers realized that CGI could be used to create database-backed websites. RSS allows someone not just to link to a page but to subscribe to it, with notification every time that page changes. Skrenta calls this "the incremental web." Others call it the "live web."

RSS is now being used to push not just notices of new blog entries but also all kinds of data updates, including stock quotes, weather data, and photo availability. This use is actually a return to one of its roots: RSS was born in 1997 out of the confluence of Dave Winer's "Really Simple Syndication" technology, used to push out blog updates, and Netscape's "Rich Site Summary," which allowed users to create custom Netscape home pages with regularly updated data flows. Netscape lost interest, and the technology was carried forward by blogging pioneer Userland, Winer's company. In the current crop of applications, though, we see the heritage of both parents.

But RSS is only part of what makes a weblog different from an ordinary web page. Tom Coates remarks on the significance of the permalink:

> It may seem like a trivial piece of functionality now, but it was effectively the device that turned weblogs from an ease-of-publishing phenomenon into a conversational mess of overlapping communities. For the first time it became relatively easy to gesture directly at a highly specific post on someone else's site and talk about it. Discussion emerged. Chat emerged. And—as a result—friendships emerged or became more entrenched. The permalink was the first—and most successful—attempt to build bridges between weblogs.

Social network aggregators

Social network aggregation platforms allow members to share their other social network activities like Twitter, Youtube, Stumbleupon, Digg, Delicious, and other major platforms. One can also integrate their blog posts and comments in the aggregation platform. Everything is shown in real time to other members who subscribe to a particular community, which eliminates the need to jump from one social media network to another, trying to keep an eye on one's interests.

Distributed social networking

Main article: distributed social network

In March 2008, *The Economist* reported that social network services are only beginning the move away from "walled gardens" to more open architectures. Some sites are working together on a "data portability workgroup", while others are focusing on a single sign-on system called OpenID to allow users to log on across multiple sites. Historically the trend from private services to more open ones can be seen across many Internet services from email and instant messaging to the move that early online service providers made to become websites.[9] The OpenSocial initiative aims to bridge the member overlap between various online social network services.

TABLE 7.1

Journalistic Models and Their Visions of the New Audience

	The audience's relationship to journalism as . . .	*The audience's internal relationship to itself as . . .*	*The audience's relationship to politics as . . .*
Professional journalism sees . . .	consumptive, agenda receiving, occasionally as sources	atomistic, consumptive	disengaged, aggregated
Public journalism sees . . .	deliberative, agenda setting	A conversational public	engaged, communicative via deliberation
Indymedia journalism sees . . .	participatory, agenda setting; journalism provides audience with "ammunition"	agonistic, witnessing, and occupying public *sphericules*	engaged, confrontational, witnessing
Algorithmic journalism sees . . .	agenda setting, nonparticipatory, atomized	algorithmic, quantifiable	—

VIRTUAL OLYMPICS

Television is taking over sport so why not move the Olympics into the world of virtual reality – completely.

In the virtual world, the Olympics could always take place in Olympia and the marathon at Marathon, but in effect be organised anywhere and everywhere. No arguing about the venue... No need to travel, build stadia, accommodation, pools and velodromes. The virtual world – like the virtual world of television – takes over.

Char Davies and her development team at SoftImage have consciously addressed the goal of creating a different, more painterly aesthetic for the navigable space in their interactive VR installation *Osmose* (1994–1995). From the point of view of the history of modern art, the result hardly represented something new. *Osmose* simply replaced the usual hard-edge, polygonal, Cézanne-like look of 3-D computer graphics with a softer, more atmospheric, Renoir- or late Monet-like environment made of translucent textures and flowing particles. Yet, in the context of other 3-D virtual worlds, it was an important advance. The "soft" aesthetic of *Osmose* is further supported through the use of slow cinematic dissolves between its dozen or so worlds. Like in *Aspen Movie Map* and *Legible City,* the navigation in *Osmose* is modeled on a real-life experience, in this case, scuba diving. The "immersant" controls navigation by breathing: Breathing in sends the body upward, while breathing out makes it fall.

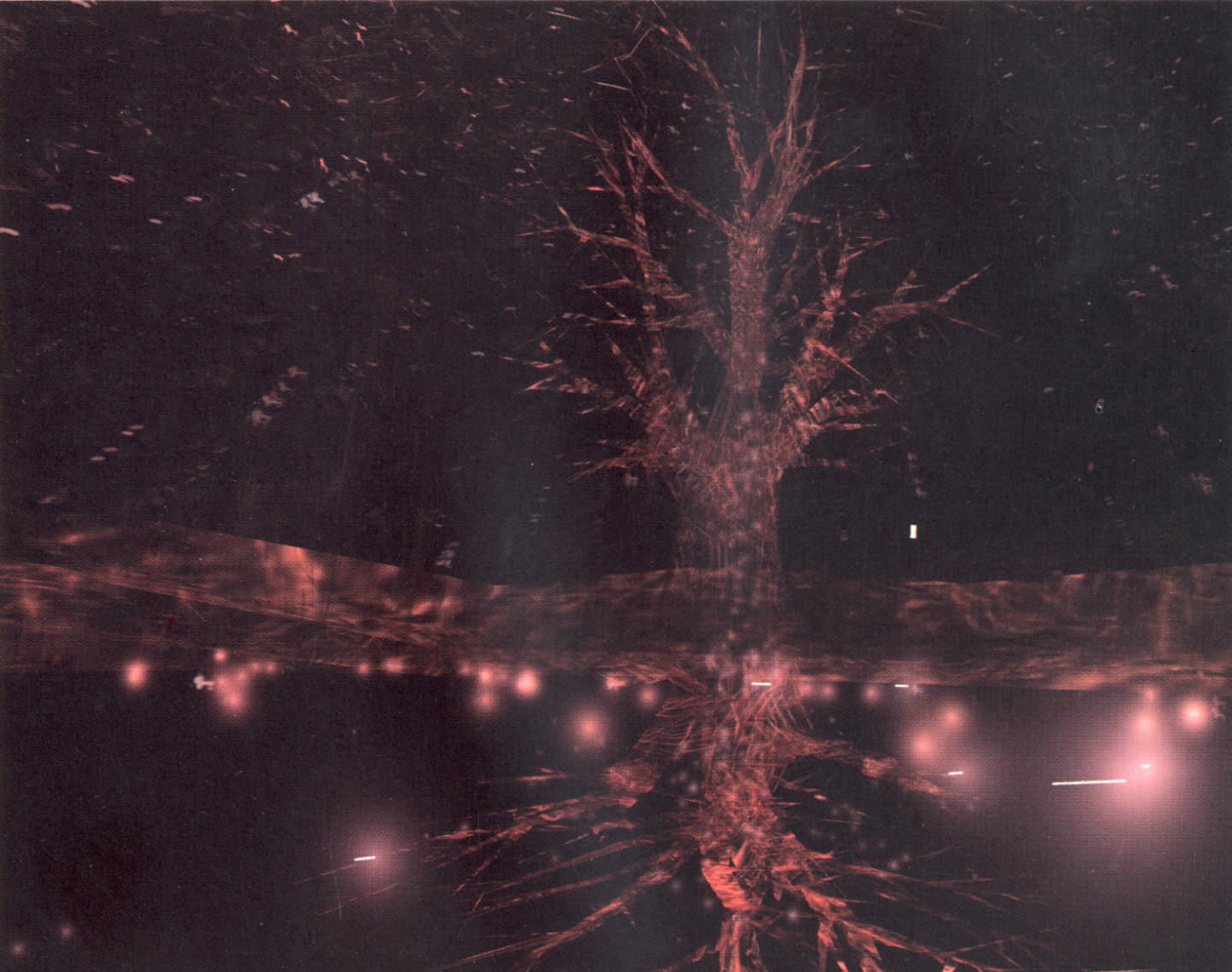


Table 4.2 — Figuring Virtual Subjectivity

The Oral Subject

Fluid, changing, situational, dispersed, conflicting.

The Written Subject

Fixed, coherent, stable, self-identical, normalized, decontextualized.

The Virtual Subject

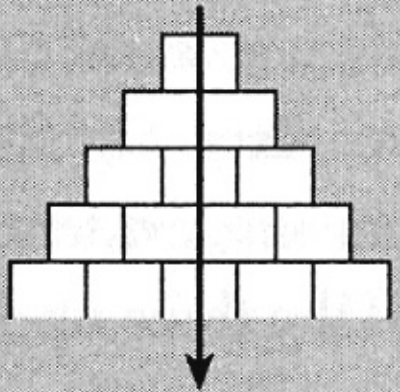
Formed through dynamical interfaces with computers.

When interface is keyboard and screen, space belongs to the computer, flow to the user.

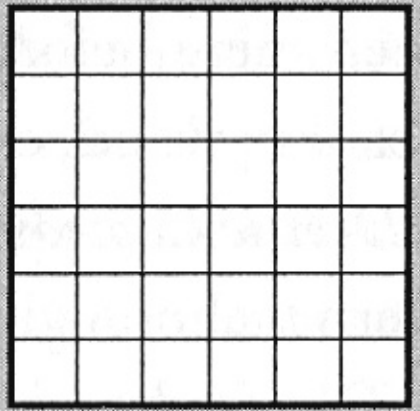
Body boundaries extended or disrupted through proprioceptive coherence formed in conjunction with computer interfaces.

A cyborg.

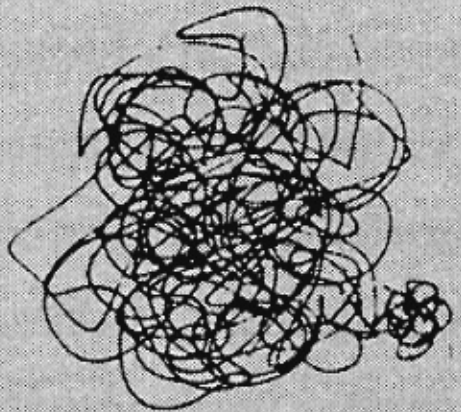
Branching



Matrix



Rhizomatic



Cartesianism

Mind is split from body
In our digital age this is re-figured as information split from 'the meat.'

The Cyborg Self

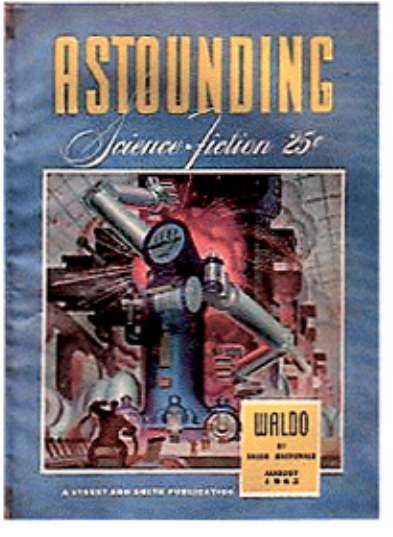
Reconstructing the self as cybernetic requires a reconsideration of the boundaries between body and machine technologies that invade, colonize, deform, or enhance it.

One's sense of selfhood would then seem far from both the body and technology; given one's ability to think, it makes it seem that mind exists in a detachment from the usual sense of embodiment; a solipsistic self seems created detached from "the meat," the body. Cartesianism creeps back into fashion theoretically.

Waldo (short story)

From Wikipedia, the free encyclopedia

For other uses of the word and name "Waldo", see Waldo.



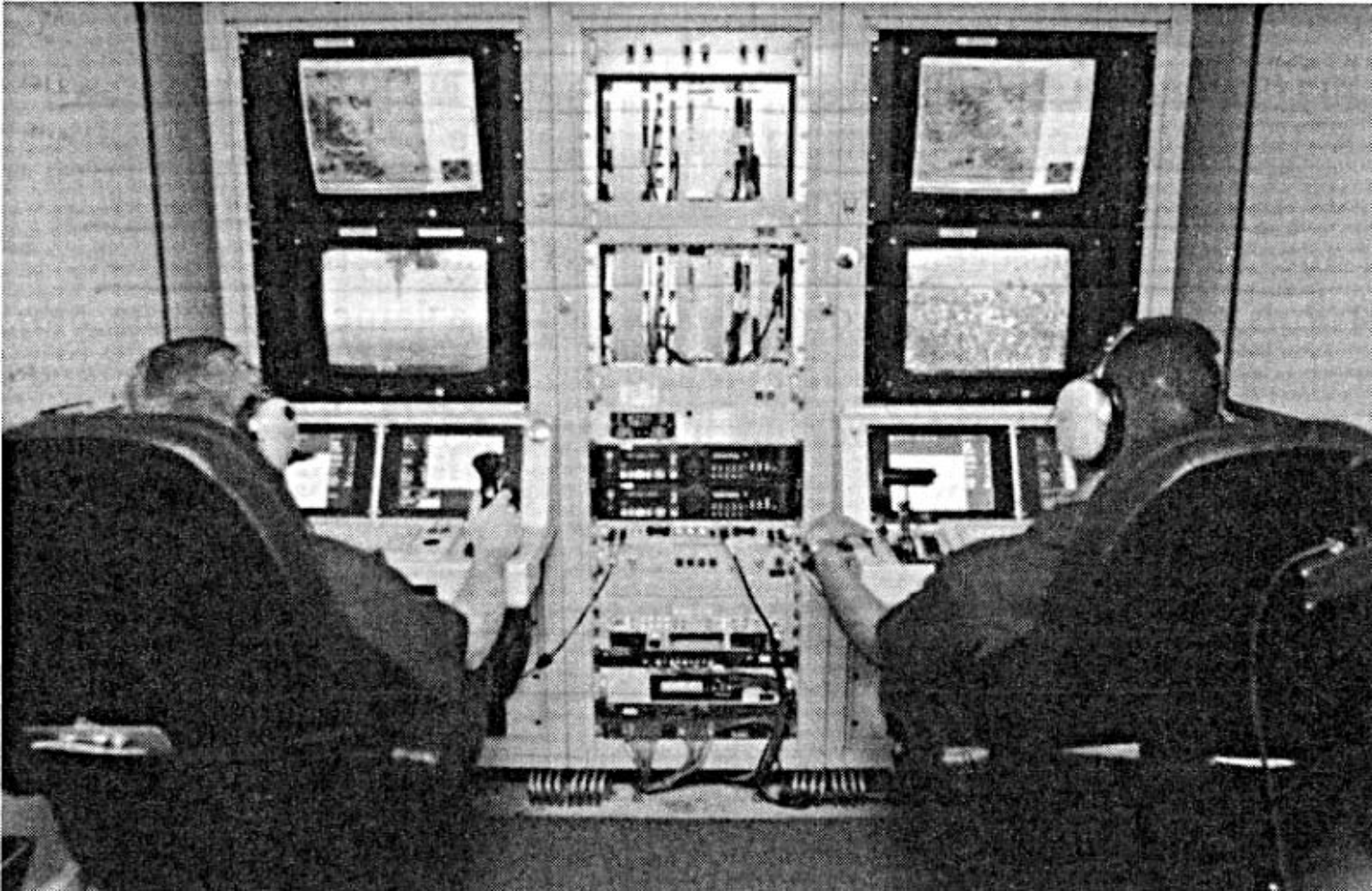
Waldo (1942) is a novella by Robert A. Heinlein originally published in *Astounding Magazine* in August 1942, using the pseudonym Anson Macdonald. It is also available in the book *Waldo & Magic, Inc.*, as well as other collections.

The essence of the story is the journey of a mechanical genius from his self-imposed exile from the rest of humanity to a more normal life, conquering the disease myasthenia gravis as well as his own contempt for humans in general. The key to this is that magic is loose in the world, but in a logical and scientific way.

Waldo Farthingwaite-Jones was born a weakling, unable even to lift his head up to drink or to hold a spoon. Far from destroying him, this channeled his intellect, and his family's money, into the development of the device patented as "Waldo F. Jones' Synchronous Reduplicating Pantograph". Wearing a glove and harness, Waldo could control a much more powerful mechanical hand simply by moving his hand and fingers. This and other technologies he develops make him a rich man, rich enough to build a home in space.

In the story, these devices became popularly known as "waldoes", and in real life the later development of remote manipulators also resulted in the devices being given the name.

Waldo's personality can best be described as arrogance combined with misanthropy. He does not think of himself as crippled. In his mind he is superior to all other humans because of his weakness. He reasons that if a chimpanzee is ten times as strong as a man, and a man is ten times as strong as Waldo, then Waldo is as far above men as men are above chimpanzees. He calls the rest of humanity "smooth apes". His home's location, high above the Earth, is symbolic of his relation to them.



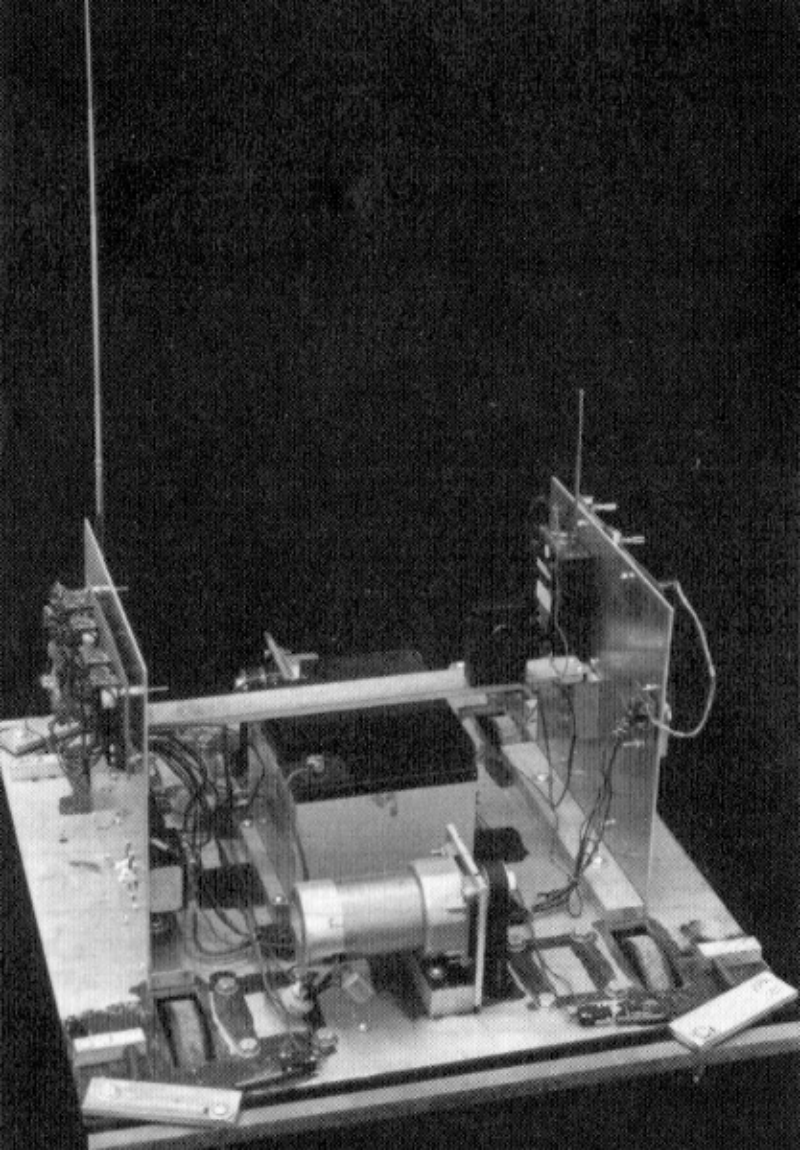


Figure 10.2. Ornitorrinco, Eduardo Kac and Ed Bennett, 1989. The *Ornitorrinco Project* used standard touch-tone sounds produced by a regular phone to control the telerobot's body wirelessly from afar in realtime. It also used DTMF signals to retrieve video stills through the same phone line from the telerobot's point of view. When no motion or imaging commands were issued, the line was open and environmental sounds could be heard in real time from Ornitorrinco's vantage point. Starting in 1994, Ornitorrinco's capabilities were expanded to incorporate the Internet. Photo: David Yox.

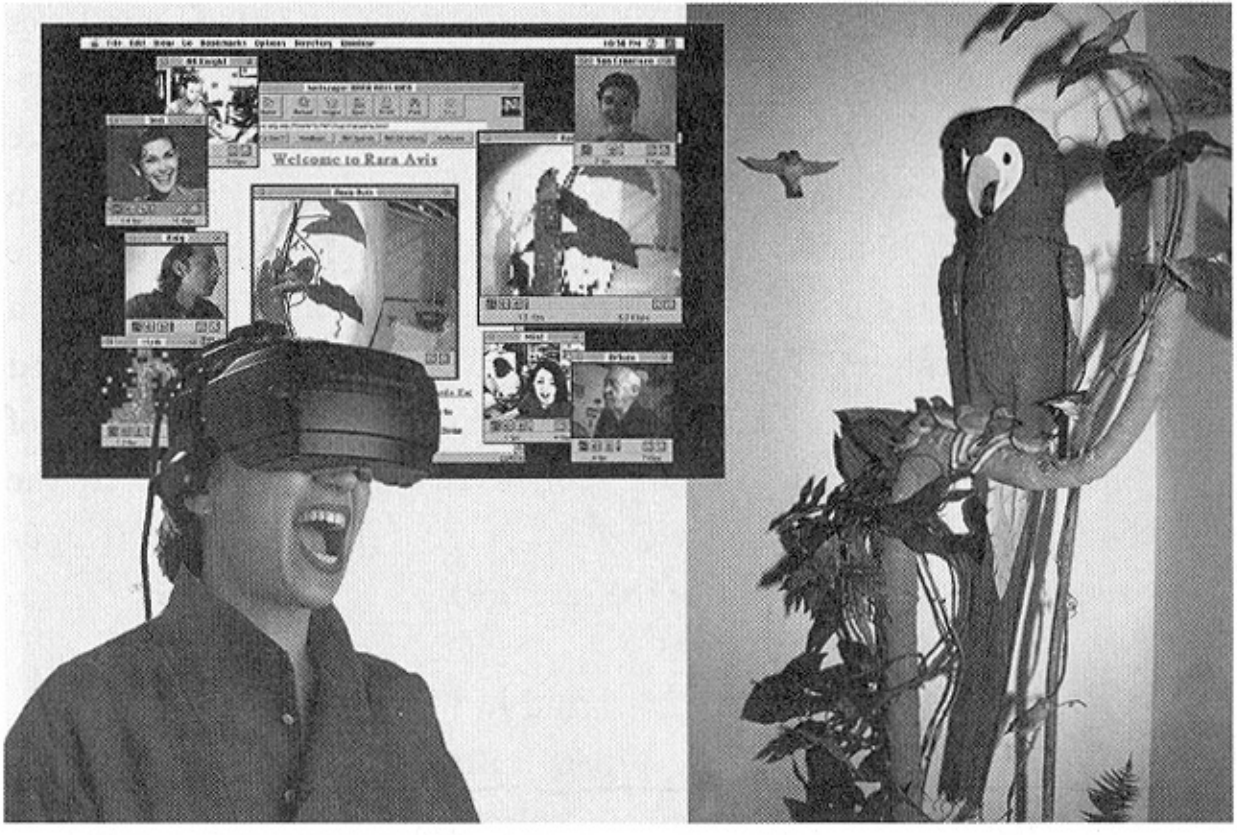
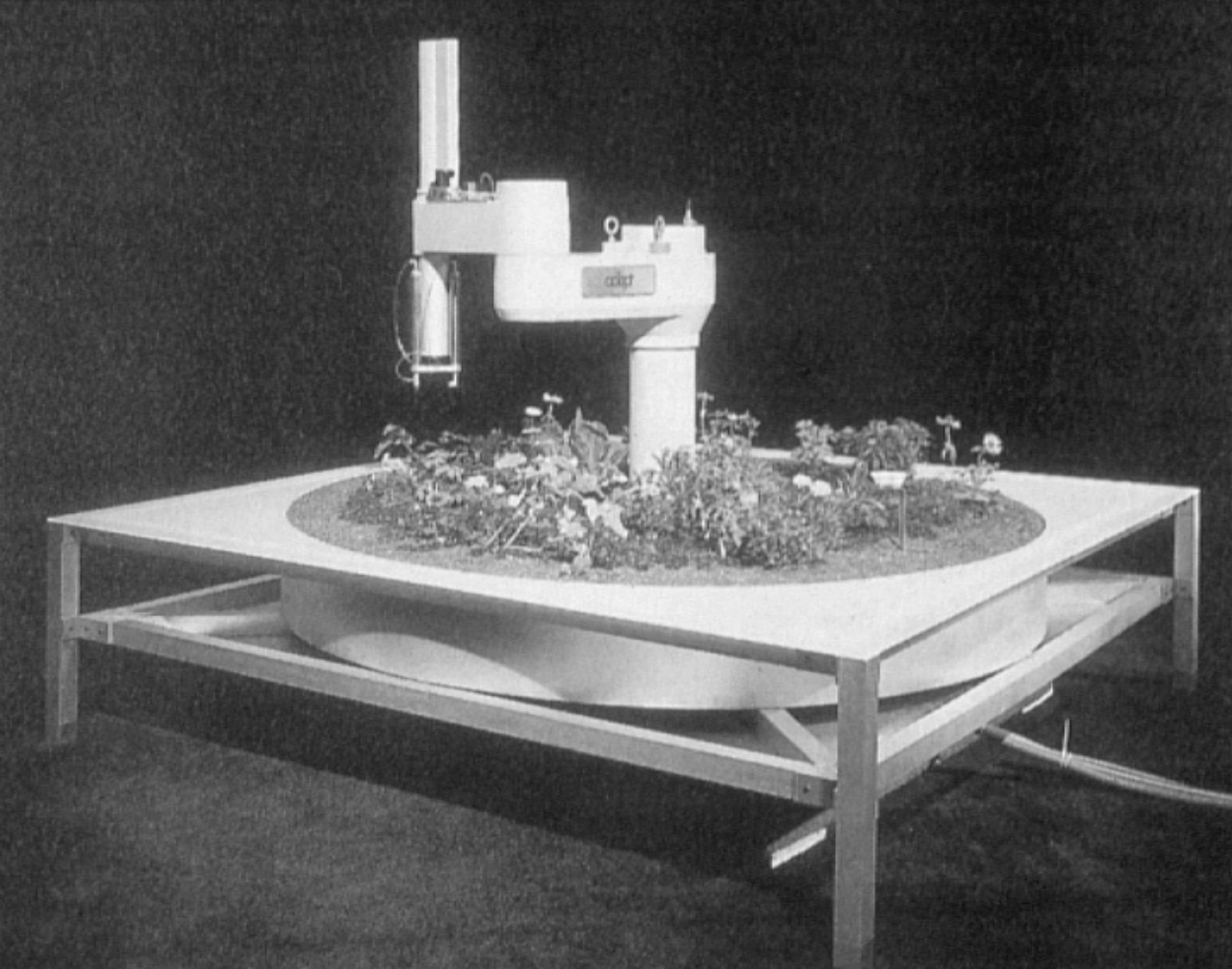


Figure 10.3. *Rara Avis,* Eduardo Kac, 1996. Wearing a virtual reality headset, participants were transported into a large aviary with a telerobotic macaw and thirty zebra finches. Viewers perceived the aviary from the point of view of the telerobot and were able to see themselves outside the cage from this displaced point of view. The tropical bird's eyes were two CCD cameras. When the viewer, now a participant, moved his or her head to left and right, the head of the telerobotic Macowl moved accordingly. The installation was permanently connected bidirectinally to the Internet (simultaneously via the Web, CU-SeeMe, and the MBone). Photo: Anna Yu.



Neo-Luddites

Theodore Roszak: *The Cult of Information* (1986)

Kirkpatrick Sale: *Rebels Against the Future: The Luddites and Their War on the Industrial Revolution: Lessons for the Computer Age* (1995)

John Zerzan: In the mid-1990s, Zerzan became a confidant to Theodore Kaczynski, the "Unabomber", after he read "Industrial Society and Its Future," the so-called Unabomber Manifesto.

Hakim Bey: *Pirate Utopias* (2003) and *TAZ: The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism*, (2nd ed. 2003)

Zerzan and the "Unabomber"

In the mid-1990s Zerzan became a confidant to Theodore Kaczynski, the *Unabomber*, after he read *Industrial Society and Its Future*, the so-called *Unabomber Manifesto*. Zerzan sat through the Unabomber trial and often conversed with Kaczynski during the proceedings. It was after becoming known as a friend of the Unabomber that the mainstream media became interested in Zerzan and his ideas.

In Zerzan's essay "Whose Unabomber?" (1995), he signaled his support for the Unabomber's doctrine, but criticised the bombings:

> ...the mailing of explosive devices intended for the agents who are engineering the present catastrophe is too random. Children, mail carriers, and others could easily be killed. Even if one granted the legitimacy of striking at the high-tech horror show by terrorizing its indispensable architects, collateral harm is not justifiable...[22]

however:

> The concept of justice should not be overlooked in considering the Unabomber phenomenon. In fact, except for his targets, when have the many little Eichmanns who are preparing the Brave New World ever been called to account?.... Is it unethical to try to stop those whose contributions are bringing an unprecedented assault on life?[23]

Theodore Kaczynski

From Wikipedia, the free encyclopedia
(Redirected from Unabomber)

Theodore John "Ted" Kaczynski (born May 22, 1942), also known as **the Unabomber**, is an American anarchist best known for his campaign of mail bombings. Kaczynski became infamous for having sent bombs to several universities and airlines from the late 1970s through early 1990s, killing three and wounding 23.[1]

In *Industrial Society and Its Future* (commonly called the "Unabomber Manifesto") he argued that his actions were a necessary (although extreme) ruse by which to attract attention to what he believed were the dangers of modern technology. Kaczynski did this in the hope that it would inspire others to fight against what he considered subjugation facilitated by technological progress. The Unabomber was the target of the most expensive manhunt in the FBI's history.

For his actions, which he at one point classified as terrorism to the police,[2] Kaczynski was charged with numerous federal offenses stemming from his mail bombing campaign. To avoid the death penalty, Kaczynski entered into a plea agreement, under which he pled guilty and was sentenced to life in prison with no possibility of parole.

Kaczynski's moniker as the Unabomber developed as a result of an FBI codename. Before his real identity was known, the FBI used the handle "**UNABOM**" ("university and airline bomber"), which resulted in variants such as **Unabomer**, **Unibomber**, and **Unabomber** when the media started using the name.

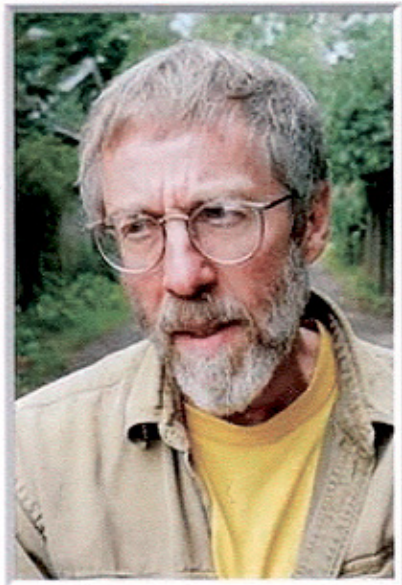
Industrial Society and Its Future begins with Kaczynski's assertion that the "Industrial Revolution and its consequences have been a disaster for the human race."[1] In his opening and closing chapters, Kaczynski condemns "leftism" and "leftists" as "anti-individualistic" and "pro-collectivist," "because, deep inside, [the leftist] feels like a loser."[2] The "leftism" described in the document is contrasted with "non-leftism," and is diametrically opposed to what the document envisions as "anarchy": "power... on an individual or small-group basis."[3] His "anarchy" would leave people "able to control the circumstances of their own lives," the anarchist opposed to technology "because it makes small groups dependent on large organizations."

He states that the only alternative to technological subjugation is the rejection of technology and return to a life close to nature in which the "power process," a psychological need he describes as the ability to solve one's own problems and have power over one's life, is fulfilled. In technological-industrial society, Kaczynski suggests, *humanity* has far greater power, but *humans* have far less power, in that as the number of cooperating humans in any given society increases, individuals inexorably comprise tinier and tinier fractions of the decision-making population. The overwhelming need for the *power process* causes modern society to be filled with endlessly multiplying "surrogate activities" which are essentially meaningless, including almost everything modern humans do for business or pleasure: artistic endeavor, professional advancement, the accrual of wealth, "an excessive amount of sex", all of this activity is "artificial" because it does not satisfy any "biological needs".[4]

John Zerzan

From Wikipedia, the free encyclopedia

John Zerzan (born 1943) is an American anarchist and primitivist philosopher and author. His works criticise (agricultural) civilization as inherently oppressive, and advocate drawing upon the ways of life of prehistoric humans as an inspiration for what a free society should look like. Some of his criticism has extended as far as challenging domestication, language, symbolic thought (such as mathematics and art) and the concept of time. His four major books are *Elements of Refusal* (1988), *Future Primitive and Other Essays* (1994), *Against Civilization: A Reader* (1998) and *Running on Emptiness* (2002).



John Zerzan

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Early life and education

Zerzan was born in 1943 in Oregon to immigrants of Bohemian heritage. He studied as an undergraduate at Stanford University and later received a Master's degree in History from San Francisco State University. He completed his coursework towards a Ph.D. at the University of Southern California but dropped out before completing his dissertation.

Zerzan's work

Zerzan's theories draw on Theodor Adorno's concept of negative dialectics to construct a theory of civilization as the cumulative construction of alienation. Zerzan claims that original human societies in paleolithic times, and similar societies today such as the !Kung, Bushmen and Mbuti, live a non-alienated and non-oppressive form of life based on primitive abundance and closeness to nature. Constructing such societies as a kind of political ideal, or at least an instructive comparison against which to denounce contemporary (especially industrial) societies, Zerzan uses anthropological studies from such societies as the basis for a wide-ranging critique of aspects of modern life. He portrays contemporary society as a world of misery built on the psychological production of a sense of scarcity and lack.[1] The history of civilisation is the history of renunciation; what stands against this is not progress but rather the Utopia which arises from its negation.[2]

Zerzan is an anarchist, and is broadly associated with the tendencies known as anarcho-primitivism, green anarchy, anti-civ, post-left anarchy and embodiment. He rejects not only the state, but all forms of hierarchical and authoritarian relations. "Most simply, anarchy means "without rule." This implies not only a rejection of government but of all other forms of domination and power as well."[3]

Zerzan's work relies heavily on a strong dualism between the "primitive" — viewed as non-alienated, wild (hence free), non-hierarchical, ludic, and socially egalitarian — and the "civilised" — viewed as alienated, domesticated (hence enslaved or subordinated), hierarchically organised, work-obsessed and socially discriminatory. Hence, "life before domestication/agriculture was in fact largely one of leisure, intimacy with nature, sensual wisdom, sexual equality, and health."[4]

The call for a "Future Primitive", for a radical reconstruction of society based on a rejection of alienation and an embracing of the wild. " It may be that our only real hope is the recovery of a face-to-face social existence, a radical decentralization, a dismantling of the devouring, estranging productionist, high-tech trajectory that is so impoverishing."[6] The usual use of anthropological evidence is comparative and demonstrative - the necessity or naturality of aspects of modern western societies is challenged by pointing to counter-examples in hunter-gatherer societies. "Ever-growing documentation of human prehistory as a very long period of largely non-alienated life stands in sharp contrast to the increasingly stark failures of untenable modernity."[7] It is unclear, however, whether this implies a re-establishment of the literal forms of hunter-gatherer societies or a broader kind of learning from their ways of life in order to construct non-alienated relations.

Modern Primitives

Juxtaposes high tech and low tribalism, animism, and body modification, a kind of technoshamanism. They often juxtapose science and magic. They replace the linear time of industrial age with the circular time of our postindustrial age. (See Jeremy Rifkin's *Time Wars,* 1989), so no contradiction between past and future.

For example: William Gibson's *Count Zero* (1986) envisions AI's that take on the personalities of Haitian Voudoun deities.

Stelarc and Orlan engage this sensibility in their work too.

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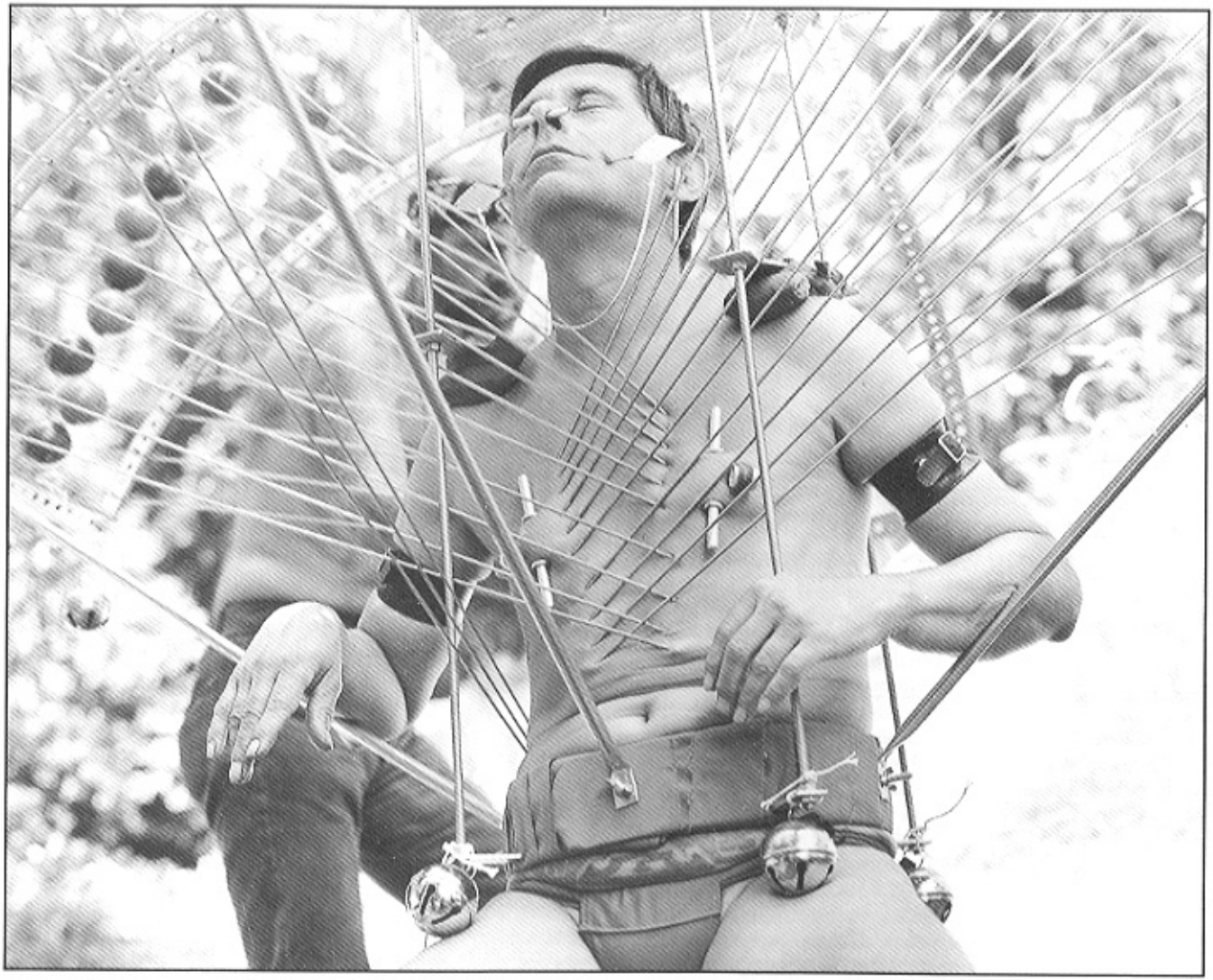
MODERN PRIMITIVES

An Investigation of Contemporary Adornment & Ritual



Fakir bears the "Spears of Siva" in a Kavandi-bearing ceremony. Photo by Mark Chester.

Zerzan's typical method is to take a particular construct of civilisation (a technology, belief, practice or institution) and construct an account of its historical origins, its alleged destructive and alienating effects and its contrasts with hunter-gatherer experiences. In his essay on number for example, Zerzan starts by contrasting the "civilized" emphasis on counting and measuring with a "primitive" emphasis on sharing, citing Dorothy Lee's work on the Trobriand Islanders in support, before constructing a narrative of the rise of number through cumulative stages of state domination, starting with the desire of Egyptian kings to measure what they ruled.[8] This approach is repeated in relation to time,[9] gender inequality,[10] work,[11] technology,[12] art and ritual,[13] agriculture[14] and globalization.[15] Zerzan also writes more general texts on anarchist[16] and primitivist theory,[17][18] critiques of "postmodernism" and of perceived opponents such as Hakim Bey[19] and Noam Chomsky,[20] and cultural commentaries on shows such as Star Trek.[21]

Theodore Roszak (scholar)

From Wikipedia, the free encyclopedia

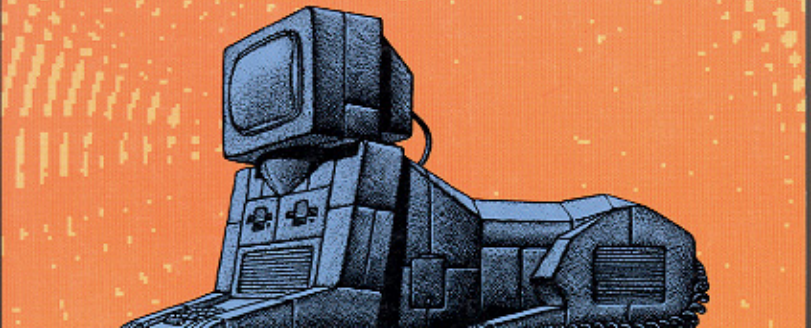
Theodore Roszak (born 1933) is an American professor, social thinker, writer, and critic. He chronicled and gave explanation to the European and North American counterculture phenomenon of the late 1960s in his book *The Making of a Counter Culture* (1969). Later, his writings (e.g., *Person/Planet*) were often associated with the "alternative," "new age," or "resacralization" movements.

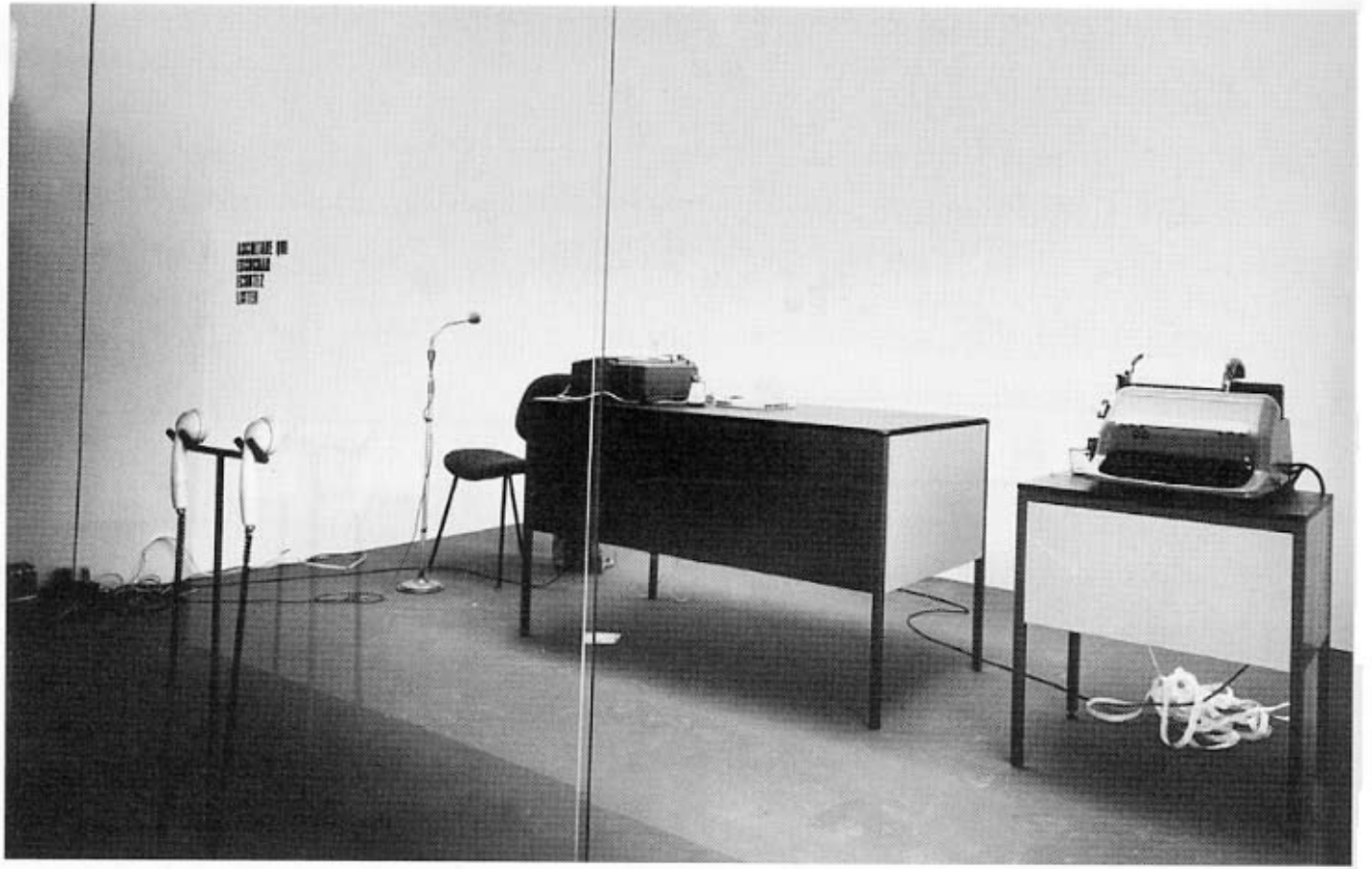
Initially, Roszak was much influenced by thinkers like: Alan Watts and Jacques Ellul, and, somewhat later, by modern theosophists such as H. P. Blavatsky and Rudolph Steiner. In *Where the Wasteland Ends* Roszak draws on such historical theorists and poets as Jean-Jacques Rousseau, William Blake (in particular, Blake's critique of 'the industrial spirit'), and what has recently been referred to as Johann Wolfgang von Goethe's "holistic science". While staying in touch with many contemporary and emerging thinkers (and historical giants of thought), Roszak seems in his writings to rest more on his own personal experiences. His interest has been drawn strongly in the direction of the import of ecology and the relevance of the environmental movement.

THEODORE ROSZAK

THE CULT OF INFORMATION

A NEO-LUDDITE TREATISE ON HIGH-TECH, ARTIFICIAL INTELLIGENCE, AND THE TRUE ART OF THINKING





David Lamelas, *Office of Information about the Vietnam War at Three Levels: The Visual Image, Text, and Audio,* 1968. Installation view at the XXXIV Biennale di Venezia, Venice, 1968.

The guilty may fear but vengeance he aims
At the honest man's life or Estate,
His wrath is entirely confined to wide frames
And those that old prices abate.

These Engines of mischief were sentenced to die
By unanimous vote of the Trade
and Ludd who can all opposition defy
Was the Grand executioner made.

Let the haughty no longer the humble oppress
Then shall Ludd sheath his conquering sword,
His grievances instantly meet with redress
Then peace will be quickly restored.

Nineteenth century Luddite song quoted in E. P. Thompson,
The Making of the English Working Class.

"Lucid, powerful and persuasive. . . . Necessary reading for anyone interested in how the Web is reshaping culture and the marketplace."
— Michiko Kakutani, The New York Times

you are not a gadget

A Manifesto

JARON LANIER

national bestseller

There's a rule of thumb you can count on in each succeeding version of the web 2.0 movement: the more radical an online social experiment is claimed to be, the more conservative, nostalgic, and familiar the result will actually be.

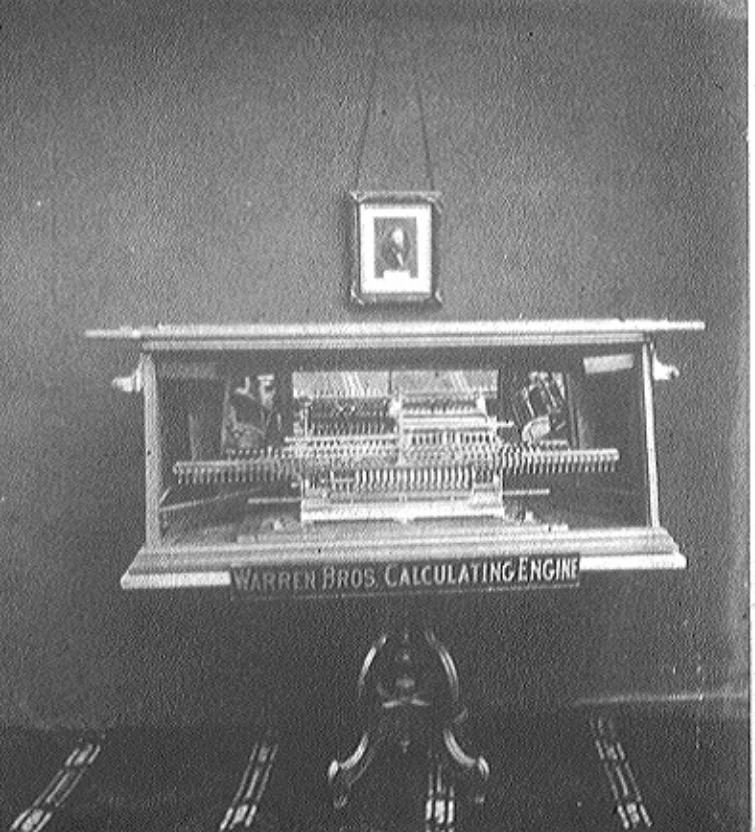
There are two primary strands of cybernetic totalism. In one strand, the computing cloud is supposed to get smart to a superhuman degree on its own, and in the other, a crowd of people connected to the cloud through anonymous, fragmentary contact is supposed to be the superhuman entity that gets smart. In practice the two ideas become similar.

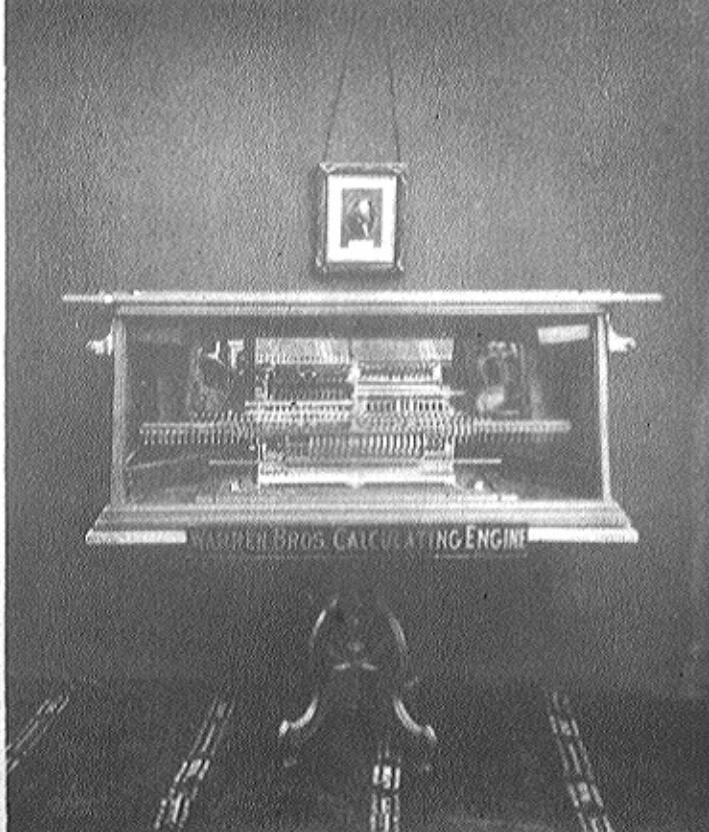
The Origins of the Computer

18th C. -- Joseph Marie Jacquard, French engineer, develops punched cards made an automatic loom run on punch cards.

Mid-19th C. -- Ada Lovelace and Charles Babbage develop their Analytical Calculating Engine

Cf. *Zeros & Ones* (1997) by Sadie Plant for detailed discussion.


WARREN BROS. CALCULATING ENGINE


WARREN BROS. CALCULATING ENGINE

Babbage's innovation was to imagine replacing these human computers with an ordered conglomeration of gears, wheels and punched cards. His Analytical Engine continued to rely on a play of numerical differences, with its mechanics organised around a Store or memory and a Mill, or central processing unit, much like a contemporary computer. In essence Babbage sought to design a steam-driven mechanism that worked autonomously from its human operator; it could issue instructions and aural admonitions to its operator and would even automatically print its results. Moreover, by feeding on the outcomes of its own computations ('moving forward by eating its own tail' as Babbage put it), this machine could replicate the very thinking process that was supposed to direct it.

I concluded ... that nothing but teaching the Engine to foresee and then to act upon that foresight could ever lead me to the object that I desired ... The Analytical Engine is therefore a machine of the most general nature ... I am myself astonished at the power that I have been able to give to the machine ... It appears that the whole of the conditions which enable a *finite* machine to make calculations of *unlimited* extent are fulfilled in the Analytical Engine ... I have converted the infinity of space, which was required by the conditions of the problem, into the infinity of time.

"The best book I've read on the origins of the computer. . . not only learned, but brilliantly and surprisingly idiosyncratic and strange."
—*The Boston Globe*

Turing's Cathedral

THE ORIGINS OF THE DIGITAL UNIVERSE

George Dyson

NATIONAL BESTSELLER

THE HISTORY OF DIGITAL computing can be divided into an Old Testament whose prophets, led by Leibniz, supplied the logic, and a New Testament whose prophets, led by von Neumann, built the machines. Alan Turing arrived in between.

Leibniz's digital universe. Design for a silver medallion, presented by Gottfried Wilhelm Leibniz to Rudolph August, Duke of Brunswick, January 2, 1697, demonstrating "the creation of all things out of nothing through God's omnipotence" by means of binary arithmetic. Digital computing, believed Leibniz, was fundamental to the very existence of the universe, and not merely a tool for the benefit of "those who sell oil or sardines." *(From a reproduction in Erich Hochstetter and Hermann-Josef Greve, eds.,* Herrn von Leibniz' Rechnung mit Null und Einz *[Berlin: Siemens Aktiengesellschaft, 1966])*

Anticipating Gödel and Turing, Leibniz promised that through digital computing "the human race will have a new kind of instrument which will increase the power of the mind much more than optical lenses strengthen the eyes. . . . Reason will be right beyond all doubt only when it is everywhere as clear and certain as only arithmetic has been until now."[46]

Leibniz saw binary coding as the key to a universal language and credited its invention to the Chinese, seeing in the hexagrams of the *I Ching* the remnants of "a Binary Arithmetic . . . which I have rediscovered some thousands of years later." Leibniz's notes show the development of simple algorithms for translating between decimal and binary notation and for performing the basic functions of arithmetic as mechanically iterated operations on strings of zeros and ones. "In Binary Arithmetic there are only two signs, 0 and 1,

Origins of the Computer

1936 -- British mathematic, Alan Turing, writes seminal paper, "On Computable Numbers" in which he outlines theory for general-purpose computer named "the Universal Turing Machine" which runs off an end-less tape (diagram of it looks like a film projector).

1936 -- Konrad Zuse in Berlin builds a computer in his parents' living room, tape used to run it is an exposed strip of 35mm film for the punched tape.

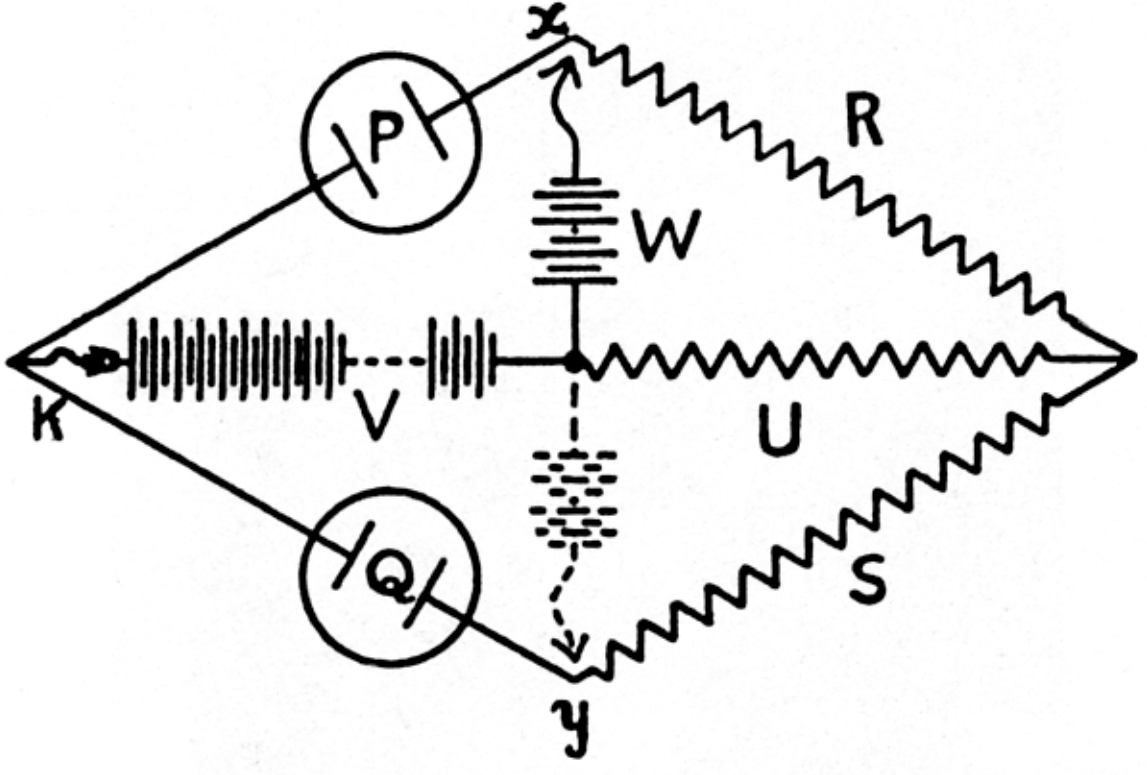
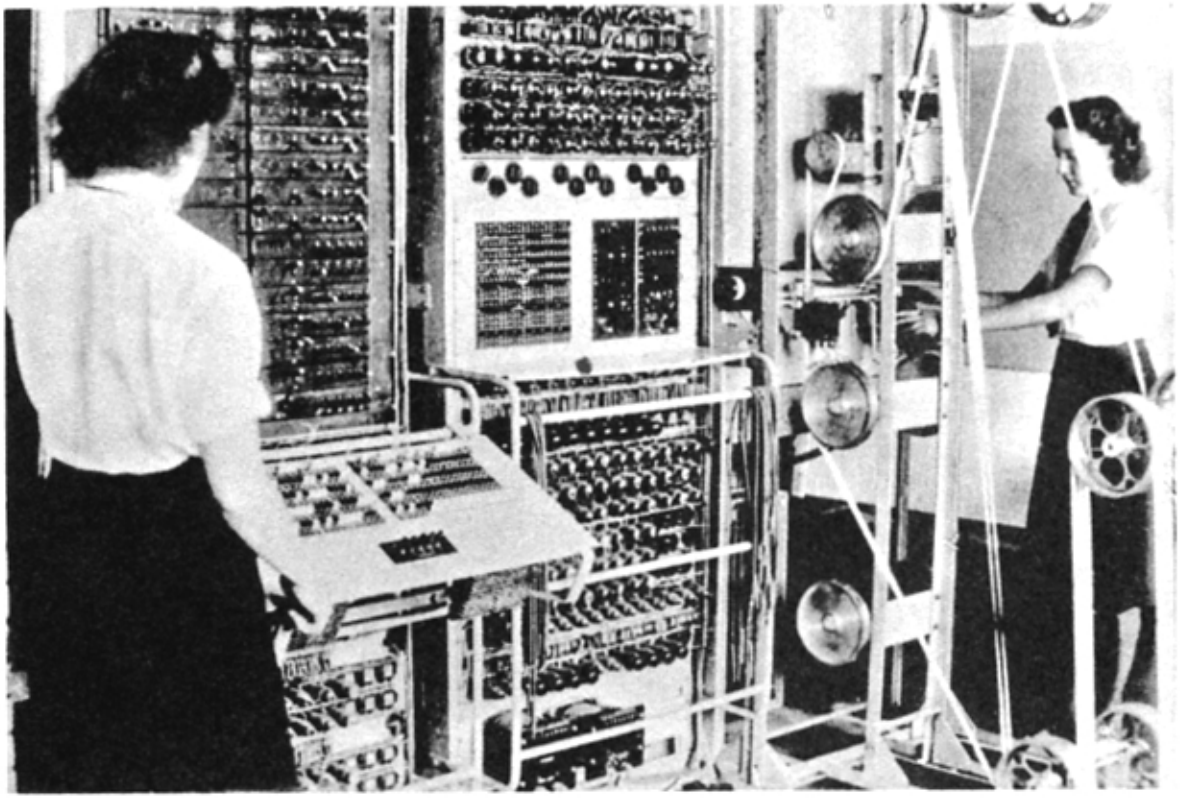
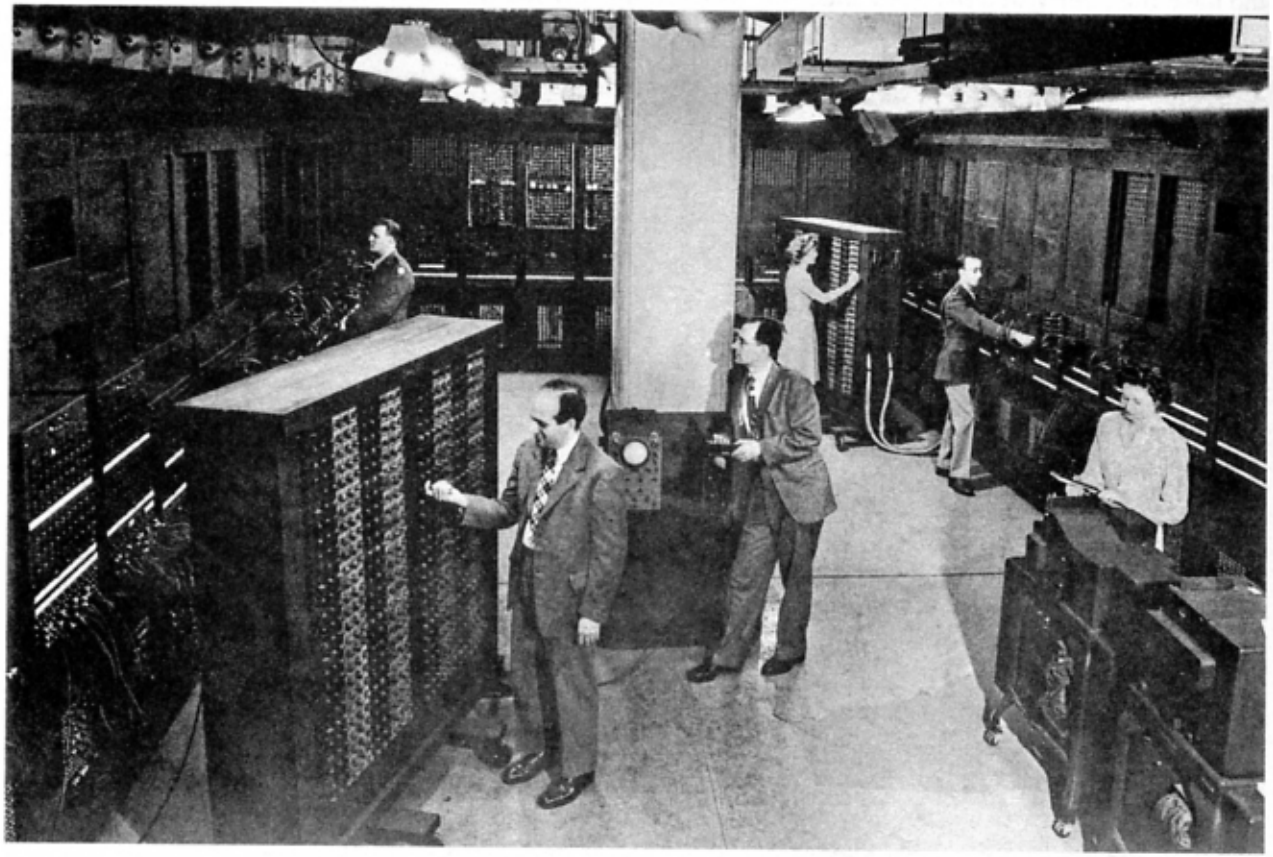


Fig. 1. Electrical Model illustrating a Mind having a Will but capable of only Two Ideas. See Analogies X., XI., XII., XIII.

"Electrical Model illustrating a Mind having a Will but capable of only Two Ideas," proposed by Lewis Fry Richardson in a 1930 study that raised the possibility, later taken up by Alan Turing, that random electronic indeterminacy could be amplified into creative thinking and even free will. *(Lewis Fry Richardson, "The Analogy Between Mental Images and Sparks,"* Psychological Review *37, no. 3 [May 1930]: 222)*

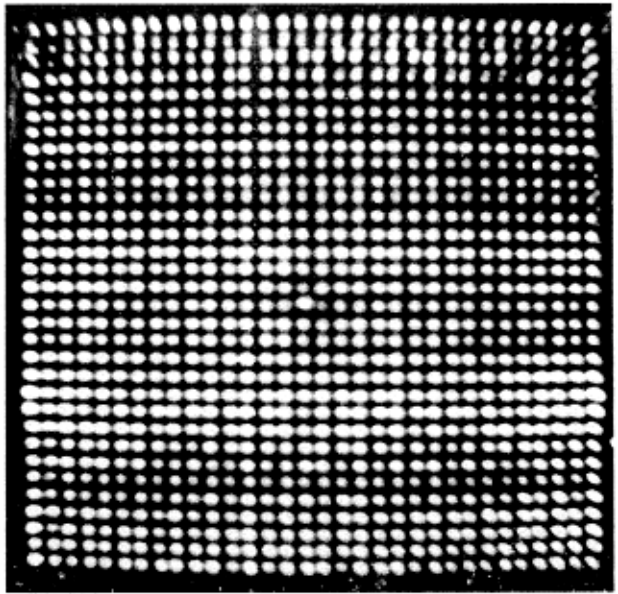


Colossus at Bletchley Park in 1943. To help decipher digitally encrypted enemy telecommunications during World War II, British cryptanalysts built a series of versatile, if not yet universal, logical computing machines. Supervised by Dorothy Du Boisson and Elsie Booker, "Colossus" compares a coded sequence stored in an internal vacuum-tube memory with a sequence stored on external punched paper tape by scanning at high speed with photoelectric reading heads. *(National Archives Image Library, Kew, U.K.)*

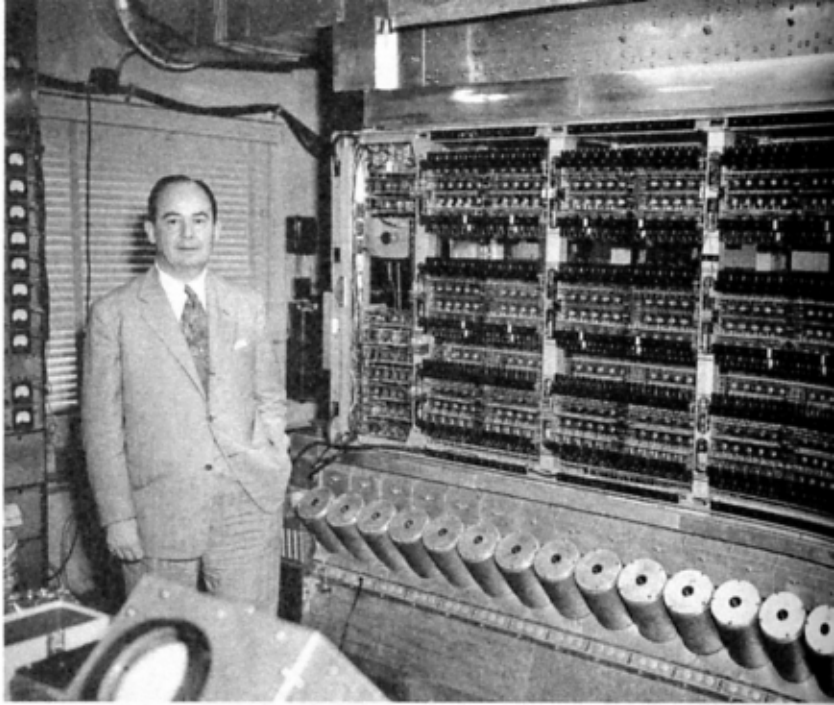


The U.S. Army's ENIAC (Electronic Numerical Integrator and Computer) was publicly unveiled at the Moore School, University of Pennsylvania, on February 16, 1946. According to von Neumann, this was "an absolutely pioneer venture, the first complete automatic, all-purpose digital electronic computer." Left to right: Homer Spence, Presper Eckert (setting function table), John Mauchly, Betty Jean Jennings Bartik, Herman Goldstine, Ruth Licterman (with punched card input-output equipment at far right). *(University of Pennsylvania Archives)*

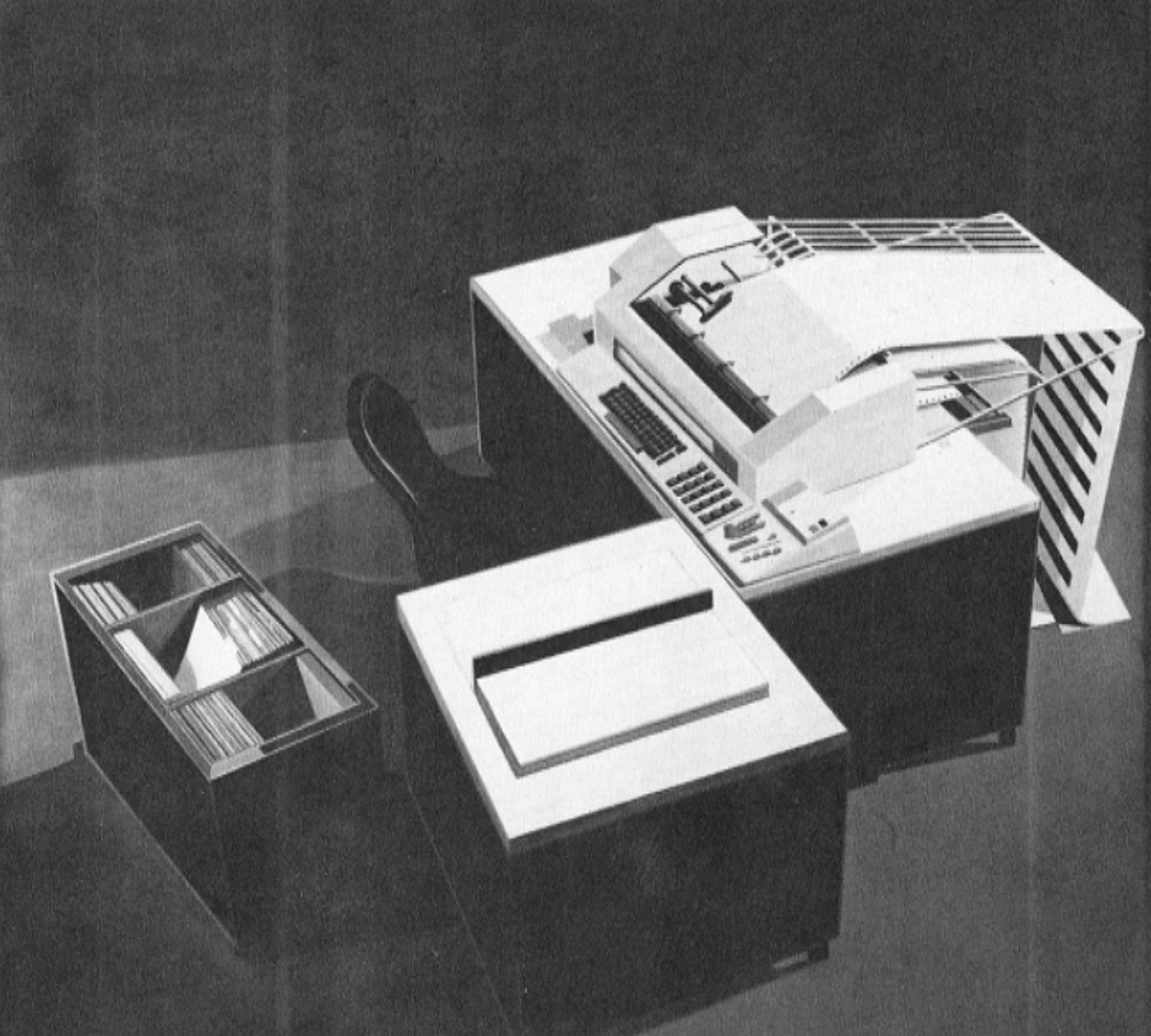
The digital universe in 1953. A 32-by-32 array of charged spots—serving as working memory, not display—is visible on the face of a Williams cathode-ray storage tube (stage thirty-six) in this diagnostic photograph from the maintenance logs of the Institute for Advanced Study Electronic Computer Project, February 11, 1953. *(Shelby White and Leon Levy Archives Center, Institute for Advanced Study)*



John von Neumann and the MANIAC in 1952. At hip level are 12 of the 40 Williams cathode-ray memory tubes, storing 1,024 bits in each individual tube, for a total capacity of 5 kilobytes (40,960 bits). In the foreground is the 7-inch-diameter 41st monitor stage, allowing the contents of the memory to be observed while in use.
(Shelby White and Leon Levy Archives Center, Institute for Advanced Study; photograph by Alan Richards)




UNIVAC



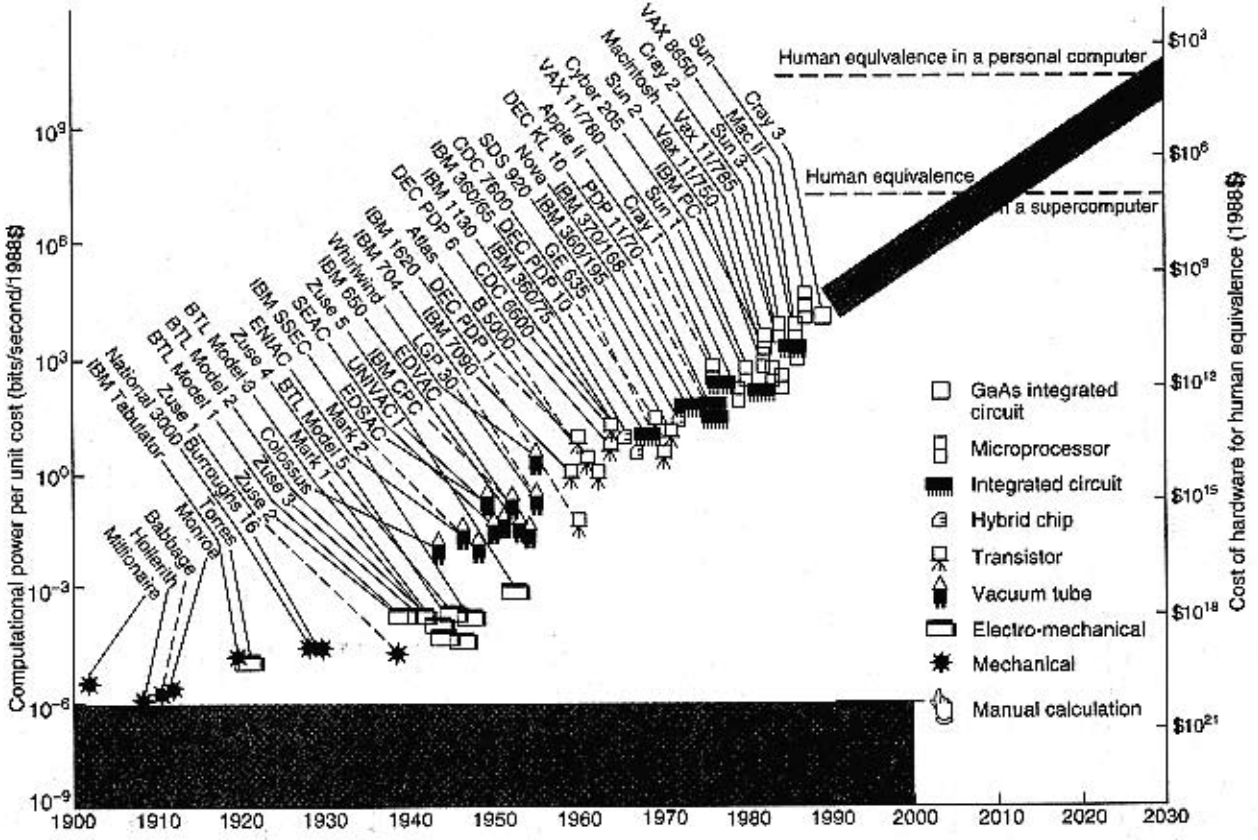


Figure 7.3 The evolution of computer power during the twentieth century. Also shown is the equivalent measure of unaided human calculating power and the technological evolution of the computer industry from mechanical devices through electrical machines to contemporary electronic processors.

Frank Heart

PROPOSAL: INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK

RFQ No. DAHC15 69 Q 0002

BBN Proposal No. IMP P69-IST-5

6 September 1968

Submitted to:

Department of the Army
Defense Supply Service-Washington
The Pentagon, Room 1D 245
Washington, D.C. 20310

BOLT BERANEK AND NEWMAN INC.
50 Moulton Street
Cambridge, Massachusetts 02138

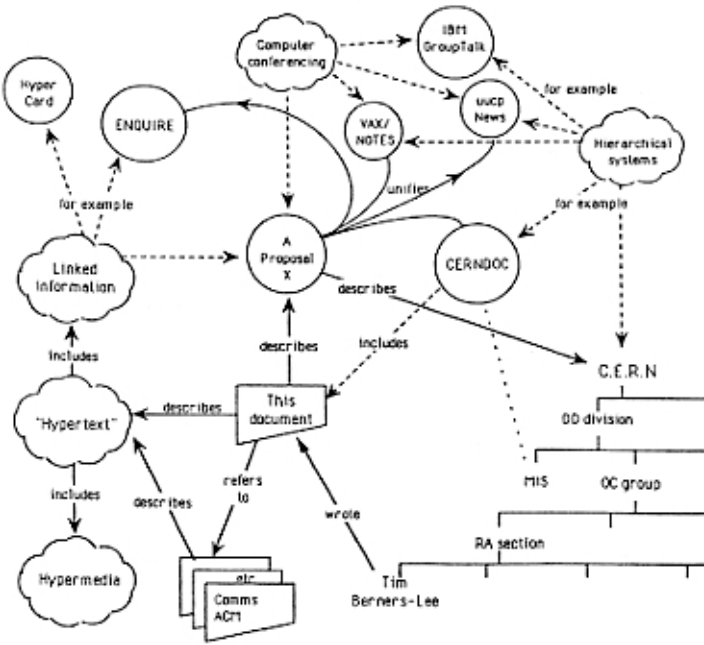
Tim Berners-Lee, CERN/DD

Information Management: A Proposal

Abstract

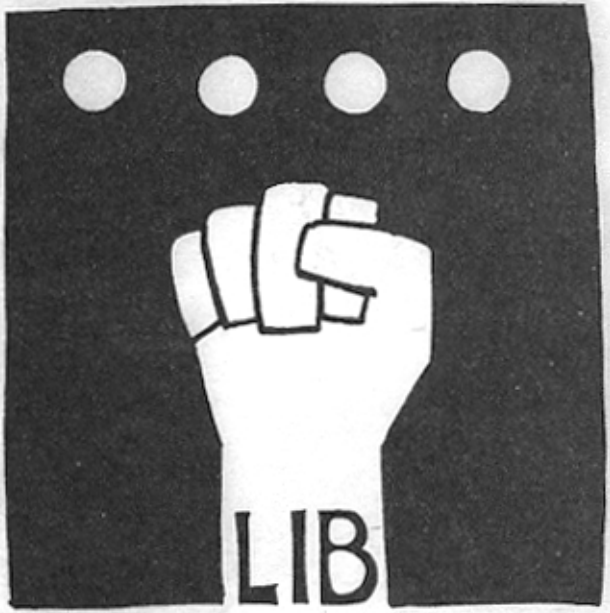
This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control



You can and must understand computers NOW.

COMPUTER



SEVEN DOLLARS.

First Edition.

Computer Lib

'You Can and Must Understand Computers Now'

Additional copies are $7 postpaid . . .

Any nitwit can understand computers, and many do. Unfortunately, due to ridiculous historical circumstances, computers have been made a mystery to most of the world. . . .

This book is a measure of desperation, so serious and abysmal is the public sense of confusion and ignorance . . .

This book is therefore devoted to the premise that EVERYBODY SHOULD UNDERSTAND COMPUTERS. It is intended to fill a crying need.

I have an axe to grind: I want to see computers useful to individuals, and the sooner the better, without necessary complication or human servility being required. Anyone who agrees with these principles is on my side, and anyone who does not, is not. THIS BOOK IS FOR PERSONAL FREEDOM, AND AGAINST RESTRICTION AND COERCION . . .

A chant you can take to the streets: COMPUTER POWER TO THE PEOPLE! DOWN WITH CYBERCRUD!

Alan Turing proposed an experiment. Several judges each pose questions, via computer terminal, to several pairs of unseen correspondents, one a human "confederate," the other a computer program, and attempt to discern which is which. The dialogue can range from small talk to trivia questions, from celebrity gossip to heavy-duty philosophy—the whole gamut of human conversation. Turing predicted that by the year 2000, computers would be able to fool 30 percent of human judges after five minutes of conversation, and that as a result, one would "be able to speak of machines thinking without expecting to be contradicted."

Eliza, written in 1964 and 1965 by Joseph Weizenbaum at MIT. Modeled after a Rogerian therapist, Eliza worked on a very simple principle: extract key words from the users' own language, and pose their statements back to them. ("I am unhappy." "Do you think coming here will help you not to be unhappy?") If in doubt, it might fall back on some completely generic phrases, like "Please go on." This technique of fitting the users' statements into predefined patterns and responding with a prescribed phrasing of its own—called "template matching"—was Eliza's only capacity.

A look at an Eliza transcript reveals how adeptly such an impoverished set of rules can in the right context, pass at a glance for understanding:

USER: Men are all alike.

ELIZA: In what way?

USER: They're always bugging us about something or other.

ELIZA: Can you think of a specific example?

USER: Well, my boyfriend made me come here.

ELIZA: Your boyfriend made you come here.

USER: He says I'm depressed much of the time.

ELIZA: I am sorry to hear you are depressed.

USER: It's true. I am unhappy.

ELIZA: Do you think coming here will help you not to be unhappy?

USER: I need some help, that much seems certain.

ELIZA: What would it mean to you if you got some help?

USER: Perhaps I could learn to get along with my mother.

ELIZA: Tell me more about your family.

The Cartesian legacy, outlined in the Introduction, reinforces the idea, in both everyday life and sociological analysis of the everyday, that there is a division between the body as felt and the body as an object. In contrast, the concept of embodiment alerts us to the relation between the objective, exterior and institutionalized body and the sensual, subjective, animated body (Turner 1992). In the German language, this division between the subjective and objective body is referred to in a more subtle way. *Körper* refers to the body as an object, while *Leib* refers to the felt, experienced body. Hence, the concept of embodiment signals the importance of approaching the body as a synthesis of *Körper* and *Leib*.

Data Trash

the theory of the virtual class

smelling the virtual
flowers and counting
the road-kill
on the digital
superhighway

Arthur Kroker
Michael A. Weinstein

Virtual Class War

The technological (virtual) class must liquidate the working class. It does so through alliances forged with political representatives of the global technocratic class. The working class is grounded in localized space; the technocratic class wills itself to float away in the virtual zone of hyperspace. The working class has an objective interest in maintaining steady-state employment in the production machine of capitalism; the technological class has a subjective interest in transcending the rhetoric of employment to "creative participation" in virtual reality as an ascendant life-form. The working class depends for its very existence on shielding itself from the turbulence of the nomadic vector of the recombinant commodity by securing its political foundations in the sovereignty of the nation-state; the technological class, politically loyal only to the virtual state, thrives on the violent passage of the recombinant commodity.

ARTHUR KROKER

Heidegger was wrong. Technology is not something restless, dynamic and ever expanding, but just the opposite. The will to technology equals the will to virtuality. And the will to virtuality is about the *recline of western civilization*: a great shutting-down of experience, with a veneer of technological dynamism over an inner reality of inertia, exhaustion, and disappearances, and where things are only experienced in the "real time" of recycled second, third, and fourth-order simulations. And everyone has got into the act. Even that Berlin fireman who was caught recently videotaping, instead of fighting, a 4-alarm blaze for Germany's *Reality TV*.

Technology as degeneration? The electronic cage corresponds to four orders of domination: beyond alienation (the objectification of the subject) to reification (the subjectification of the object), beyond reification to simulation (the fetishism of the spectacle), and now beyond the age of simulation to virtual experience (the specularity of the fetish). Beyond, that is, the simulated order of the social to the digital order of the virtual, beyond the semiology of the sign to the language of recombinant genetics, beyond the normalizing discourse of sociology to chaos biology, and, most of all, beyond technology as commodity or icon to virtual reality: that momentous evolutionary rupture wherein technology assumes a living species existence, substituting its own genetic logic for the heretofore ascendant genetic history of the human species.

Crash Art

What is art in the age of high energy physics?

No longer can art be situated within reflection theory, nor can art function as a critic. Art is now a quantum fluctuation: a phase shift where all the old classical certainties dissolve, and where everything can finally be uncertain, probabilistic, and indeterminate. Outside time and running across multiple spaces, art can finally become a violent edge, a space for the cancellation of all the big signs of modernity and for their immediate reversal into their opposite sign-forms. Quantum art, therefore, as that point where the artistic imagination actually becomes the uncertain universe of which particle physics could only dream.

Crash Aesthetics

This may be our political predicament: to be simultaneously a new human race of techno-mutants in the name of an expanding freedom, and critics of technology as degeneration. If this appears ambivalent, it means that all comfortable modernist exits for ethics and politics have been cancelled out, forcing us to travel in hyperreality at crash speeds without the guidance of traditional ethical suasions.

An excessive ethics and politics that would operate under a double sign: appropriation and resistance, immersion and displacement, speed and memory. In short, a *crash aesthetics* that would privilege cuts, disturbances, flips, turns and quick reversals; operating according to the twofold aesthetic strategy of ironic distancing and ironic immersion. A crash aesthetics that privileges excess because it seeks to *overload* the electronic frontier, to bring the universe of data under the fatal spell of the violence of speed.

The purpose of all of this is not to escape one's historical contingency or the grim political consequences of the culture of implosion, but the reverse. *Spasm: the CD* actively embraces the digital logic of resequencing history as the only possible basis today for cultural resistance. That is the real political breakthrough of the composer, Steve Gibson. If he rubs pop music icons against the iconography of Western music, that is only to make the point emphatically that ours is a processed world, a sampler culture, where all cultural experience has actually been massaged by technology, rescoped into virtual reality, and then fed to us in recombinant cultural bytes. A world of data fibrillation, sound scans, thermographic TV, high-fashion computer wear, and cellular time.

Spasm: the CD consists only of processed, sampled sounds. It is a perfect holographic image of the simulated world where history can be instantly reconfigured, memories armed and cybernetically triggered, and even sex launched into a virtual orgy of cynical seduction. This digital world privileges *Johnny Mnemonic* as its dominant model of subjectivity. No longer the world of cyberpunk, but something more excessive. A crash zone where the hard-edged romantic sounds of cyberpunk gear flip into a liquid sound.

Toni Denise

I have a recombinant brother, Toni Denise, working the drag queen bars of Tallahassee, Florida. She has taken her memory and put it aside for a moment.

She is not just a guy who warp jumped into a woman's body by surgical cuts, but the first of all the virtual bodies, that point where Disney World becomes flesh: a double movement involving an endless remaking of sexual identity and an abandonment of the (gendered) past.

Toni Denise. The perfect transexual woman. More perfect than a woman ought to be, or can be: slim hips, large breasts, shoulder length raven hair with legs as long as Barbie's.

Toni Denise. Too perfect to be a real woman? The picture perfect woman? The woman all women think a woman should be? Toni Denise is a man-made woman. A woman made from a man. A man with slim hips, long legs, and raven hair. A man who could say no to cellulite, and yes to silicon breasts.

Toni Denise? A virtual woman or virtually a woman? She can turn gender signs inside out, and play the game of the doubled sex.

Once she became a woman on the outside, she could finally take on the seduction of the male psyche and become the male mind colonizing the female body. Or as Toni Denise likes to say "If I had a clit, I'd have a hard on."

Vilem Flusser (1920 - 91)

Czech Jew, flees Nazis, lives in Brazil until 1972 when he moves to Europe again.

Influenced by Existentialism (Heidegger, Buber), Phenomenologiy (Husserl), Structuralism (Levi-Strauss), Marxism, Technology Theory (McLuhan and Ellul), Information theory (entropy / redundancy), Quantum Mechanics (Werner Heisenberg) but never cites them directly as he rarely used footnotes in his short essays.

His theory of "communicology" formulates an Actor-Network sort of theory which recognizes a certain "apparatus-operator complex" (influence of phenomenology here) at work in our technological world.

Flusser's Texts in English

Writings, ed. by Andreas Strohl
Towards a Philosophy of Photography
The Shape of Things: A Philosophy of Design

Vilém Flusser

THE SHAPE OF THINGS

A PHILOSOPHY OF DESIGN

Vilém Flusser

writings

Andreas Ströhl, Editor

Translated by Erik Eisel

Flusser's Influences con't

Emmanuel Levinas: derives the primacy of his ethics from the experience of the encounter with the Other. For Levinas, the irreducible relation, the epiphany, of the face-to-face, the encounter with another, is a privileged phenomenon in which the other person's proximity and distance are both strongly felt. The Other precisely reveals himself in his alterity not in a shock negating the I,

Teilhard de Chardin: his concept of the 'noosphere' in his Christian utopic envisionments.

Marshall McLuhan: 'medium is the message' and the concept of 'the global village'.

Mikhail Bahktin: the dialogic nature of language, i.e., dialogue versus monologue (what Flusser calls 'discourse').

Flusser and Phenomenology

Phenomenology posits the mutual implication of

World ---------- Self

as the *Lebenswelt* (Life-World); this critiques the notion of mind / body split as posited in Cartesian Dualism of Descartes. Edmund Husserl and Maurice Merleau-Ponty's theories would be the most obvious examples of this.

Flusser always sees us so deeply implicated in our world; we are in continuous "dialogue" with our world and it with us. Thus, he rejects positivistic notions of "reality" and "truth".

Flusser and Martin Buber

Flusser draws on Buber's *I - Thou* (*Ich und Du*), 1923 in his theory of communication:

The I - Thou relation is true *dialogue* between interlocutors, contrasted with the I / It relation (Us versus Them) which is an objectifying type of relation which is akin to Flusser's notion of *discourse*.

In Flusser's theory, he notes two aspects of communication: dialogue and discourse.

In other words, when I identify myself, I do so in relation to someone else. In terms of an existential analysis, one would say that "I" is simply that of which someone else says "you." From a psychoanalytic perspective, an "I" is the tip of an iceberg that is floating in the unconscious, which is itself not individual. From the point of view of neurophysiology, what I term "I" is a computation by the central nervous system, which computes an I-consciousness out of incoming stimuli, whether these arise in the environment or from inside. In short, a biography cannot be about some sort of "I." And it seems to me that anyone who tries to describe his own life history has never lived. Rather, I think that a biography consists of the listing of networks through which a current of experiences was run.

It can be shown, thanks to the model, that there are codes eminently destined to transmit epistemological messages (e.g., the scientific ones), others eminently destined for ideological messages (e.g., the codes of the mass media), and others eminently destined for aesthetic messages (e.g., the artistic codes). But *eminently* does not mean *exclusively*, nor *evidently*. The theory of communication must show how much of ideology and aesthetics is masked as knowledge in the sciences, and how much of ideology is masked as aesthetics in the arts. But most of all, the theory of communication must show that the mass media, owing to their structure, transmit only ideology (namely, models of consumer behavior), but that they often mask this message as knowledge (for instance, through newspaper reporting), or aesthetically (for instance, in TV musicals). A systematic analysis of codes may thus become an effective method of de-ideologization.

Apparatus (pl. *-es)*: a plaything or game that simulates thought [*trans.* An overarching term for a non-human agency, e.g. the camera, the computer and the 'apparatus' of the State or of the market]; organization or system that enables something to function.

Automatic machine: an apparatus that has to obey an arbitrary program.

Code: a sign system arranged in a regular pattern.

Concept: a constitutive element of a text.

Conceptualization: a specific ability to create texts and to decode them.

Cultural object: an informed object.

Decode: demonstrate the significance of a symbol.

Entropy: the tendency towards more and more probable states.

Vilem Flusser: Key Concepts

Codes: 1) denoting (single meaning, closed, precise)
2) connotating (multiple meanings, open, vague)
Types of codes:
1) visual; 2) auditory; 3) audiovisual
Structure of codes (media is the message):
1) ordered in linear sequences (diachronic)
2) ordered in surfaces (2-D synchronic)
3) ordered in space (3-D, synchronic)
There are codes best suited for: epistemology (science); ideology (mass media); aesthetics (art).

Codes flow in two differing ways: 1) dialogical (exchange of views); and 2) discourse (one way communication). He touts dialogics over discursive flow as more democratic.

THE FREEDOM OF THE MIGRANT

OBJECTIONS TO NATIONALISM

VILÉM FLUSSER

Translated by Kenneth Kronenberg

Edited by Anke K. Finger

The secret codes of homes are not made of conscious rules, but rather spun from unconscious habits. What characterizes the habit is the fact that one is not conscious of it. The person without a home must first consciously learn the secret codes and then forget them, to be able to immigrate into a home. However, if the code becomes conscious, then its rules turn out not to be sacred but banal. The immigrant becomes even more unsettling to the native, uncannier than the traveler out there, because he reveals the banality of the sacred to the native. He is hateful; he is ugly, because he exposes the beauty of home as nothing more than pretty kitsch.

Life **Death**

Negentropy - Entropy

information **redundancy**

novelty **habit**

(from the opposition of novelty and habit is derived two sub-theories of Flusser's):

1) Theory of the Other:

refugee / immigrant **native**

2) Theory of Aesthetics:

originality **Kitsch**

(ugly - - - - - - - beautiful - - - - - - - - - pretty - - - - nausea

PT: Yesterday you said that all decent persons must be anarchists.

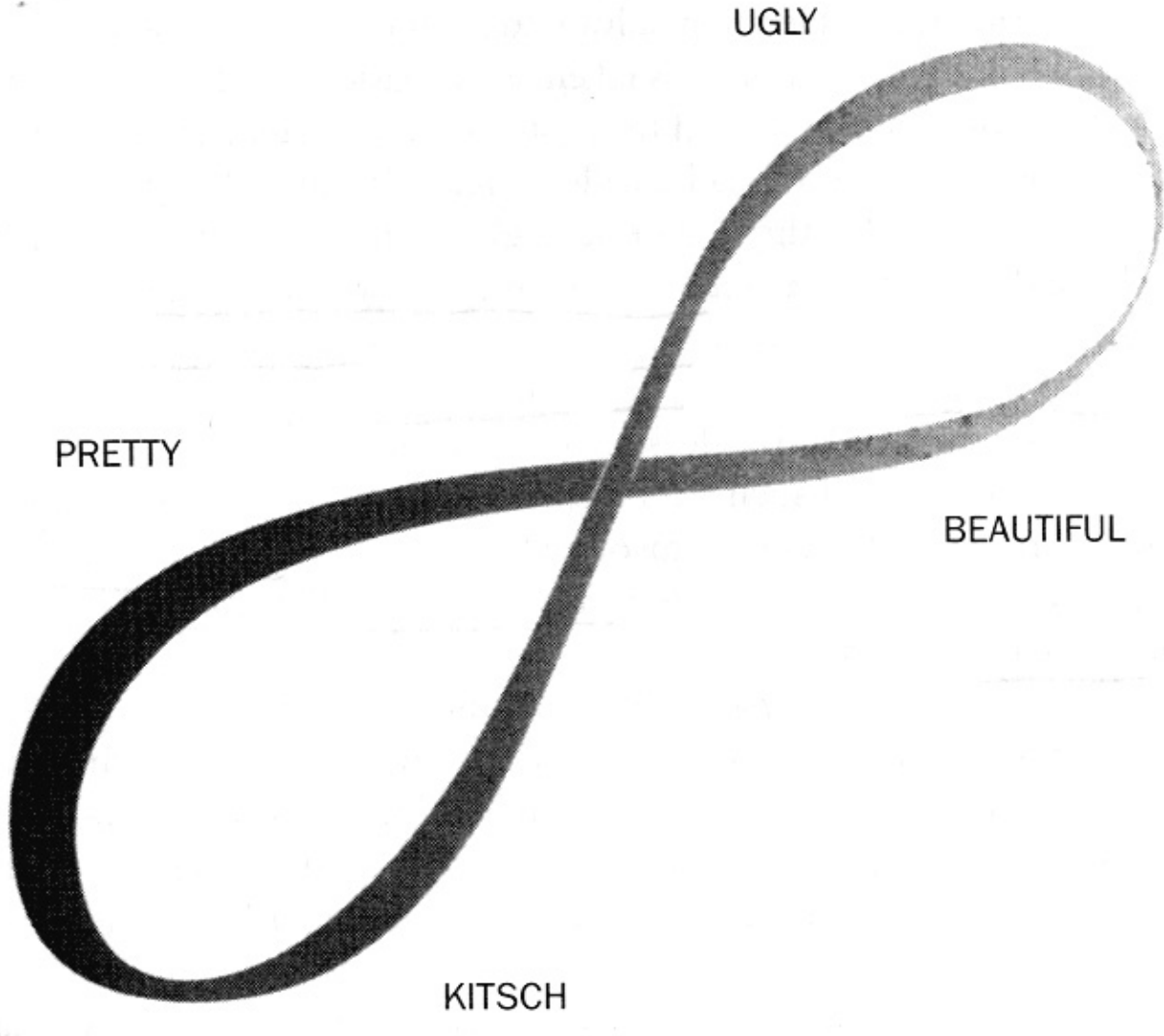
VF: That's a way of broaching the death of politics. An-archy means un-politics. Every decent person should reject identification with a system, or with one or two systems. Instead he should see his dignity in his ability to work for a time with a variety of systems at different times. You know, if you look upon the "I" as an onion consisting of layers of relationships, and you peel away those relationships, there is nothing left. Each of these layers is then an involvement in a system.

Akin to Lebbeus Woods's Theory of Architecture: The perfect house with a roof, walls, windows, and doors exists only in fairy tales. Material and nonmaterial cables have perforated it, making it like Swiss cheese. The roof sports an antenna, telephone wires pierce the walls, windows are replaced by television, and doors have given way to garage and automobile. The perfect house has become a ruin through whose cracks gust the winds of communication. It has become a shabby patchwork. A new type of architecture is needed.

Architects must now stop thinking geographically and begin to conceptualize topologically. A house should be conceived of no longer as an artificial cave but rather as a bending in the field of interpersonal relations. It won't be easy to transform our thinking. It was accomplishment enough to transform geographical thinking from the planar to the spherical. But topographical thinking may be facilitated by computer-generated images of equations. In these images the earth is no longer envisaged merely as a geographical place in the solar system; it may instead be viewed as a bending in the gravitational field of the sun. This is how we must envision the house: as a bending in the field of interpersonal relations to which relationships are attracted as to a magnet. An attractive house of this sort would gather relationships, process them into information, store the information.


Low entropy
(Highly ordered)
High entropy
(Disordered)
Time flows in the direction of increasing entropy

The problem for such a future art criticism will be how to scale the measuring rod of habit. To solve this problem, informatics (that mirror of the algorithm for entropy) will become useful, but it will not be sufficient. The two extremes of such a rod are immediately obvious: the one is total noise, total improbability, meaning a situation that approaches the impossible; the other extreme will be total redundancy, almost total probability, meaning a situation that approaches tautology, the absence of information. Both extremes are unattainable, and they constitute the two horizons of the universe of aesthetics. Close to the first extreme, one will have to identify those works of art that were previously absolutely unexpected and that thus transform our lives. Close to the second extreme, one will have to identify the great mass of habitual ordinary products that surround us day and night and that we hardly perceive.
the easy part of the problem of scaling.


UGLY
PRETTY
BEAUTIFUL
KITSCH

Such a quantifying criticism, which will use both physical and informatic theories, will measure all artworks with a loop that will contain zones marked "ugly-beautiful-pretty-kitsch-ugly," and the measurement will show the slide of works of art toward habit. Thus it will answer questions of the type: "How long will this specific work remain within the zone of beauty before, licked by habit, it slides into prettiness?"

Czech philosopher Vilém Flusser – who lived for 30 years in Brazil and has a lot of his work written in Portuguese, as much as in German and English, and also knew several other languages, including Latin and Greek – has written in the early 1960s a compelling book named *Língua e Realidade* (*Language and reality*, 1963), in which he develops the idea that *language is reality*. For Flusser, "one of the fundamental desires of human spirit in its attempt to comprehend, govern and modify the world is to find out an order. A chaotic world, though conceivable, would be incomprehensible, so that the will to govern or to modify it would be meaningless and useless" (Flusser, 1963: 11). The fiber with which man changes this "chaos" into a "cosmos" – an ordered structure which allows to catalogue all apparent phenomena, and relate them to a system of rules such as to give them a certain hierarchy – is language (see Fig. 3). It is language which turns the "chaos of perception" into the "ordered cosmos" which we call "reality".

Key Binary in Flusser's Theory

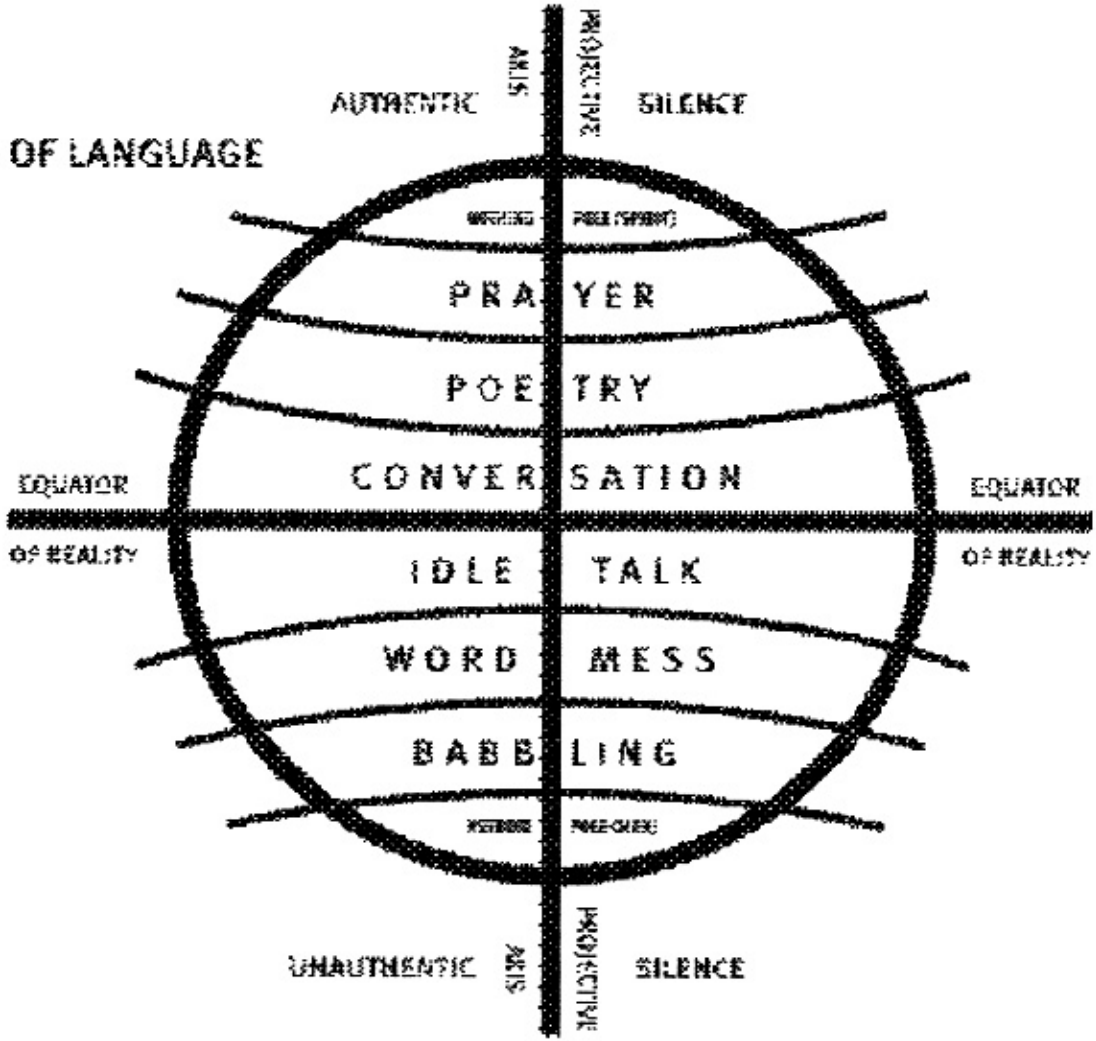
Communication has two phases:

Dialogue = information is created, synthesized and can be located in a single memory.
Discourse = information produced in dialogue is then distributed.

Four modes of Distribution / Cultural situation:

1) receivers in semi-circle around sender (corresponds to responsibility)
2) sender uses series of information senders or relays (corresponds to authority)
3) sender distributes to dialogues which is passed on in enriched form (corresponds to progress)
4) senders transmits information into space (corresponds to massification).

PHYSIOLOGY OF LANGUAGE



Our dialogues are handled today in such an archaic manner, as before the industrial revolution. Actually, with the exception of the telephone, we dialogue with each other in the same way as those who lived during the Roman age. At the same time, the discourses raining down on us avail themselves of the most recent scientific advances. However, if there is hope in preventing the totalitarian danger of massification through programming discourses, it lies in the possibility of opening up the technological media to dialogue.

The principle of "dialogical life," together with the analysis of communication structures and current technological developments, led Flusser to the idea of a utopian, liberated society. In this society to come, humans communicate and philosophize freely in a network that allows communication between all members of that society. This communication structure, called "net dialogue" by Flusser, carries its purpose within itself and is technologically supported by communication channels.

Accordingly, he refers to the telematic society in the essay "Ex-perience" in the following way:

> Let us imagine that our central nervous system were to extend around the globe like a net. Let us further imagine that it would constitute something like a *neurosphere* situated between the biosphere and the atmosphere. What I am suggesting is not science fiction but the model on which the telematic society now being built is based. What we need to do is imagine such a neurosphere as a network of human nerves as well as material and nonmaterial cables. And we must further imagine human brains and artificial intelligences at the nodal intersections of such a network. Such a neurosphere spanning the globe would function to compute into experience all stimuli incessantly streaming in from all directions and to transform these experiences into decisions and actions. Seen this way, the telematic society would be a mechanism for experience, a global machine for the realization of potentials.

Whereas Baudrillard formulated the sentence "reality itself . . . has been confused with its own image,"[60] Flusser doubted this was a meanignful pronouncement. He objected that reality and fiction could not be distinguished from each other by a criterion of truth, but only by the criterion of higher or lower probability. Consequently, he dismissed Baudrillard's notion of "simulation." In his opinion, it implied a naive, positivistic notion of reality that was theoretically untenable.

The purpose of human communication is to make us forget the meaningless context in which we are completely alone and incommunicado, that is, the world in which we are condemned to solitary confinement and death: the world of "nature."

The task and potential greatness of mortals lie in their ability to produce things—works and deeds and words—which would deserve to be and, at least to a degree, are at home in everlastingness, so that through them mortals could find their place in the cosmos where everything is immortal except themselves. By their capacity for the immortal deed, by their ability to leave nonperishable traces behind, men, their individual mortality notwithstanding, attain an immortality of their own and prove themselves to be of a "divine" nature.

This veil is made from science and art, philosophy and religion, and it is spun increasingly denser, so that we forget our solitude and death, including the deaths of others whom we love. In short, man communicates with others. He is a "political animal," not because he is a social animal, but because he is a solitary animal who cannot live in solitude.

If one interprets the negentropic tendency of human communication instead of trying to explain it, then it appears in a different light. In this case, the accumulation of information is not seen as a process that is statistically improbable but possible. Rather, it is seen as a human intention—not as the result of accident and necessity, but of freedom. The storage of acquired information is not an exception to the law of thermodynamics (such as in information sciences), but rather, it is the perverse intention of a human being condemned to death. And, in the following manner:

These two theses make the same assertion: the thesis that human communication is an artistic technique directed against the solitude unto death; and the thesis that human communication is a process directed against the general entropic tendency of nature.

Now, the theory of communication can show that, although mass media are being used almost exclusively for discourse, they could be changed in a way that would allow for dialogue as well. Even now, some dialogical islands seem to be there, for instance, "letters to the editor" in newspapers, and TV programs that ask receivers to call them back. But these islands are, of course, mere pretenses at dialogue, destined to create a false feeling of participation. A radical change in the mass-media structure is perfectly possible, and present techniques allow it. To give only one example: TV can be changed so that it becomes a true "network" (namely, a dialogical code), more or less like the telephone network. Closed circuits and manipulations of magnetoscopes point to this possibility, among other attempts. This would mean that people could dialogue over TV in a complex, both diachronical and plain synchronical, code. This would really change humanity into a global village, not only with idle talk in the cosmic marketplace, but with real participation of great numbers in the elaboration of information. This would be true democracy. And this is only a single example of how the theory of information can work at present.

This book is based on the hypothesis that two fundamental turning points can be observed in human culture since its inception. The first, around the middle of the second millennium BC, can be summed up under the heading 'the invention of linear writing'; the second, the one we are currently experiencing, could be called 'the invention of technical images'. Similar turning points may have occurred previously but are beyond the scope of this analysis.

This hypothesis contains the suspicion that the structure of culture – and therefore existence itself – is undergoing a fundamental change.

Flusser on Lines and Surfaces

Lines: alphabetic writing, linear process, diachronic
Surfaces: images, film, TV, etc., spatial, synchronic

Each imposes a different structure on thought.

We are moving from a written culture (lines) to a visual culture (suraces). Akin to McLuhan here.

Reading pictures takes less time than reading writing becuse the moment in which we receive their messages is denser, more compacted. We have yet to learn to truly read pictures, we still read them as if they were written lines.

Lines = historical vs. Surfaces = post-historical mode of being in the world.

The magical nature of images must be taken into account when decoding them. Thus it is wrong to look for 'frozen events' in images. Rather they replace events by states of things and translate them into scenes. The magical power of images lies in their superficial nature, and the dialectic inherent in them – the contradiction peculiar to them – must be seen in the light of this magic.

Images are mediations between the world and human beings. Human beings 'ex-ist', i.e. the world is not immediately accessible to them and therefore images are needed to make it comprehensible.

images come between the world and human beings. They are supposed to be maps but they turn into screens: Instead of representing the world, they obscure it until human beings' lives finally become a function of the images they create. Human beings cease to decode the images and instead project them, still encoded, into the world 'out there', which meanwhile itself becomes like an image – a context of scenes, of states of things. This reversal of the function of the image can be called 'idolatry'; we can observe the process at work in the present day: The technical images currently all around us are in the process of magically restructuring our 'reality' and turning it into a 'global image scenario'. Essentially this is a question of 'amnesia'. Human beings forget they created the images in order to orientate themselves in the world. Since they are no longer able to decode them, their lives become a function of their own images: Imagination has turned into hallucination.

Texts, originally a metacode of images, can themselves have images as a metacode.

The codified world in which we live no longer signifies processes, or becoming. It does not tell any stories, and living in this world does not mean acting. The fact that it does not mean this any longer is called a "crisis of values"; for we are still generally programmed by texts, and thus for history, for science, for a political program, for "art." We "read" the world, for example, as logical and mathematical. But the new generation, which is programmed by techno-images, does not share our "values." And we still do not know for what meaning the techno-images that surround us are being programmed.

To summarize: Like all technical images, photographs are concepts encoded as states of things, including photographers' concepts such as those that have been programmed into the camera. This gives photography critics the task of decoding these two interweaving codes in any photograph. Photographers encode their concepts as photographic images so as to give others information, so as to produce models for them and thereby to become immortal in the memory of others. The camera encodes the concepts programmed into it as images in order to program society to act as a feedback mechanism in the interests of progressive camera improvement. If photographic criticism succeeds in unravelling these two intentions of photographs, then the photographic messages will be decoded. If photography critics do not succeed in this task, photographs remain undecoded and appear to be representations of states of things in the world out there, just as if they reflected 'themselves' onto a surface. Looked at uncritically like this, they accomplish their task perfectly: programming society to act as though under a magic spell for the benefit of cameras.

To summarize: Photographs are received as objects without value that everyone can produce and that everyone can do what they like with. In fact, however, we are manipulated by photographs and programmed to act in a ritual fashion in the service of a feedback mechanism for the benefit of cameras. Photographs suppress our critical awareness in order to make us forget the mindless absurdity of the process of functionality, and it is only thanks to this suppression that functionality is possible at all. Thus photographs form a magic circle around us in the shape of the photographic universe. What we need is to break this circle.

Concepts no longer signify the world out there (as in the Cartesian model); instead, the universe signifies the program within cameras. The program does not signify the photograph, the photograph signifies the elements of the program (concepts). In the case of cameras, we are therefore dealing with an absurd omniscience and an absurd omnipotence: Cameras know everything and are able to do everything in a universe that was programmed in advance for this knowledge and ability.

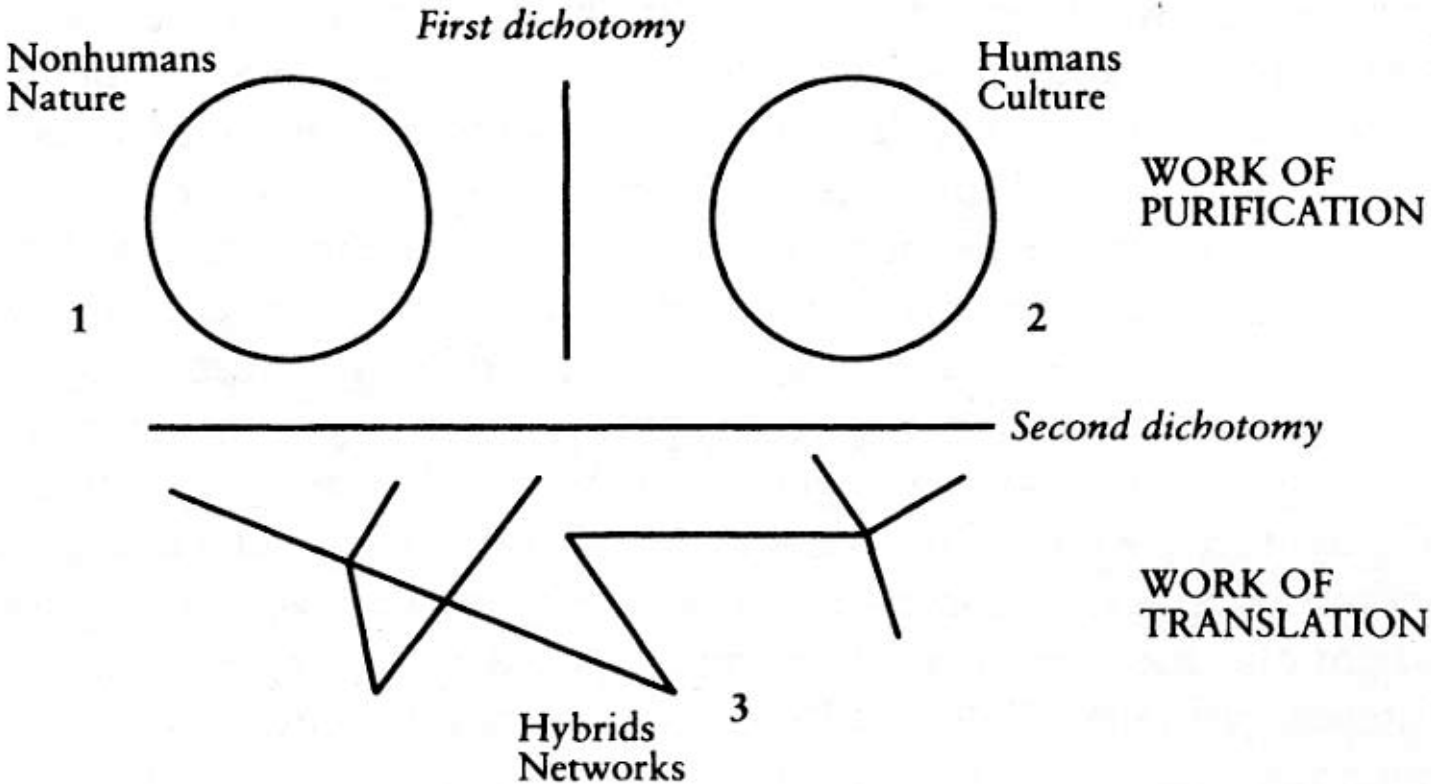
To be in the photographic universe means to experience, to know and to evaluate the world as a function of photographs. Every single experience, every single bit of knowledge, every single value can be reduced to individually known and evaluated photographs. And every single action can be analyzed through the individual photos taken as models. This type of existence, then, in which everything experienced, known and evaluated can be reduced to punctuated elements (into 'bits'), is already familiar: It is the world of robots. The photographic universe and all apparatus-based universes robotize the human being and society.

we HAVE NEVER *been* MODERN

BRUNO LATOUR

TRANSLATED BY CATHERINE PORTER

"Literally there is nothing but networks, there is nothing in between them," writes Bruno Latour. By getting rid of the "between," Latour refuses standard geographies of social space that assume stable centers or fixed points. Instead there remain only continuous connections that refuse centralization so that what becomes important are not individual webpages but the links that direct users from one internet site to another, not strong friendships but the weak personal associations that expand social worlds,



Shift from standard sociology/anthropology to Latour's Actor-Network Theory's touting of bridge between non-human and humans

Propaganda is the preeminent mode for spreading and scattering. Its functions elicit institutions and patterns of dissemination: correspondence networks, print networks, digital networks. Back in the 1920s when Edward Bernays inaugurated the study of mass persuasion, he defended propaganda by anticipating the biological metaphors that frequently crop up in network theory. He describes propaganda as a living organism that is connected at a cellular level. Rather than isolating the individual, propaganda targets the individual "as a cell organized into the social unit." Bernays describes a hypothetical citizen, one John Jones, a lodge member, churchgoer, regular golfer, professional man, and a supporter of the local chamber of commerce. Each of Jones's social connections is a marker of middle-class existence, but viewed collectively they become nodes of propagation.

David Simon, *The Wire: The Complete Series,* **DVD (2002 -08)**

The Wire captures something of the structure and the feeling of technological, social, and financial systems by adopting what I have elsewhere called a network aesthetic.[6] The most direct way that the series foregrounds networked structural relations among people and institutions is by tracing out webs of communication. During their investigation of the Barksdale drug operation, the Baltimore Major Crimes Unit utilizes a technological network of walkie-talkies, cloned pagers, and wiretaps. Subsequent seasons feature cloned software, text message surveillance, decryptions of information-laden photographs, and computer-generated visual models of a disposable cell phone communication network. Unlike most other televisual police procedurals, *The Wire* does not fetishize new technologies or make them central to the narrative. Avoiding technological determinism, the series dramatizes the way that various media both improve and limit investigations into social structures.

If it is true that we have been defined by walls ever since we became settled and that these walls are being perforated, then the question, "What are we?" can no longer be posed in this form. Since the Information Revolution we have become indefinable. We can no longer be localized spatially or temporally. Then again, we might ask under what circumstances, what *Bewandtnis,* it would be possible to speak of ourselves—of an "I"—at all. It sounds complicated, but it really is quite simple. The question has to be posed in terms of cables rather than of walls. A cable is a medium, that is, something that transmits, that forges relationships—it is a channel that allows something to turn toward and relate to something else. Ever since the walls were penetrated, we have ceased to be localizable or definable, but as a result we may for the first time be experienced concretely, because all definition is a form of imprisonment and does not make allowance for concrete experience. Only now that we cannot be labeled, cannot be classified and rubricated, only now that we are no longer settled, can we experience what is essential about ourselves.

Viewed externally, walls are collapsing because they are being perforated by cables, but this expresses something internal as well. Rational, conceptual thinking is disintegrating, too, because it is being perforated by calculatory analysis. Both objects and subjects are disintegrating, and nothing remains to be possessed, nor is there anything capable of possessing anymore. Everything is disintegrating into calculated grains of sand, but the relational network, a *mathesis universalis,* is becoming visible behind this desert. That is where experience lies. We are becoming nomads.

If we look at it more closely, we can see how, starting with nothing, we can become something. This may occur as a result of networking. Computing is the concentration of abstract, potential particles out of a networked dispersion. How this occurs may be seen from computer-generated grids in which outpouchings and bends develop at intersections in the grid. The denser the outpouching, the more concretely and the more numerous the potentials that have become realized within it. What at one time was called the "self" or the "I" is just such a realization of potentials, in the same way as is what once was called an "object" or "thing." It is simply that such outpouchings result from a concentration of a networked dispersion. What this means is that potentials gather together to be realized. I am whatever I am because a few dispersed potentials concentrated together. And the more densely they concentrate, the more realized I am. If an anthropology of this sort were ever developed, it would become clear that the confluence of potentials and the collecting of dispersions result in the concrete experience that we label "I" and "you." We are fleeting potentials that approach one another so that we may experience each other as a concrete "I" and a concrete "you." We approach one another for our mutual realization, and (somewhat more concealed) to create an objective world. That is what is meant by a nomadic anthropology, and it implies "computing."

Actor-network theory (ANT) evolved from the work of Michel Callon (1991) and Bruno Latour (1992) at the Ecole des Mines in Paris. Their analysis of a set of negotiations describes the progressive constitution of a network in which both human and non-human actors assume identities according to prevailing strategies of interaction. Actors' identities and qualities are defined during negotiations between representatives of human and non-human actants. In this perspective, "representation" is understood in its political dimension, as a process of delegation. The most important of these negotiations is "translation," a multifaceted interaction in which actors (1) construct common definitions and meanings, (2) define representativities, and (3) co-opt each other in the pursuit of individual and collective objectives. In the actor-network theory , both actors and actants share the scene in the reconstruction of the network of interactions leading to the stabilization of the system. But the crucial difference between them is that only actors are able to put actants in circulation in the system.

ANT is based on a large number of concepts, including ...

Actor	Any element which bends space around itself, makes other elements dependent upon itself and translate their will into the language of its own. Common examples of actors include humans, collectivities of humans, texts, graphical representations, and technical artifacts. Actors, all of which have interests, try to convince other actors so as to create an alignment of the other actors' interests with their own interests. When this persuasive process becomes effective, it results in the creation of an actor-network.
Actor Network	A heterogeneous network of aligned interests.
Translation	The creation of an actor-network. This process consists of three major stages: problematization, interessmant, and enrolment. Numerous actors within an organization may be involved in a different process of translation, each with its own unique characteristics and outcomes. For purposes of clarity, it is useful to focus on a single actor, from whose vantage point we wish to see the process of translation.
Problematization	The first moment of translation during which a focal actor defines identities and interests of other actors that are

	consistent with its own interests, and establishes itself as an obligatory passage point (OPP), thus "rendering itself indispensable" (Callon, 1986).
OPP	The obligatory passage point, broadly referring to a situation that has to occur in order for all the actors to satisfy the interests that have been attributed to them by the focal actor. The focal actor defines the OPP through which the other actors must pass through and by which the focal actor becomes indespensable.
Interessement	The second moment of translation wich involves a process of convincing other actors to accept definition of the focal actor (Callon, 1986).
Enrollment	The moment that another actor accepts the interests defined by the focal actor.
Inscription	A process of creating technical artifacts that would ensure the protection of an actor's interests (Latour, 1992).
Irreversibility	The degree to which it is subsequently impossible to return to a point where alternative possibilities exist (Walsham, 1997).

AT aims at accounting for the very essence of societies and natures. It does not wish to add social networks to social theory but to rebuild social theory out of networks. It is as much an ontology or a metaphysics, as a sociology. Social networks will of course be included in the description but they will have no privilege nor prominence (and very few of their quantitative tools have been deemed reusable(?)).

Why then use the word network since it is opened to such misunderstandings? The use of the word comes from Diderot. The word "réseau" was used from the beginning by Diderot to describe matter and bodies in order to avoid the Cartesian divide between matter and spirit. etc Finally, the origin of the word ("réseau" in French) comes from Diderot's work and has from the beginnign a strong ontological component.

Put too simply AT is a change of methaphors to describe essences: instead of surfaces one gets filaments (or rhyzomes in Deleuze's parlance 197-).

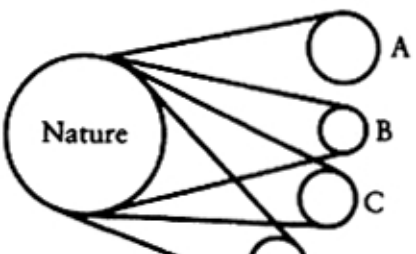
More precisely it is a change of topology. Instead of thinking in terms of surfaces -two dimension- or spheres -three dimension- one is asked to think in terms of nodes that have as many dimensions as they have connections. As a first approximation, the AT claims that modern societies cannot be described without recognizing them as having a fibrous, thread-like, wiry, stringy, ropy, capillary character that is never captured by the notions of levels, layers, territories, spheres, categories, structure, systems. It aims at explaining the effects accounted for by those traditional words without having to buy the ontology, topology and politics that goes with them. AT has been developped by students of science and technology and their claim is that it is utterly impossible to understand what holds the society together without reinjecting in its fabric the facts manufactured by natural and social sciences and the artefacts designed by engineers. As a second approximation, AT is thus the claim that the only way to achieve this reinjection of the things into our understanding of the social fabrics is through a network-like ontology and social theory.

To remain at this very intuitive level, AT is a simple material resistance argument. Strenght does not come from concentration, purity and unity, but from dissemination, heterogeneity and the careful plaiting of weak ties. This feeling that resistance, obduracy and sturdiness is more easily achieved through netting, lacing, weaving, twisting, of ties that are weak by themselves, and that each tie, no matter how strong, is itself woven out of still weaker threads, permeates for instance Foucault's analysis of micro-powers as well as recent sociology of technology.

Actor-network theory can be seen as a systematic way to bring out the infrastructure that is usually left out of the "heroic" accounts of scientific and technological achievements. Newton did not really act alone in creating the theory of gravitation: he needed observational data from the Astronomer Royal, John Flamsteed, he needed publication support from the Royal Society and its members (most especially Edmund Halley), he needed the geometry of Euclid, the astronomy of Kepler, the mechanics of Galileo, the rooms, lab, food, etc. at Trinity College, an assistant to work in the lab, the mystical idea of action at a distance, and more, much more (see the book by Michael White). The same can be said of any scientific or technological project.

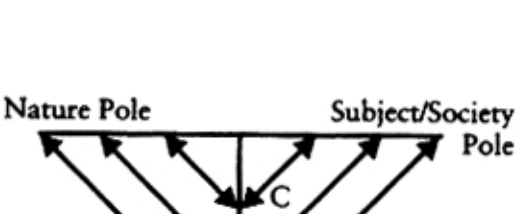
ANT was born out of ongoing efforts within the field called social studies of science and technology. The field of social studies of technology in general and ANT in particular are evolving rapidly. When going about doing your business -- driving your car or writing a document using a word-processor -- there are a lot of things that influence how you do it. For instance, when driving a car, you are influenced by traffic regulations, prior driving experience and the car's manoeuvring abilities, the use of a word-processor is influenced by earlier experience using it, the functionality of the word-processor and so forth. All of these factors are related or connected to how you act. You do not go about doing your business in a total vacuum but rather under the influence of a wide range of surrounding factors. The act you are carrying out and all of these influencing factors should be considered together. This is exactly what the term actor network accomplishes. An actor network, then, is the act linked together with all of its influencing factors (which again are linked), producing a network.

Actant-Network Theory has its origins in studies of the networks of interdependent social practices that constitute work in science and technology. Bruno Latour recognized that semiotically both human actors and nonhuman participants (whether artifacts or naturalized constructs like bacteria) were equally actants in the sense of Greimas' narrative semiotics: they were defined by how they acted and were acted on in the networks of practices. The important fact here is not that humans and nonhumans are treated symmetrically (a given in social semiotics and ecosocial dynamics) but that they are defined relationally as arguments or functors in the network, and not otherwise. This leads to a relational epistemology which rejects the naive positivist view of objects or actors as existing in themselves prior to any participation in ecosocial and semiotic networks of interactions (including the interactions by which they are observed, named, etc.).



CULTURAL RELATIVISM

Nature is present but outside cultures; cultures all have a more or less precise point of view toward Nature

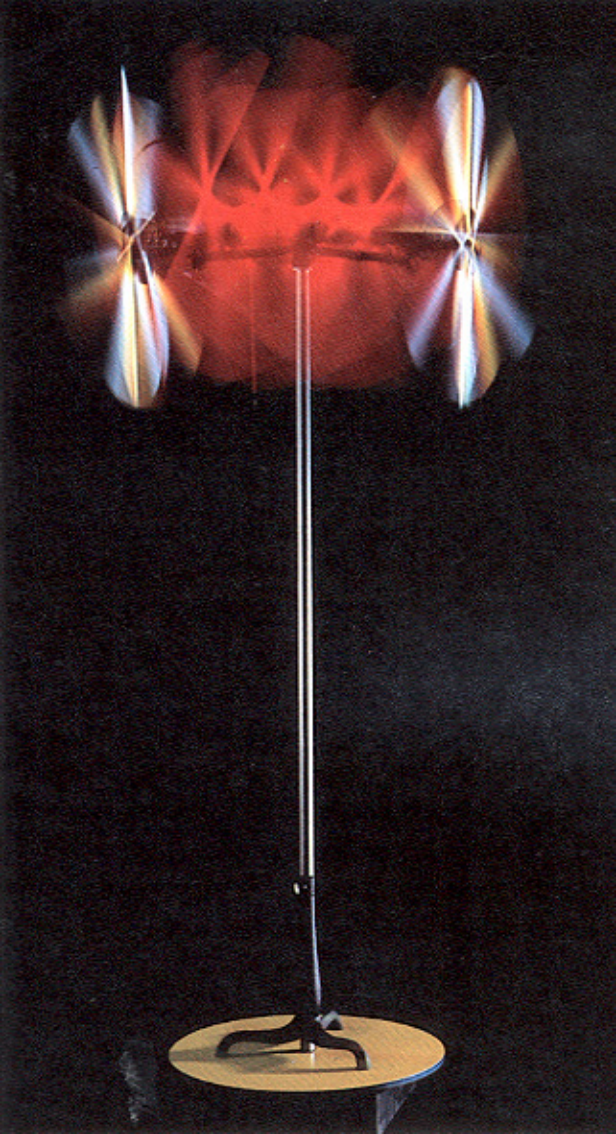


SYMMETRICAL ANTHROPOLOGY

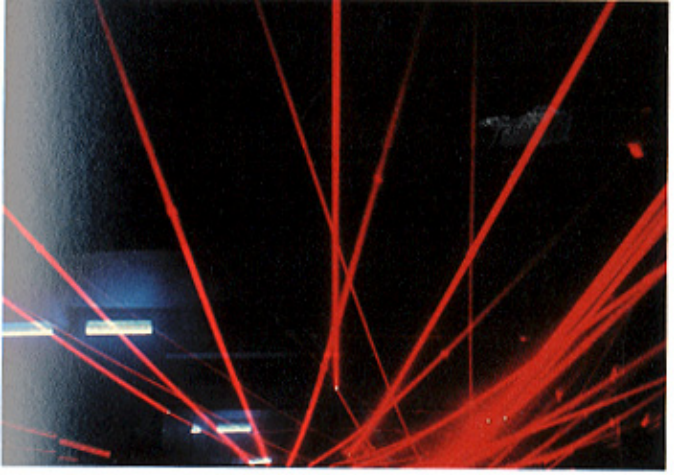
All the collectives similarly constitute natures and cultures; only the scale of the mobilization varies

According to Latour, the modern constitution or world view uses one dimensional language operating in the framework of opposite poles of nature and culture. Knowledge and artifacts are explained either by society (social constructionisms) or by nature (realism). In order to transcend this dualism a second dimension is needed. It is the process of nature/society construction that results in the stabilization of a strong network. By selecting this process as a unit of analysis, it is possible to understand the simultaneous construction of culture, society and nature (Latour 1992a, 281): "Instead of being opposite causes of our knowledge, the two poles are a single consequence of a common practice that is now the single focus of our analysis.

The ANT raises the challenge of studying reality as transitional in its becoming, and as trajectories of creation. This idea of becoming and change is one of the central methodological ideals of dialectics as well.

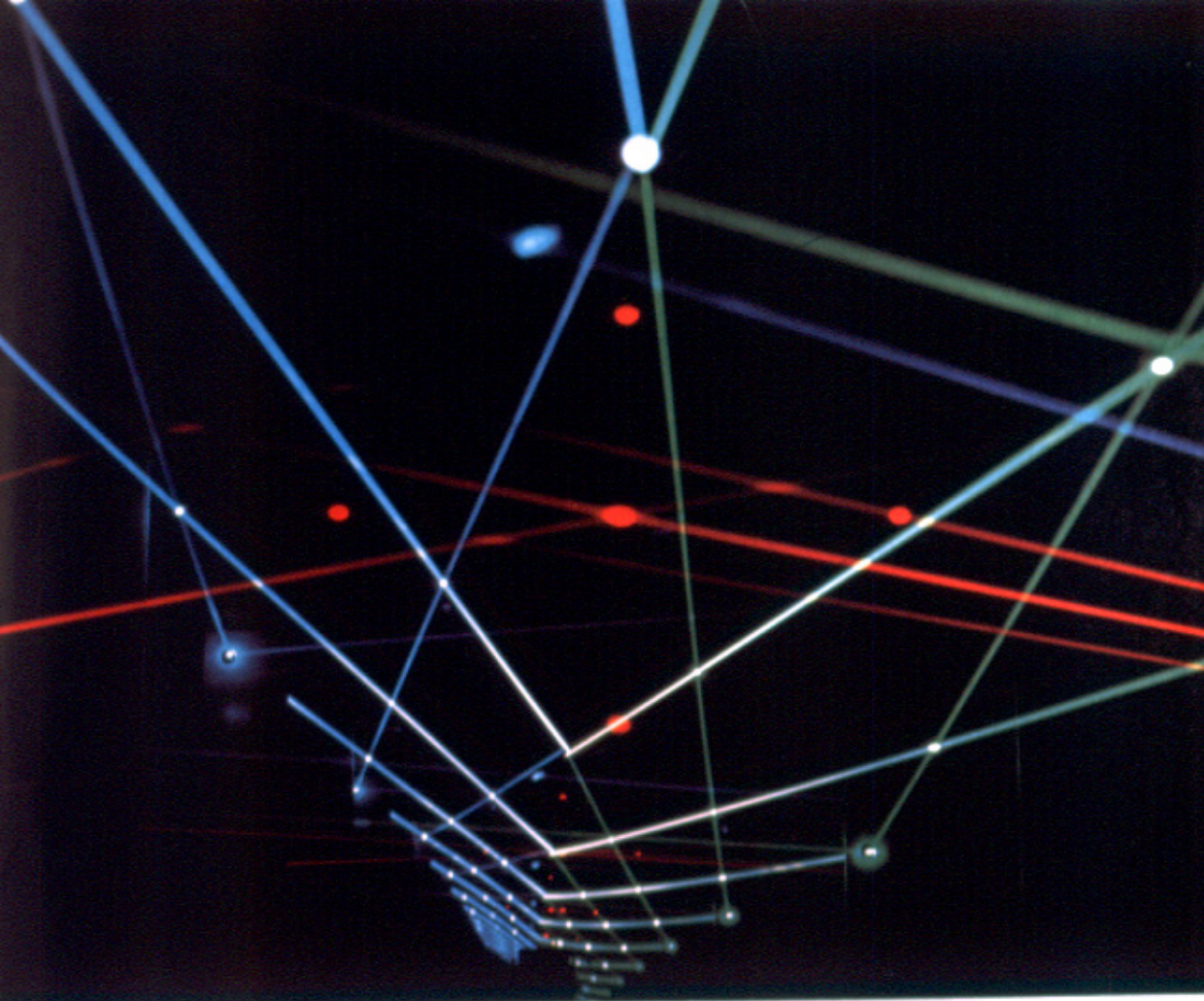


The technical qualities of the laser have been used by many artists in holography, whereas its graphic characteristics found their aesthetic application in the work of a few specific artists, either on an environmental urban scale or in theatrical or other spectacular performances. Outstanding achievements in environmental realizations have been the work of Rockne Krebs, Dani Karavan and Horst H. Baumann; in the area of multimedia performances, such musicians and artists as Lowell Cross, Paul Earls, Iannis Xenakis, Joël Stein and Carl Fredrik Reuterswärd have been most significant.



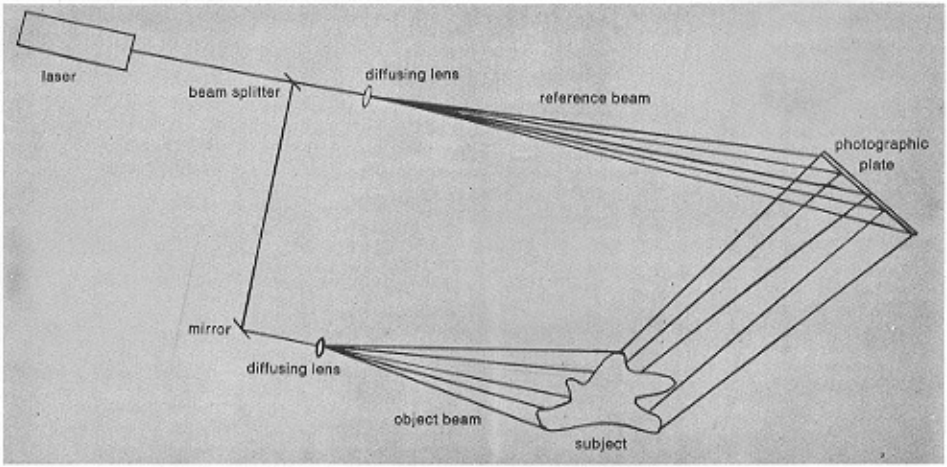
38
Rockne Krebs
Aleph 2 (1969)
an early small-scale interior installation piece

39
Rockne Krebs
Miami Line (1983–88)
Downtown Miami; neon 1/4 mile long on both sides of an elevated railway bridge; conceptually based on Krebs's urban-scale laser pieces



42. Rockne Krebs. *Day Passage*, 1971. Argon and helium-neon lasers, mirrors. Executed in collaboration with Hewlett-Packard Corporation for Art and Technology. Courtesy Los Angeles County Museum of Art.


AEG



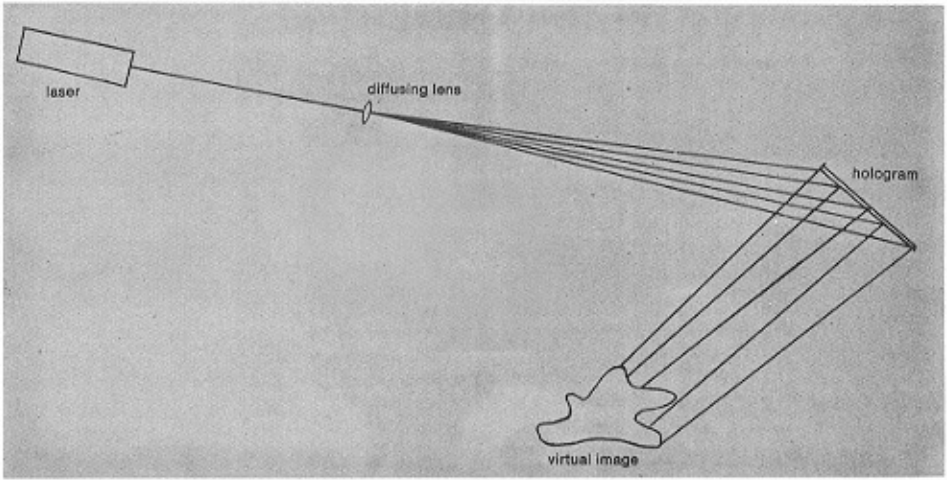
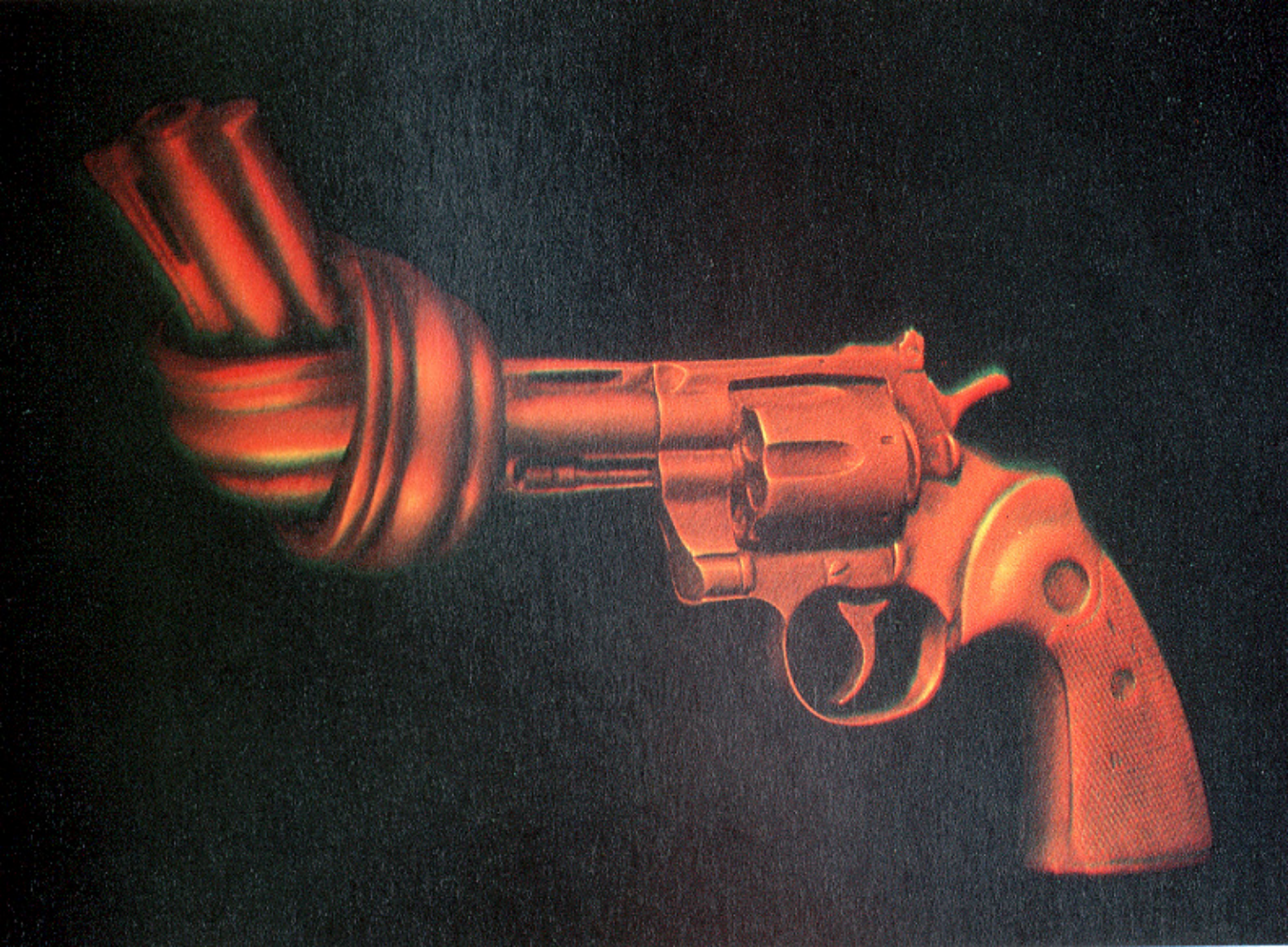
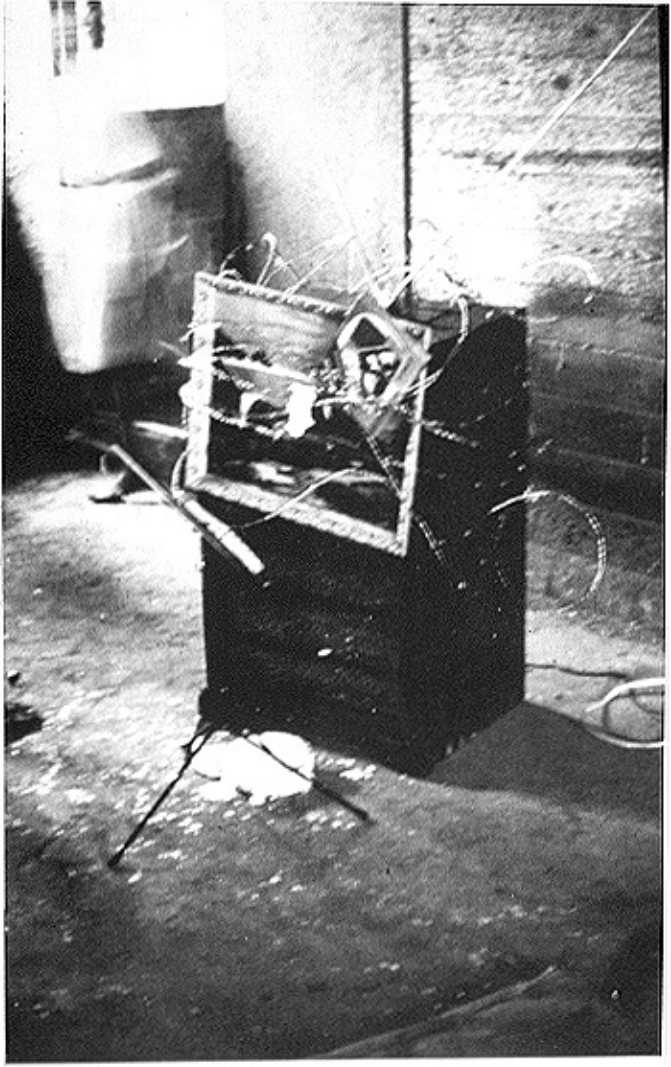


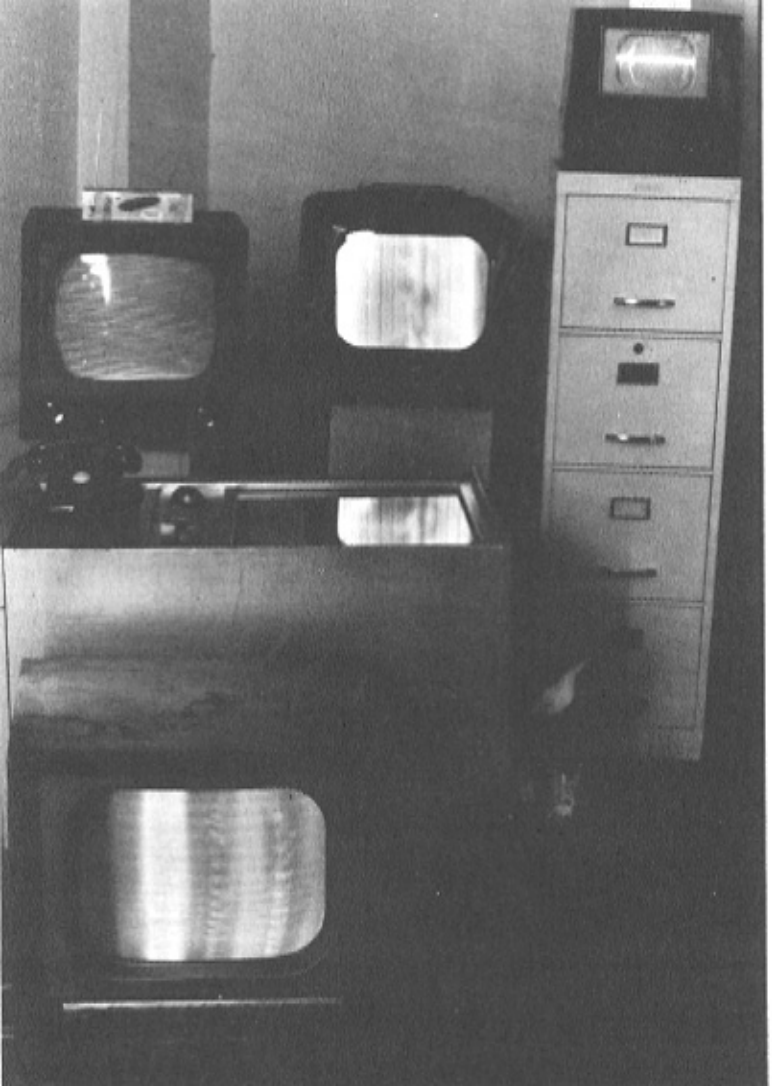
Diagram: Making a Hologram. The beam projected from the laser is split in two by the beam splitter, then spread apart by diffusing lenses. One beam, top, goes directly to the photographic plate. The lower beam hits the object to be "photographed," illuminating it and scattering light onto the plate that interferes with the other beam. This interference creates the pattern that "stores" three-dimensional visual information about the object. Later this information can be re-created by projecting light beams through the plate. Courtesy Finch College Museum of Art, New York.

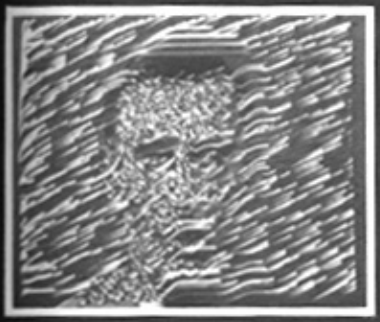


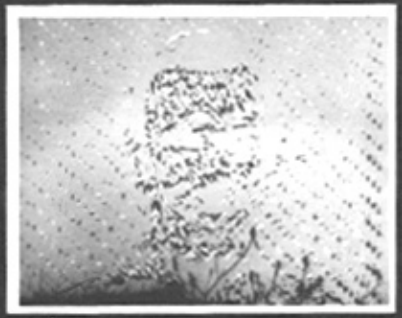
Since the 1960's revival of constructivist and dadaist strategies, it has generally been acknowledged that a prominent aspect of contemporary art is its creation or manipulation of social situations or contexts. There is little doubt that the rapid development of new media technologies during the twentieth century has been a key factor in this development. Such technologies do not just provide new forms of visual expression but also new modes of production, distribution, and public presence—in short, new social surfaces. Hence the increasing level of reflexivity in art's handling of the social—a fact that made itself felt in the early days of video art when the simple feedback mechanism of closed-circuit television was deployed as a general model for artworks orchestrating social-feedback situations.

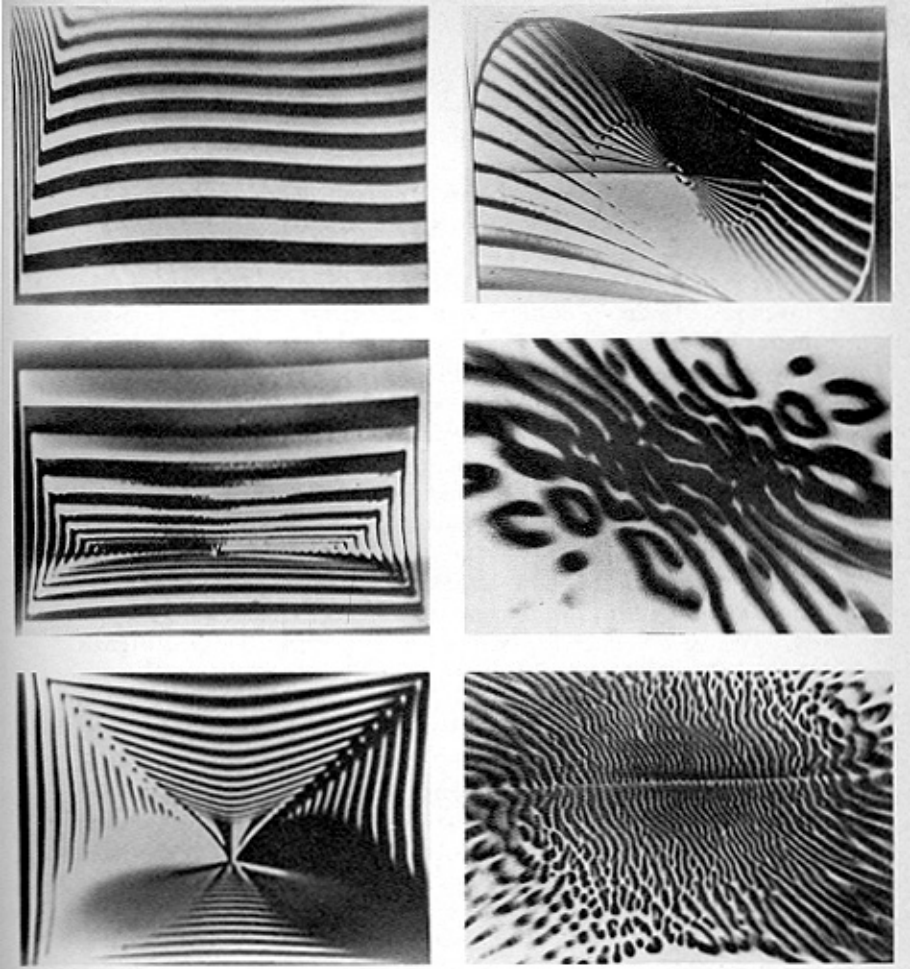


Wolf Vostell. *TV-De-Collage*, 1963. At the Smolin Gallery in New York, Vostell present a series of TV sets tuned out of focus and alignment; some were battered, broken, a riddled with bullet holes. Courtesy Neue Galerie, Aachen, Germany.



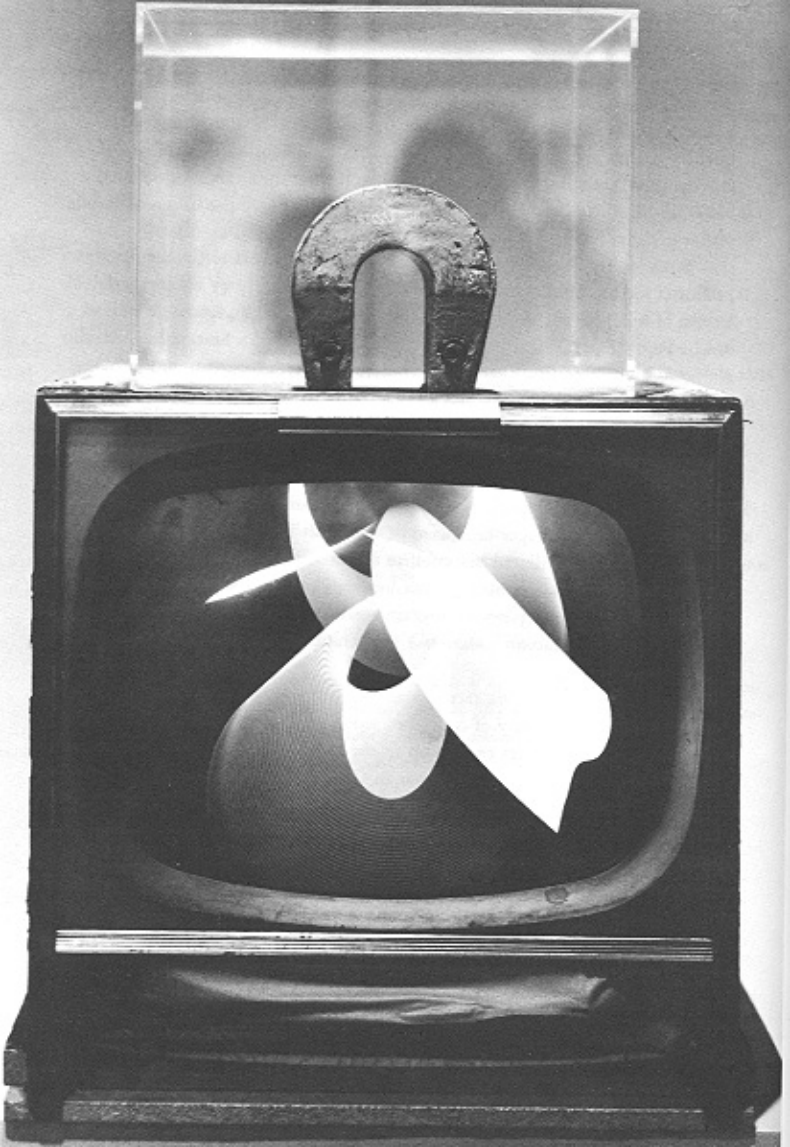


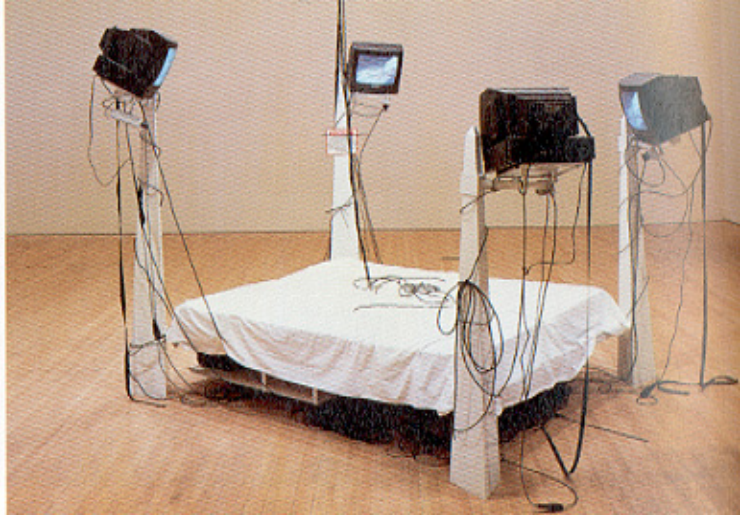




Lutz Becker: *Horizon*. 1968. Video feedback. 16mm. Color. 5 min. Tightly controlled phasing between a TV camera and its own output monitor.

am June Paik. The Paik-Abe *Video Synthesizer* in performance at the Galeria Bonino, ew York, 1972. Courtesy Intermedia Institute. Photo by Peter Moore.





Brief History of the New Media

Vannevar Bush -- 1945 -- "As We May Think" proposing the Memex machine.

Norbert Weiner -- 1954 -- *The Human Use of Human Beings* discusses human-machine interaction.

J.C. R. Licklider -- 1960 -- "Man-Computer Symbiosis" proposes man-computer collaboration.

Douglas Engelbart -- 1968 -- oNLine System initiates the the mouse, windows for text editing, and e-mail.

-- 1969 -- creates the ARPANET.

Brief History con't

Ted Nelson -- 1974 -- proposes in his Xandu project
hyperlinking and hypermedia
in "Computer Lib/Dream Machines.

Tim Berners-Lee -- 1989 -- working at CERN lab in Geneva,
proposes World Wide Web system
which becomes a reality by 1993.

Pavel Curtis --1990-- creates one of the earliest MUDs,
LambdaMOO at Xerox PARC.

Brief History con't

Ivan Sutherland -- 1965 -- invents Sketchpad, interactive graphics program.

Alan Kay -- 1969 -- proposes laptop computer while at Xerox PARC (Palo Alto Research Center) called the Dynabook, a fully interactive system.

Nicholas Negroponte & Richard A. Bolt -- 1978 -- "Spatial Data-Management" proposes virtual space computer interface called "Dataland."

Scott Fisher -- 1982 -- proposes Virtual Interface Environmental Workstation with headset with liquid crystal display, earphones, head-tracking device, data-glove, & microphone.

Art and Multimedia

15,000 B. C. -- Lascaux cave paintings
1520 -- Gaudenzio Ferrari's Sacro Monte dioramas at Varallo, Italy
1830s -- J.L.M. Daguerre's Dioramas
1849 -- Richard Wagner proposes a total artwork or *Gesamtkunstwerk* using opera as the nucleus.
1916 -- Italian Futurists propose a total cinema.
1950s -- Morton Helig proposes cinema of the future that would be totally immersive.
1970 -- Myron Krueger creates *Metaplay* and *Videoplace* exploring computer-mediated interactive artworks using telepresence.
1985 -- Jeffrey Shaw creates *The Legible City* an interactive installation using head-mounted display, stationary bike.


sensorama
3-D MOVIES

Art and Multimedia con't

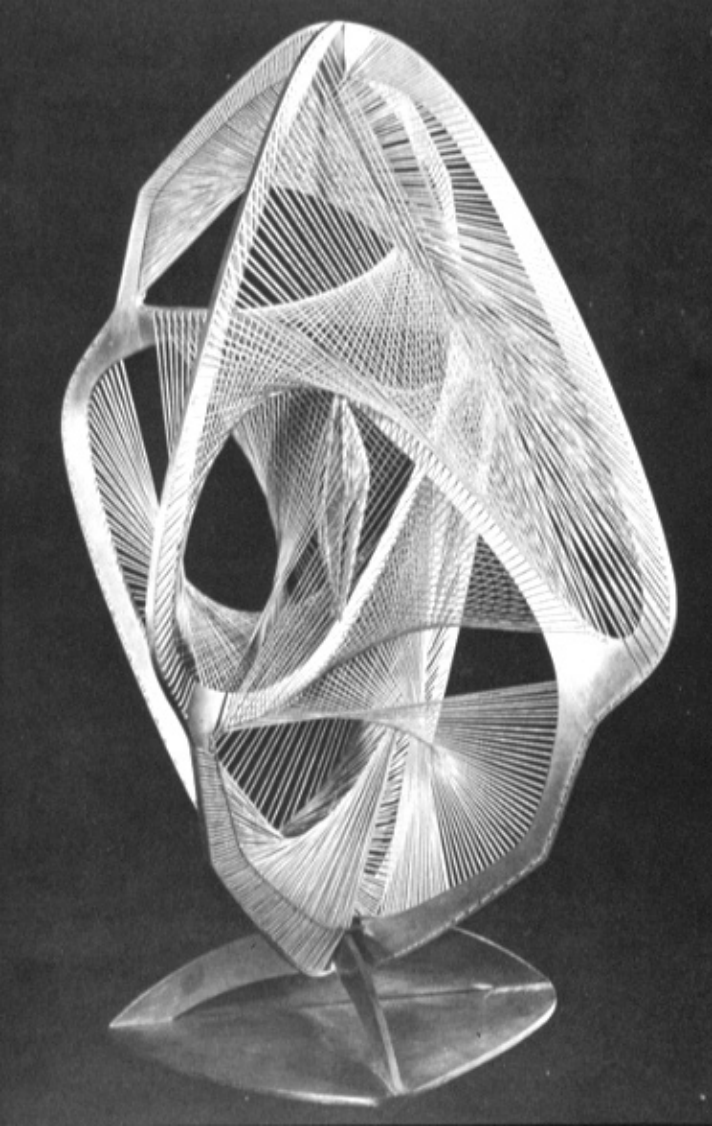
1980 -- Kit Galloway & Sherrie Rabinowitz's *Hole in Space,* a teleperformance using satelittle hook-ups to link performers globally.

1985 -- Steve Axelrad devises computer-video-disc interactive program run on an Apple computer.

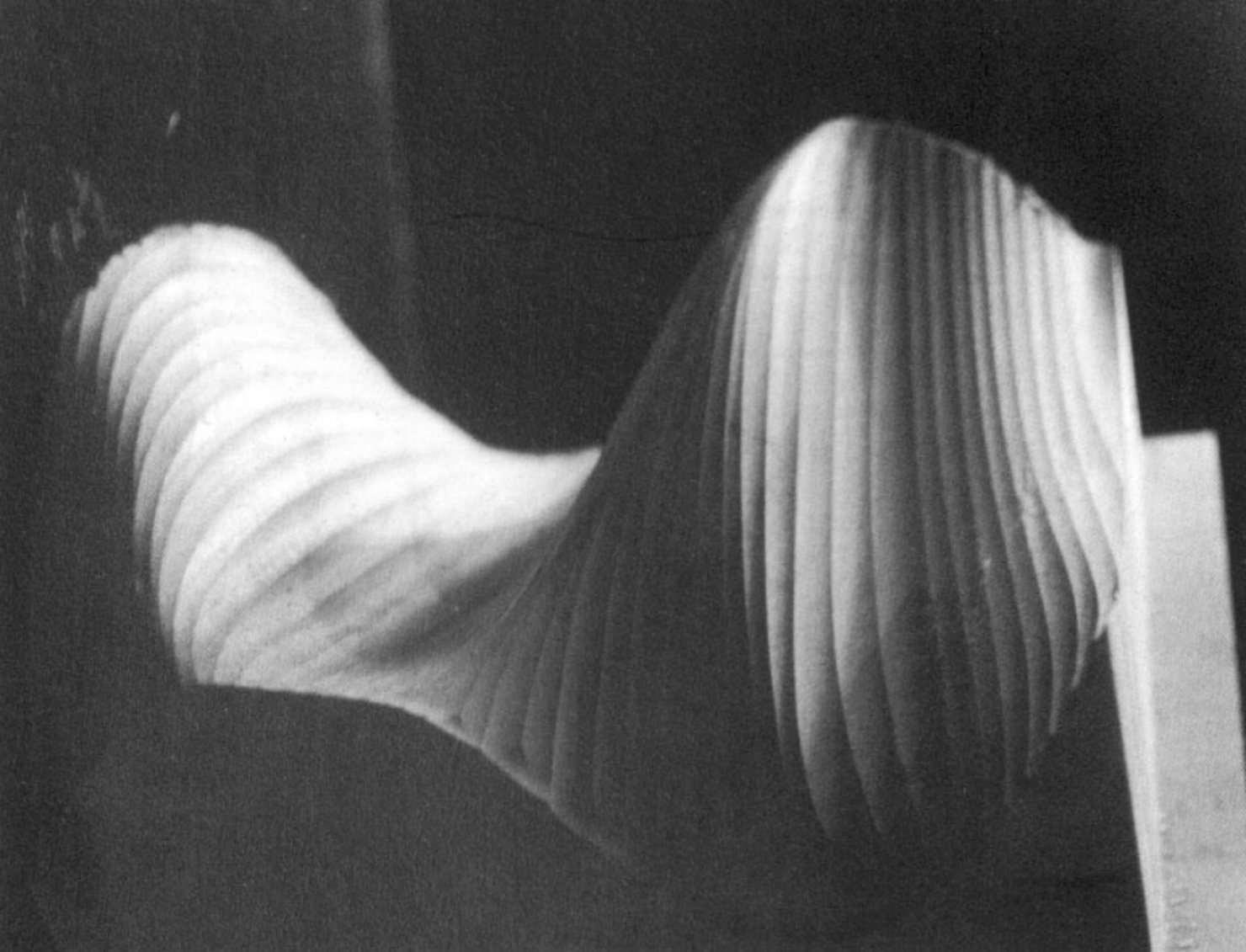
1989 -- Lynn Hershman does more elaborate computer-video-disc interactive piece, *Deep Contact.*

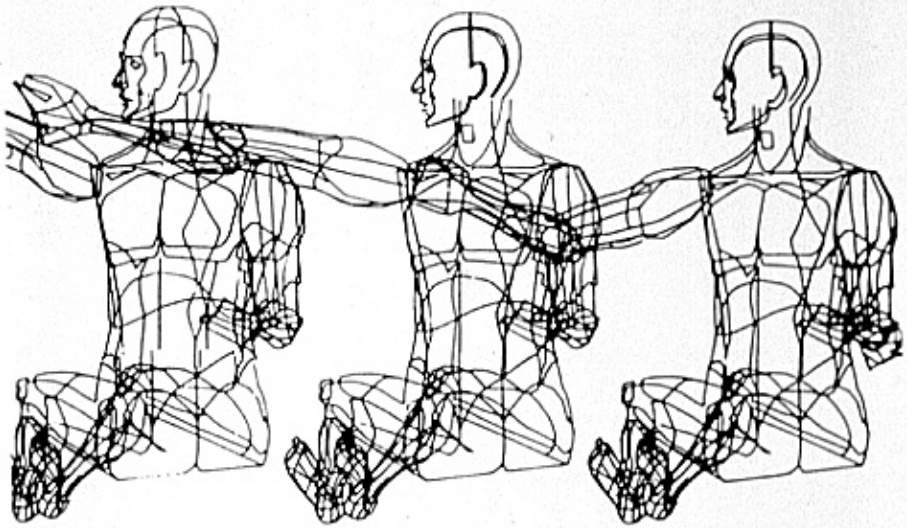
1990 -- Daniel Sandin & Thomas DeFanti build UI-C's CAVE (Cave Automatic Virtual Environment) to circumvent needing to wear a head-mount display for VR experiences.

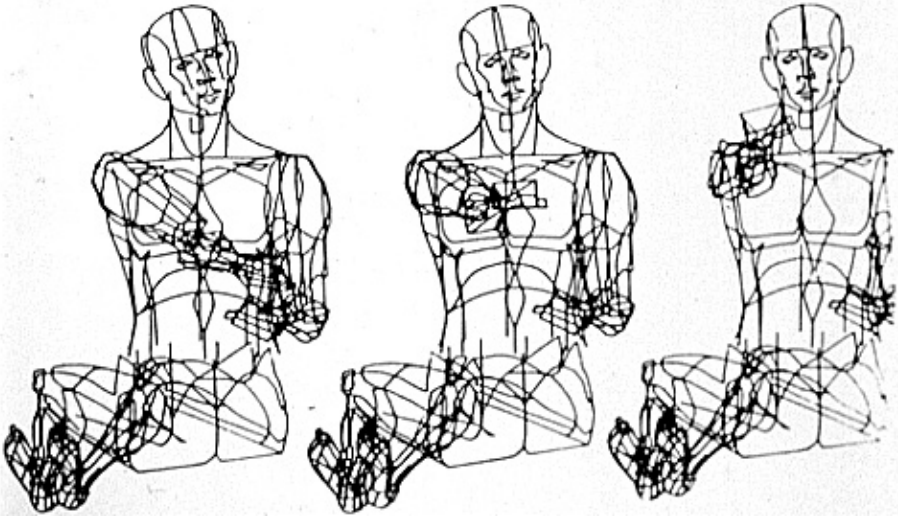
1995 -- Char Davies creates her immersive interactive, multimedia artwork *Osmose,* which used head-mount display and a data-glove to explore imaginary worlds.



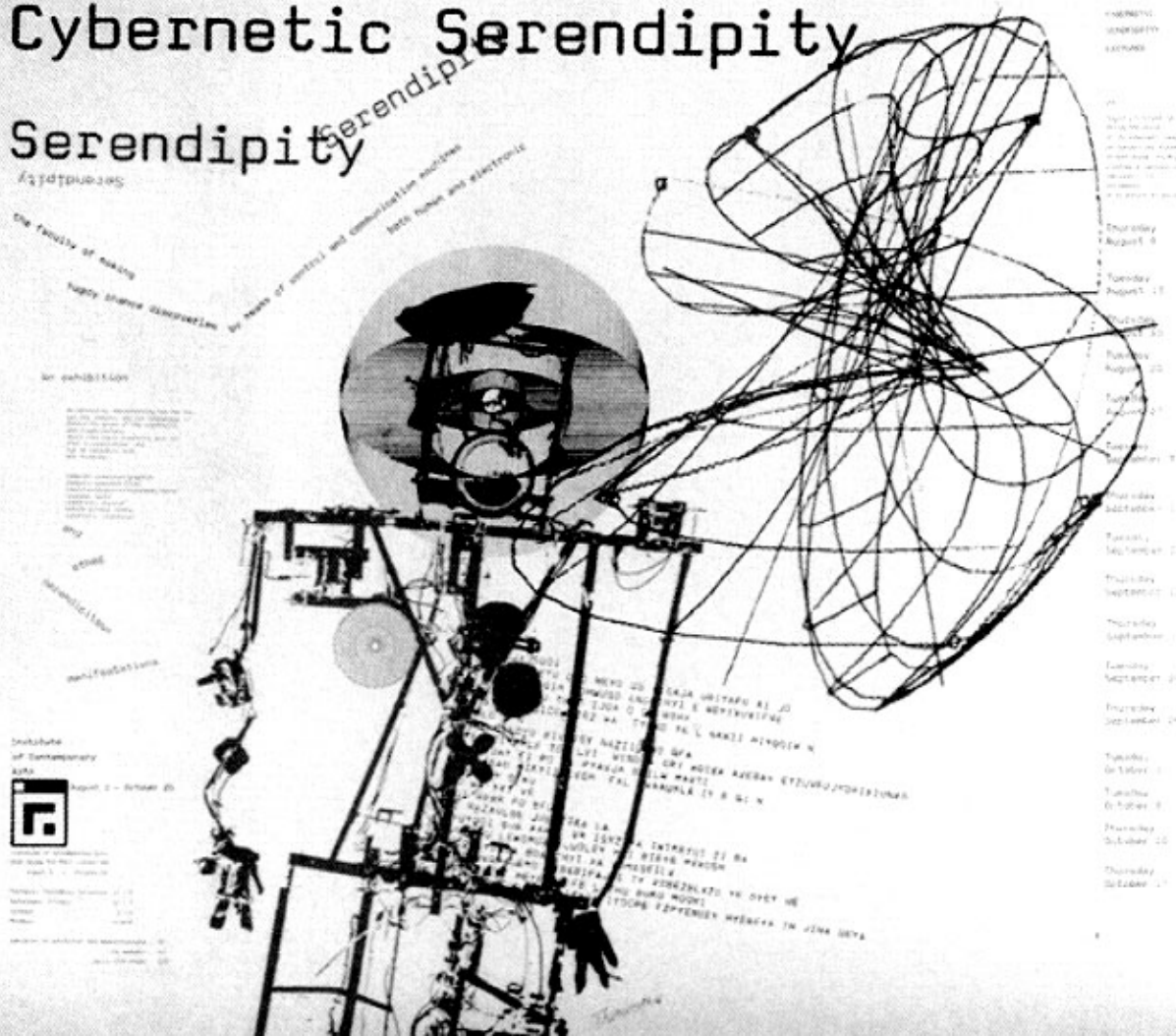

IBM

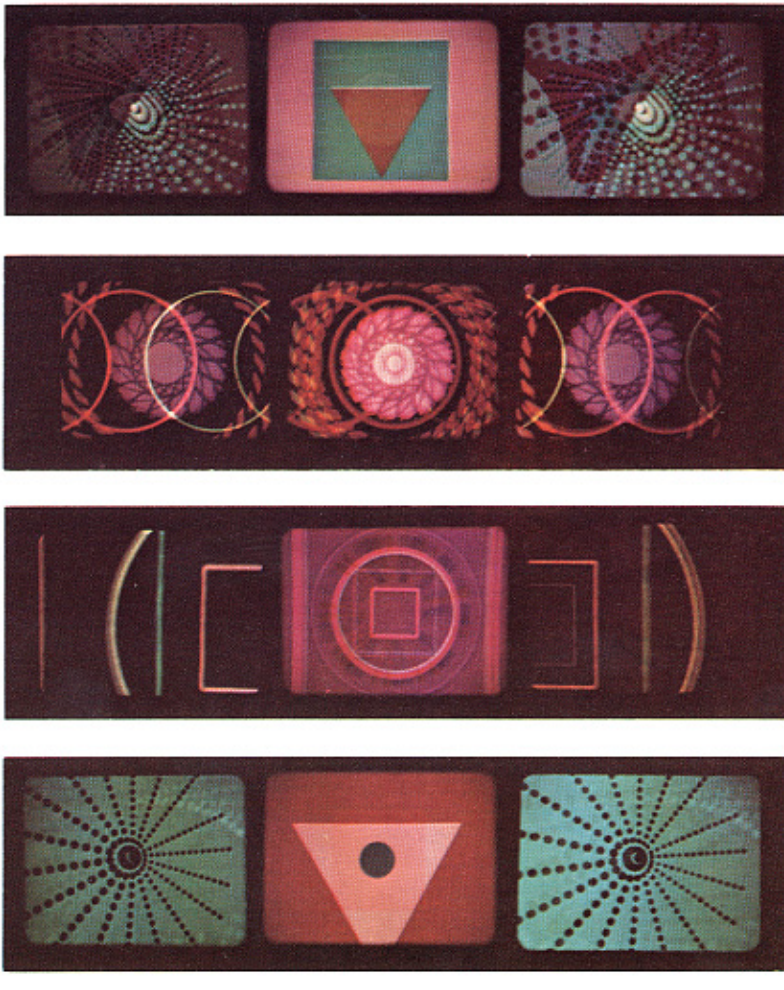




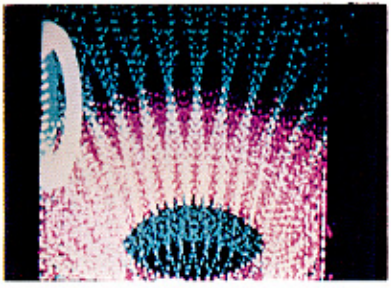
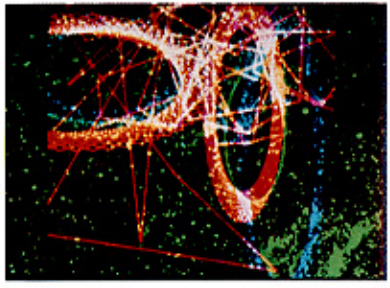
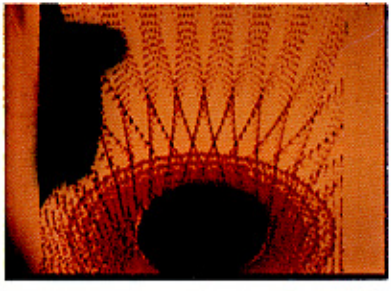
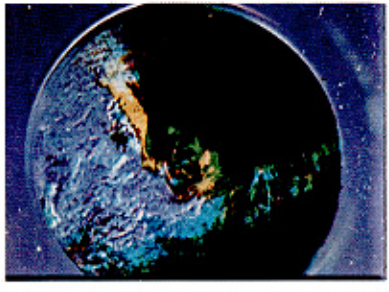
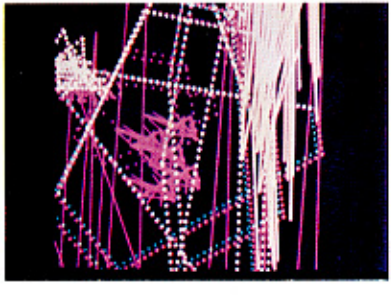


Cybernetic Serendipity

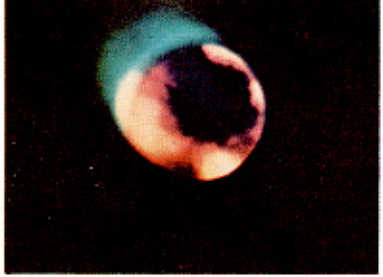
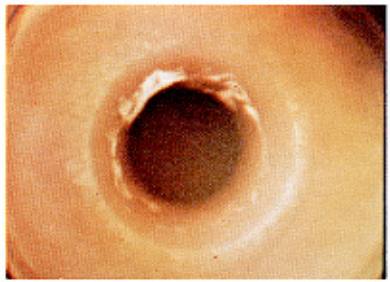
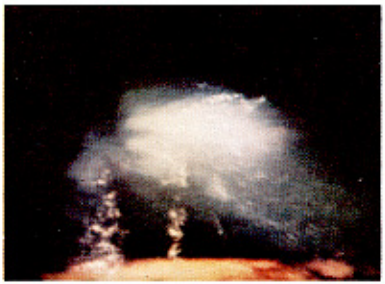
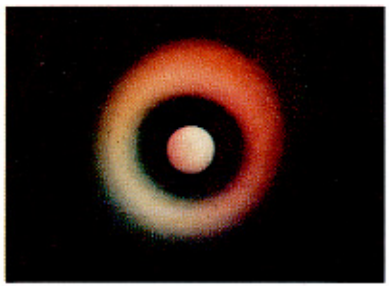
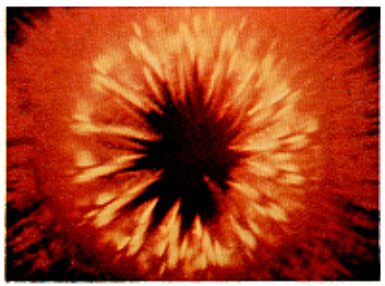




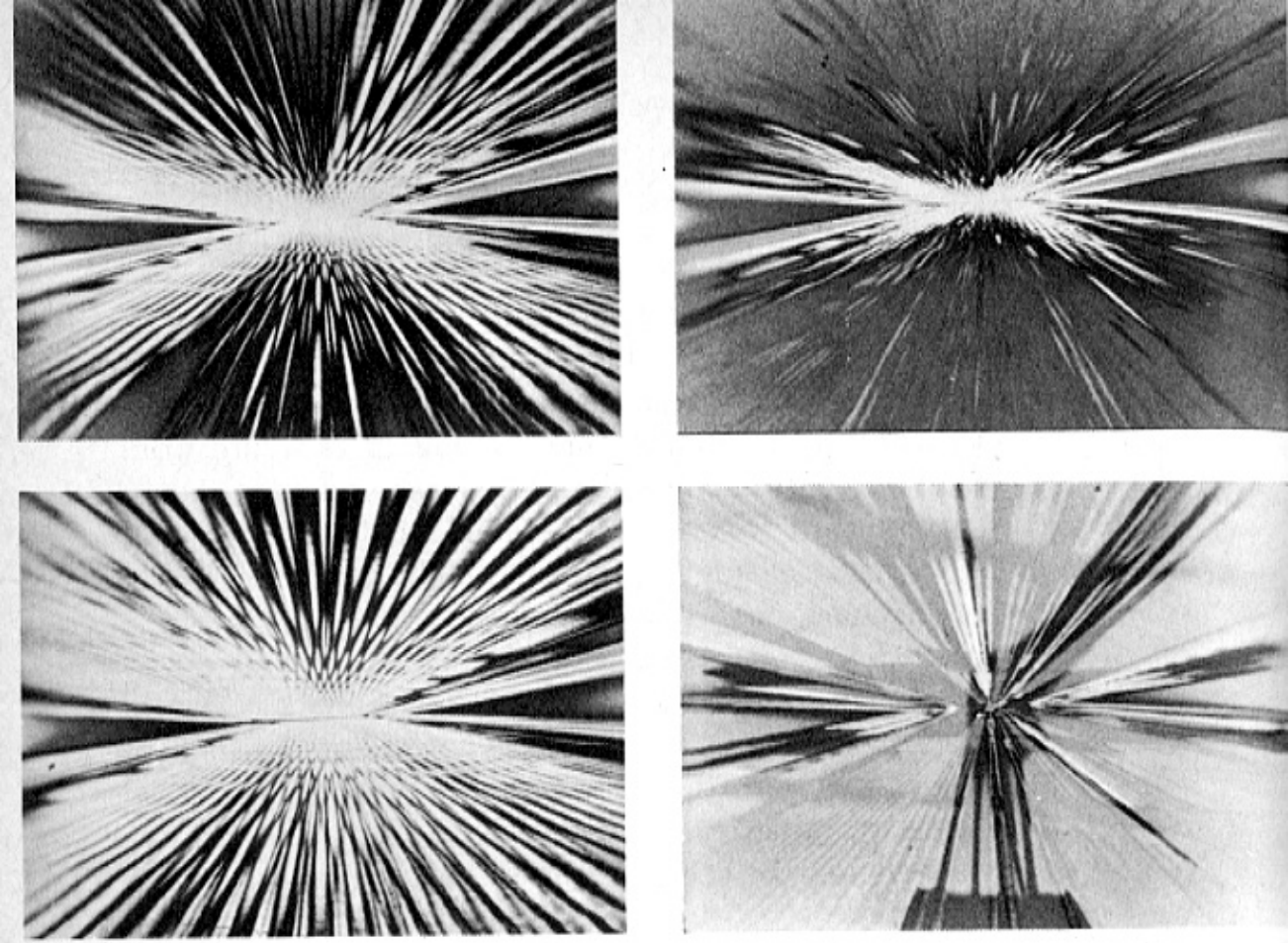
A selection of images from John Whitney, Jr.'s, triple-projection computer film. 1967. 16mm. Color. 17 min.

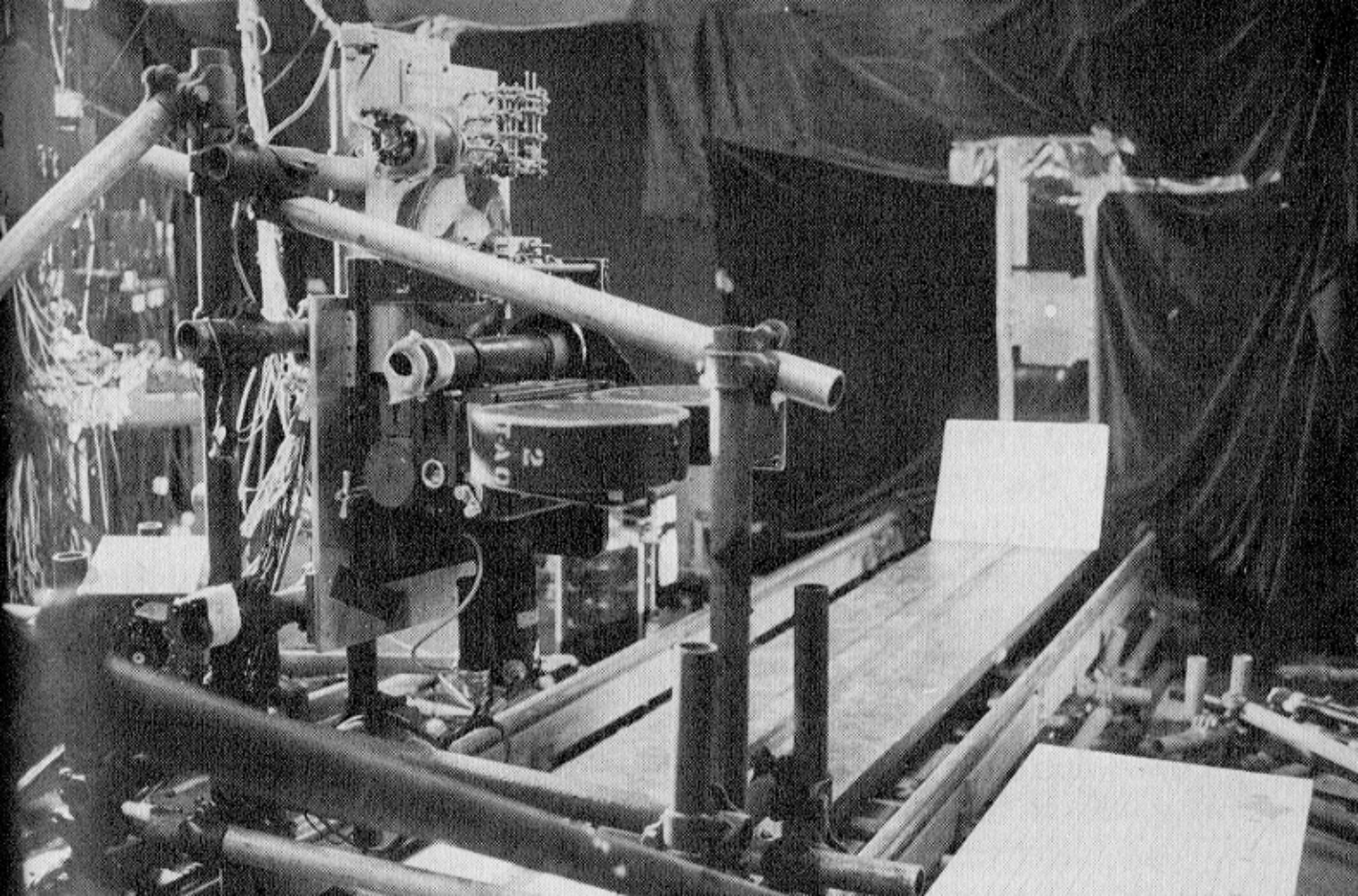

John Stehura: *Cybernetik 5.3.* 1965–69. 16mm. Color. 8 min. "It creates an overwhelming atmosphere of some mysterious transcendental intelligence at work in the universe . . . as though one were peering into a new dimension of existence."

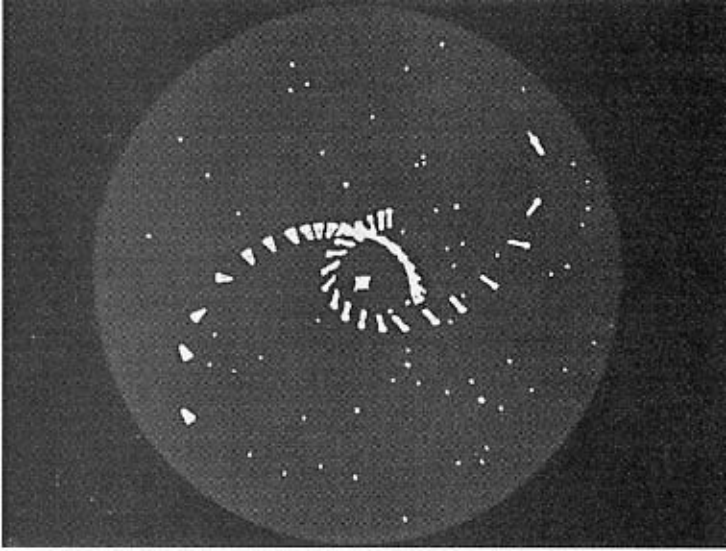







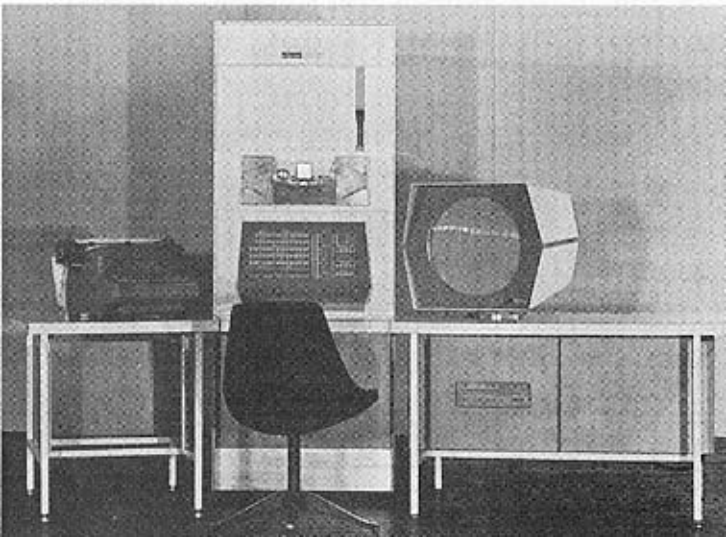
Jordan Belson: (*Left column*) *Samadhi*. 1967. 16mm. Color. 6 min. (*Right column*) *Momentum*. 16mm. Color. 6 min. "I first have to see the images somewhere: within or without or somewhere. I mean I don't make them up . . . in a sense everything I've learned in life has been through my efforts to find out what these things mean."



Slit-scan Stargate Corridor from
Stanley Kubrick's *2001: A Space Odyssey.*



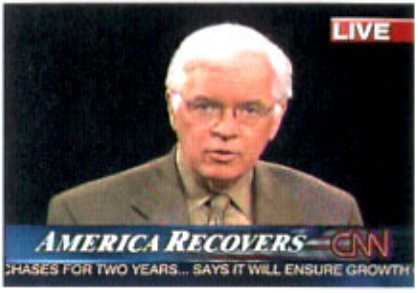





FLOOR
1
SCORE
200
LIVES
2
HEALTH
68%
AMMO
20

Omer Fast, *CNN Concatenated*
Christian Marclay, *Telephones* and *Video Quartet*

The ability to arrange and order information is perhaps the single most prevalent strategy for the creation of stories and histories. Although we all recognize that it is the victors who write the history, we need to remember that it is the victors who also rewrite and reorder the history of what we thought we knew and were certain about. Three works in this exhibition—Omer Fast's *CNN Concatenated* and Christian Marclay's *Telephones* and *Video Quartet*—explore the multiple opportunities that are available to artists, and therefore to other creative agents, to shape what we see, transform what we thought we knew, and create totally new stories or interpretations from fragments of what already exists and seems fixed.



Cut: Film as Found Object (2005)

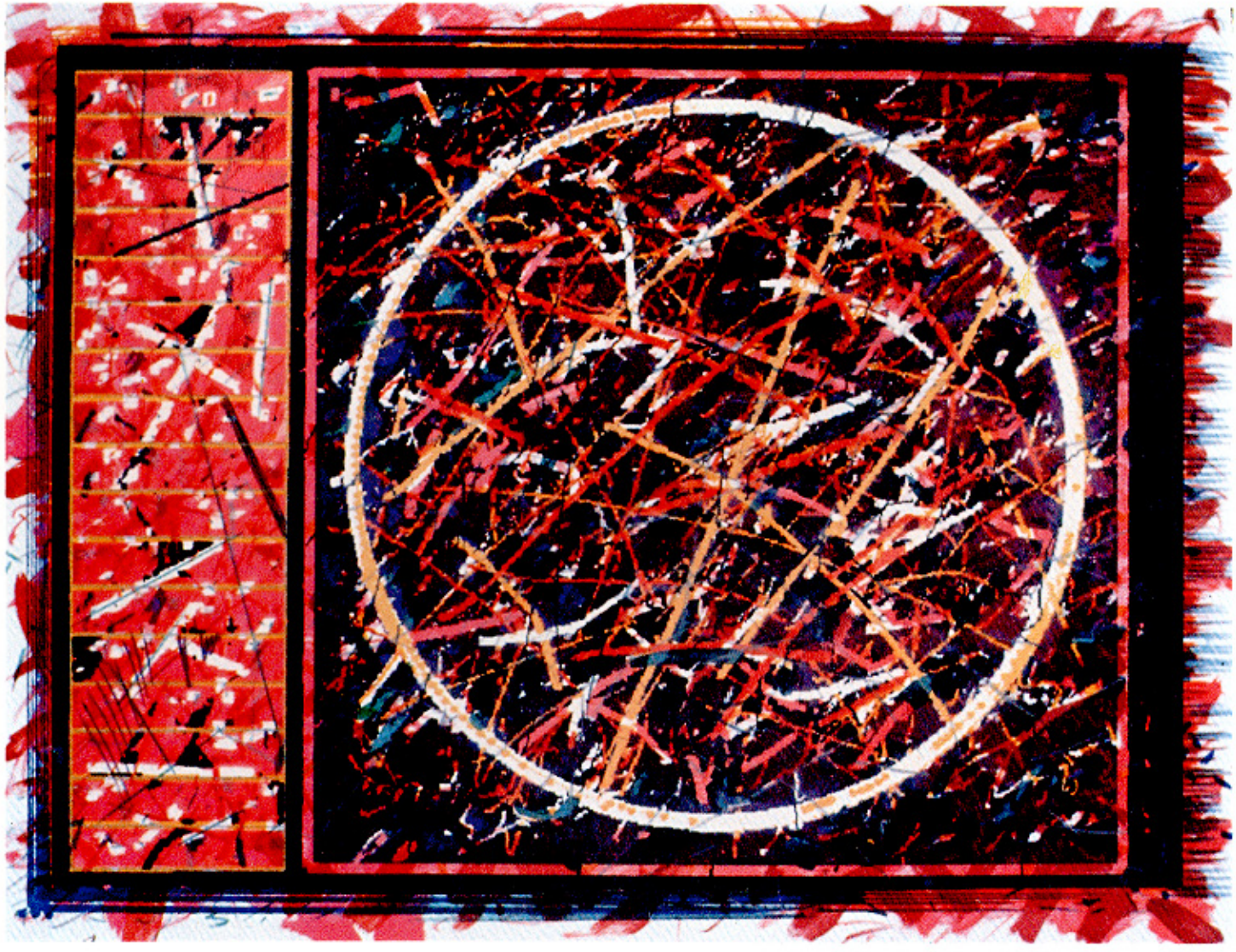
Fig. 393 Jacopo da Pontormo, *The Visitation*, 1528
Oil on canvas, 79 ½ × 61 ⅝ in. Pieve di S. Michele, Carmignano, Italy.
© Canali Photobank, Capriolo, Italy

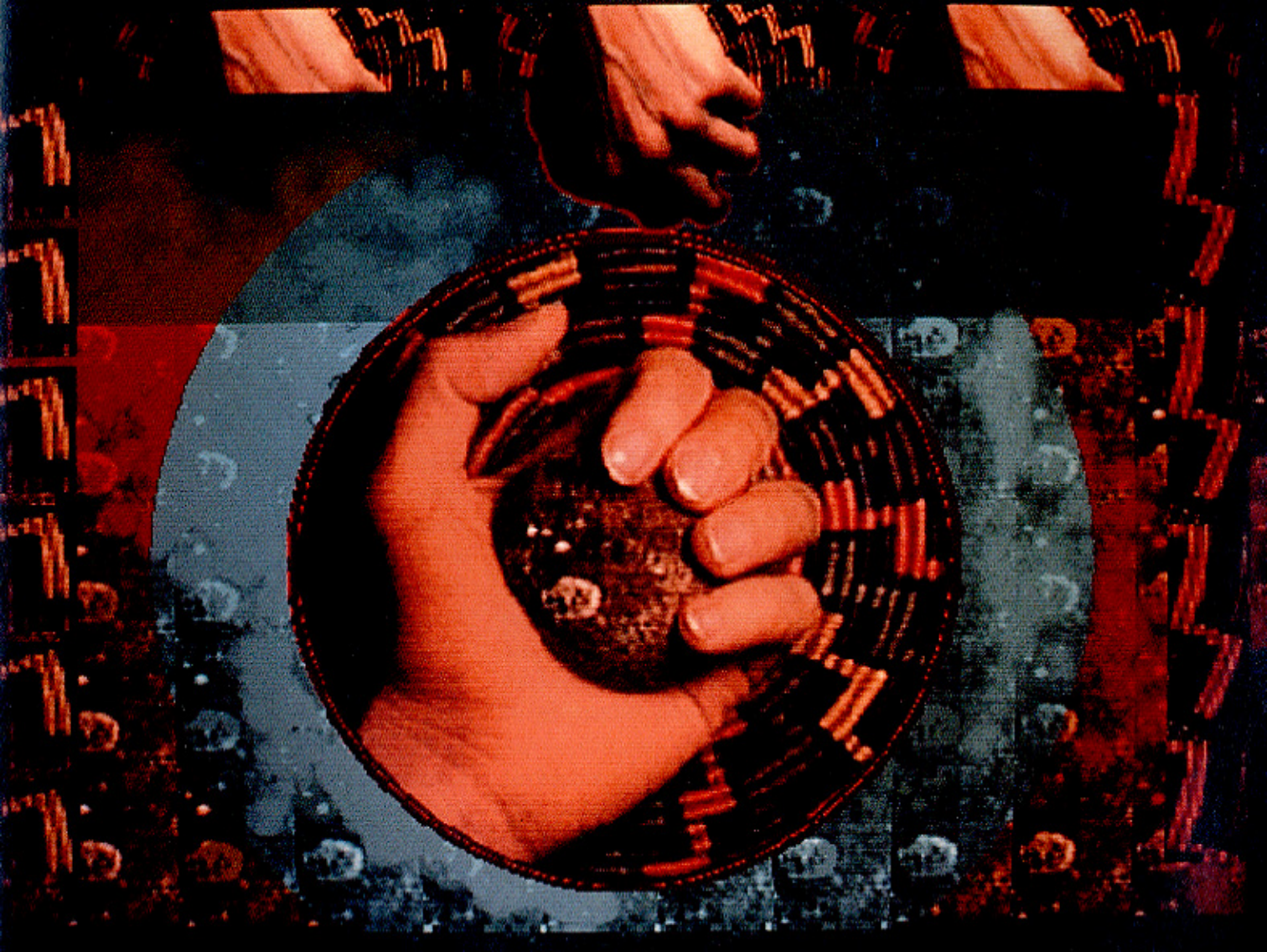
A costume designer was hired; actors auditioned, were cast, and then rehearsed. On Monday, April 3, 1995, on a sound stage in Culver City, California, Viola shot *The Greeting*. He had earlier decided to shoot the piece on film, not video, because he wanted to capture every nuance of the moment. On an earlier project, he had utilized a special high-speed 35-millimeter camera that was capable of shooting an entire roll of film in about 45 seconds at a rate of 300 frames per second. The camera was exactly what he needed for this project. The finished film would run for more than 10 minutes. The action it would record would last for 45 seconds.

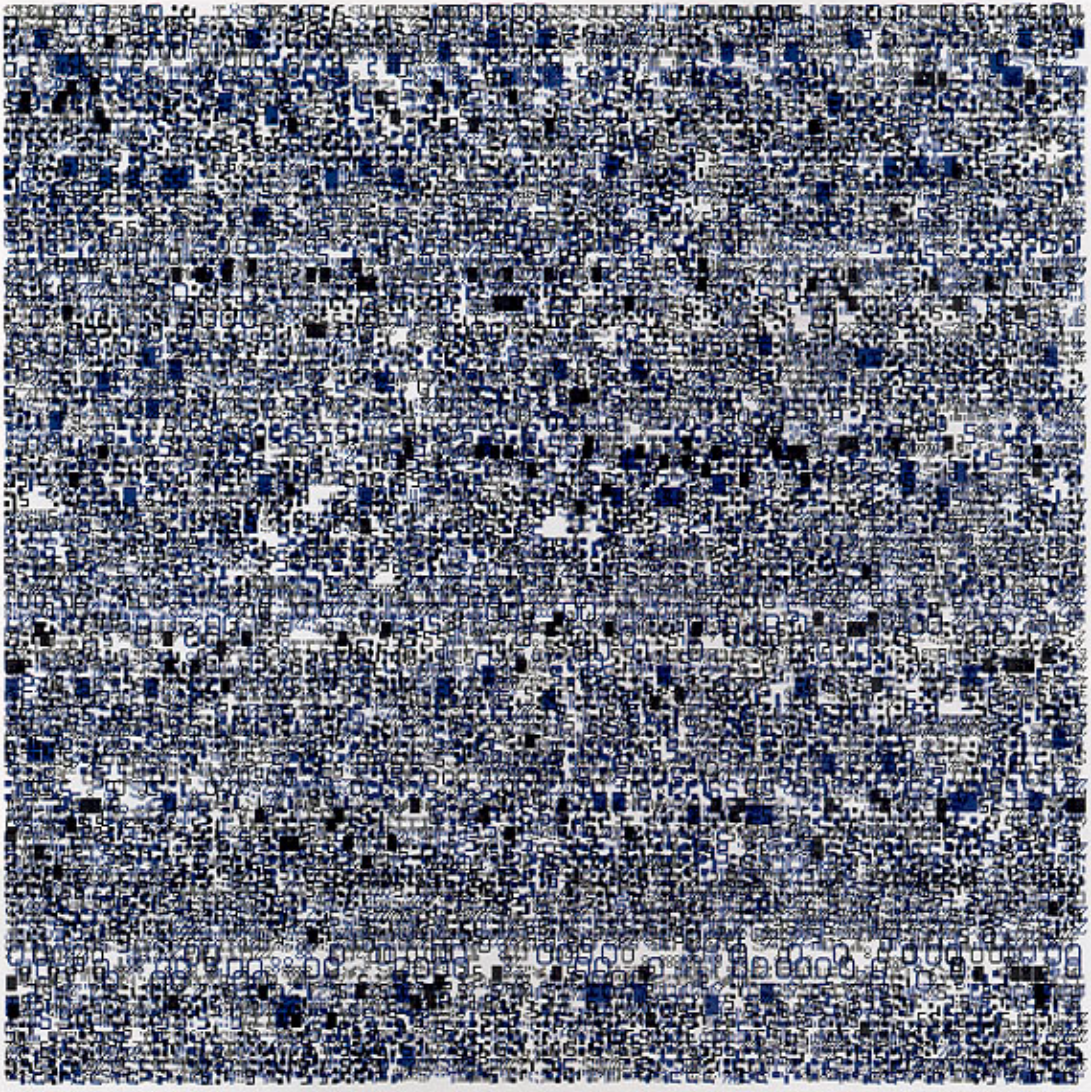
"I never felt more like a painter," Viola says of the piece. "It was like I was moving color around, but on film." For 10 slow-motion minutes, the camera never shifts its point of view. Two women stand talking on a street, and a third enters from the left to greet them. An embrace follows (Fig. 394).

Viola knew, as soon as he saw the unedited film, that he had what he wanted, but questions still remained. How large should he show the piece? On a table monitor, or larger than lifesize, projected on a wall? He could not decide at first, but at the last minute he determined that he would project it. On the day of the Venice Biennale opening, he saw it in its completed state for the first time, and for the first time since filming it, he saw it with the other key element in video—sound. It seemed complete as it never had before. Gusts of wind echo through the scene. Then the woman in red leans across to the other and whispers, "Can you help me? I need to talk with you right away." Joy rises to their faces. Their emotions surface. The wind lifts their dresses, and they are transformed.

Fig. 394 Bill Viola, *The Greeting*, 1995.
Video/sound installation exhibition, *Buried Secrets*: United States Pavilion, Venice Biennale, 1995 commissioner, Marilyn Zeitlin. Arizona State University Art Museum, Tempe, Arizona.
© Bill Viola Studio. Photo: Kira Perov.







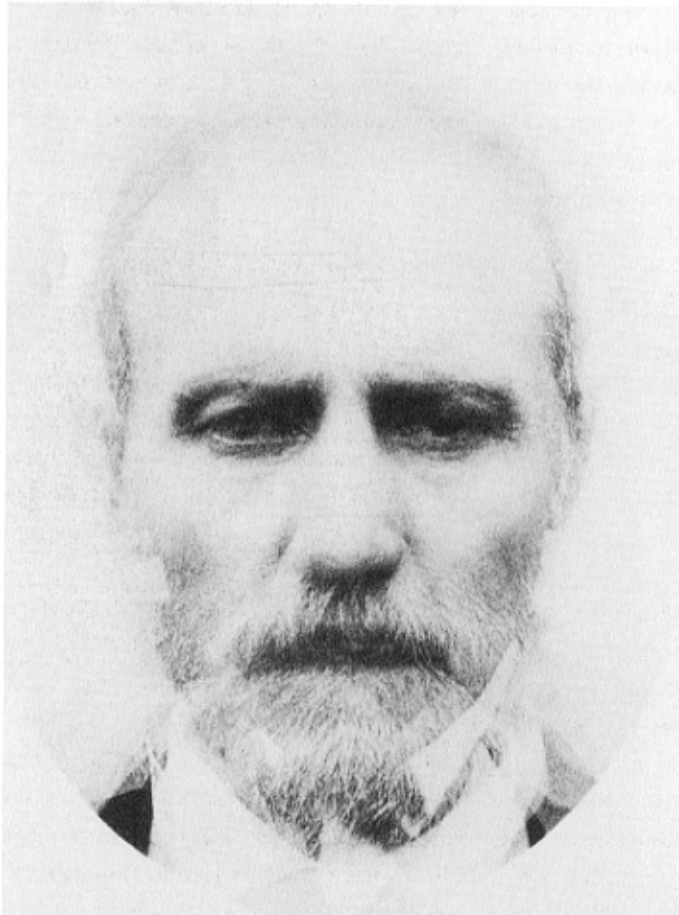


Fig. 3. Photo of melancholia made by superimposing the portraits of eight melancholic men, ca. 1890. Scientists, like artists, have always turned to the cutting-edge technologies of the day in order to give form to their ideas. (Archives of the American Psychiatric Association, Washington, D.C.)

FALL 1993 $3.50

SPECIAL ISSUE

TIME

Take a good look at this woman. She was created by a computer from a mix of several races. What you see is a remarkable preview of . . .

THE NEW FACE OF AMERICA

How Immigrants Are Shaping the World's First Multicultural Society

33
0 72440 10513 3

As a way to begin, we may take a look at some of the classic navigable computer spaces. The 1978 project *Aspen Movie Map,* designed at the MIT Architecture Machine Group, headed by Nicholas Negroponte (the group later expanded into the MIT Media Laboratory), is acknowledged as the first interactive virtual navigable space, and also as the first hypermedia program to be shown publicly. The program allowed the user to "drive" through the city of Aspen, Colorado. At each intersection the user was able to select a new direction using a joystick. To construct this program, the MIT team drove through Aspen in a car taking pictures every three meters. The pictures were then stored on a set of videodiscs.

The first interactive moviemap was produced at MIT in the late 1970s of Aspen, Colorado. A gyroscopic stabilizer with 16mm stop-frame cameras was mounted on top of a camera car and a fifth wheel with an encoder triggered the cameras every 10 feet. Filming took place daily between 10 AM and 2 PM to minimize lighting discrepancies. The camera car carefully drove down the center of the street for registered match-cuts. In addition to the basic "travel" footage, panoramic camera experiments, thousands of still frames, audio, and data were collected. The playback system required several laserdisc players, a computer, and a touch screen display. Very wide-angle lenses were used for filming, and some attempts at orthoscopic playback were made.

James Seawright. *Network III*, 1971. Computer-generated environment. The spectator walks over a carpet underlaid with thin pressure plates that activate a pattern of ceiling lights. Courtesy Walker Art Center, Minneapolis. Photo by Eric Sutherland.


CONGRATULATIONS!
YOU HAVE JUST BECOME
A PARTICIPANT IN THE
WORLD'S FIRST INTERACTIVE
VIDEO ART DISC GAME


7-MIRROR
9-TV
26-FISH
25-PHONE
21-WALLET
3-AUDIO
2-RI
3-WATCH
SEARCH CHAPTER-NUMBERS

One of the most impressive of interactive computer/video installations is the work of Jeffrey Shaw. In collaboration with Dirk Groeneveld he has created *The Legible City*, limited in the first place to a partly real, partly imaginary bicycle ride through Manhattan, later extended to include also the city of Amsterdam. In this work the psychological identity of 'the city' is made tangible as a three-dimensional literary architecture through which the spectator travels interactively on a bicycle. Its streets, intersections, squares, etc., form the ground-plan of a spatial ordering of words and sentences, and bicycling in that city is a journey of reading.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In the 1920s Dziga Vertov already understood this very well. *Man with a Movie Camera* is an important point in the trajectory that leads from Baudelaire's flanerie to *Aspen Movie Map, Doom,* and VRML worlds, not simply because Vertov's film is structured around the camera's active exploration of city spaces, and not only because it fetishizes the camera's mobility. Vertov wanted to overcome the limits of human vision and human movement through space to arrive at more efficient means of data access. However, the data with which he worked is raw visible reality—not reality digitized and stored in a computer's memory as numbers. Similarly, his interface was a film camera, that is, an anthropomorphic simulation of human vision—not computer algorithms. Thus, *Vertov stands halfway between Baudelaire's flâneur and today's computer user: No longer just a pedestrian walking down a street, but not yet Gibson's data cowboy who zooms through pure data armed with data-mining algorithms.*

Paul Ricoeur

In *Oneself as Another* (1986), Ricoeur distinguishes between:

1) "idem-identity" -- the identity of objects/things that persist of over time;

and

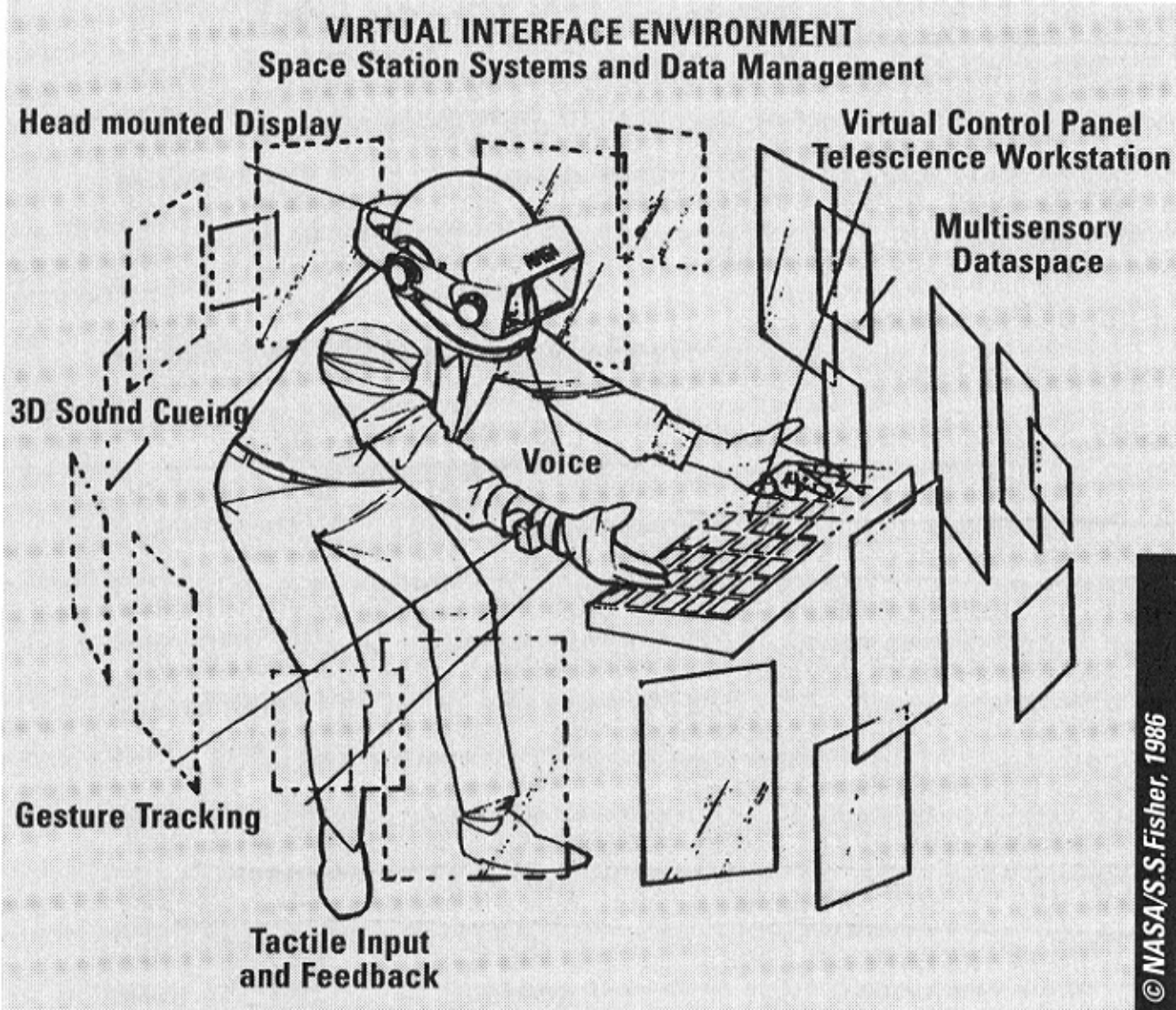
2) "ipse-identity" -- the identity of selfhood, personal identity of subjects applicable to personality.

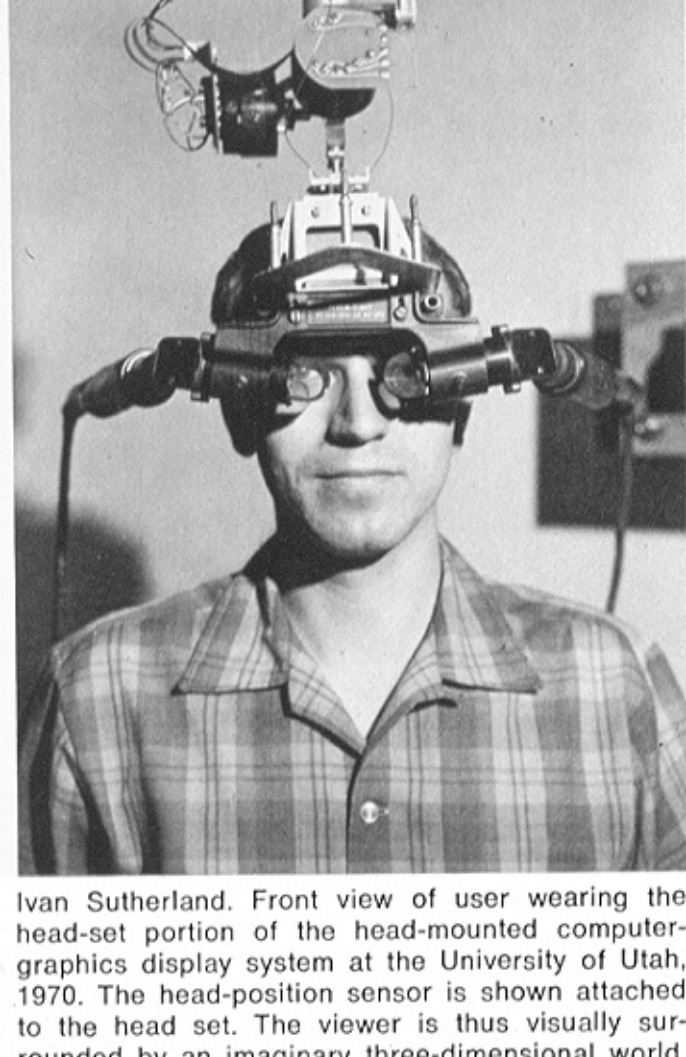
Embodiment would then entail "ipse-identity," not "idem-identity."

The Cyborg Self II

The cyborged body is then alienated from the supposed true-self, the mind; one's body becomes an object of scrutiny, it is "othered." One's body becomes "idem-identity" while one's mind becomes "ipse-identity."

Cyborg split-identity does not privilege the unity and wholeness that the phenomenological notion of embodiment entails.


VIRTUAL INTERFACE ENVIRONMENT
Space Station Systems and Data Management
Head mounted Display
Virtual Control Panel
Telescience Workstation
Multisensory
Dataspace
3D Sound Cueing
Voice
Gesture Tracking
Tactile Input
and Feedback
© NASA/S.S.Fisher, 1986



Ivan Sutherland. Front view of user wearing the head-set portion of the head-mounted computer-graphics display system at the University of Utah, 1970. The head-position sensor is shown attached to the head set. The viewer is thus visually surrounded by an imaginary three-dimensional world. Photo by Computer Science Communications, University of Utah, Salt Lake City.


VPL
VPL
VPL
AudioSphere
VPL

PHOTOGRAPHY ANDREW BRUSSO
ILLUSTRATION JASON LEE

FOR THE tourist

Columbia University researchers have developed two augmented reality tours: one of nearby restaurants and one of the university campus. As you scan for a place to snack (top left), the system labels the eateries within view. Click on Tom's Restaurant with a wireless mouse, and a new window (top right) informs you that this was the facade used for the diner in "Seinfeld." In front of Low Library (bottom left), click on the central flag to learn about the 1968 student takeover of the building. Select the flag at left and up pops a 3-D model of Bloomingdale Asylum (bottom right), which once stood on that spot.

RECOGNIZING faces

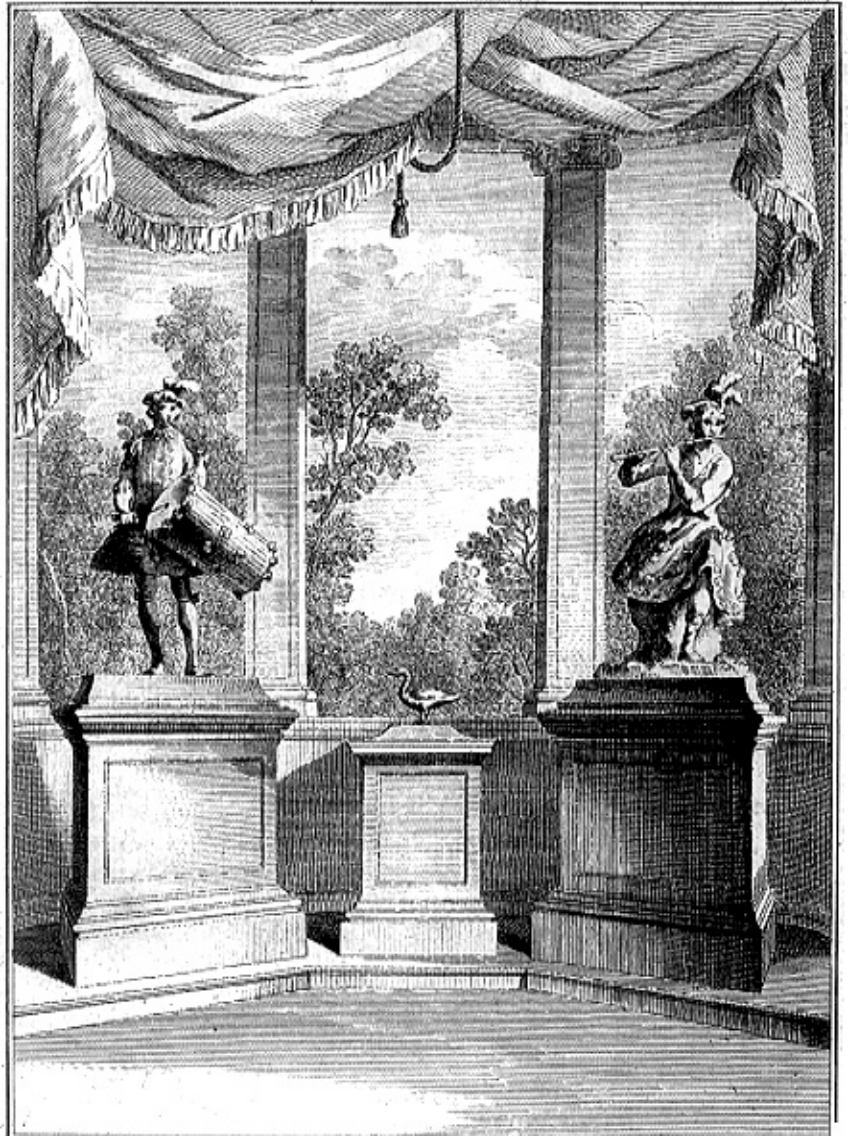
Ever forget a face? Augmented reality will help you recover seamlessly when you bump into someone and can't remember whether she's a college acquaintance or your accountant's ex-wife. Your AR system will automatically search a personalized face-recognition database, then provide text that tells you not only the name of the person you're looking at, but some key personal details as well.

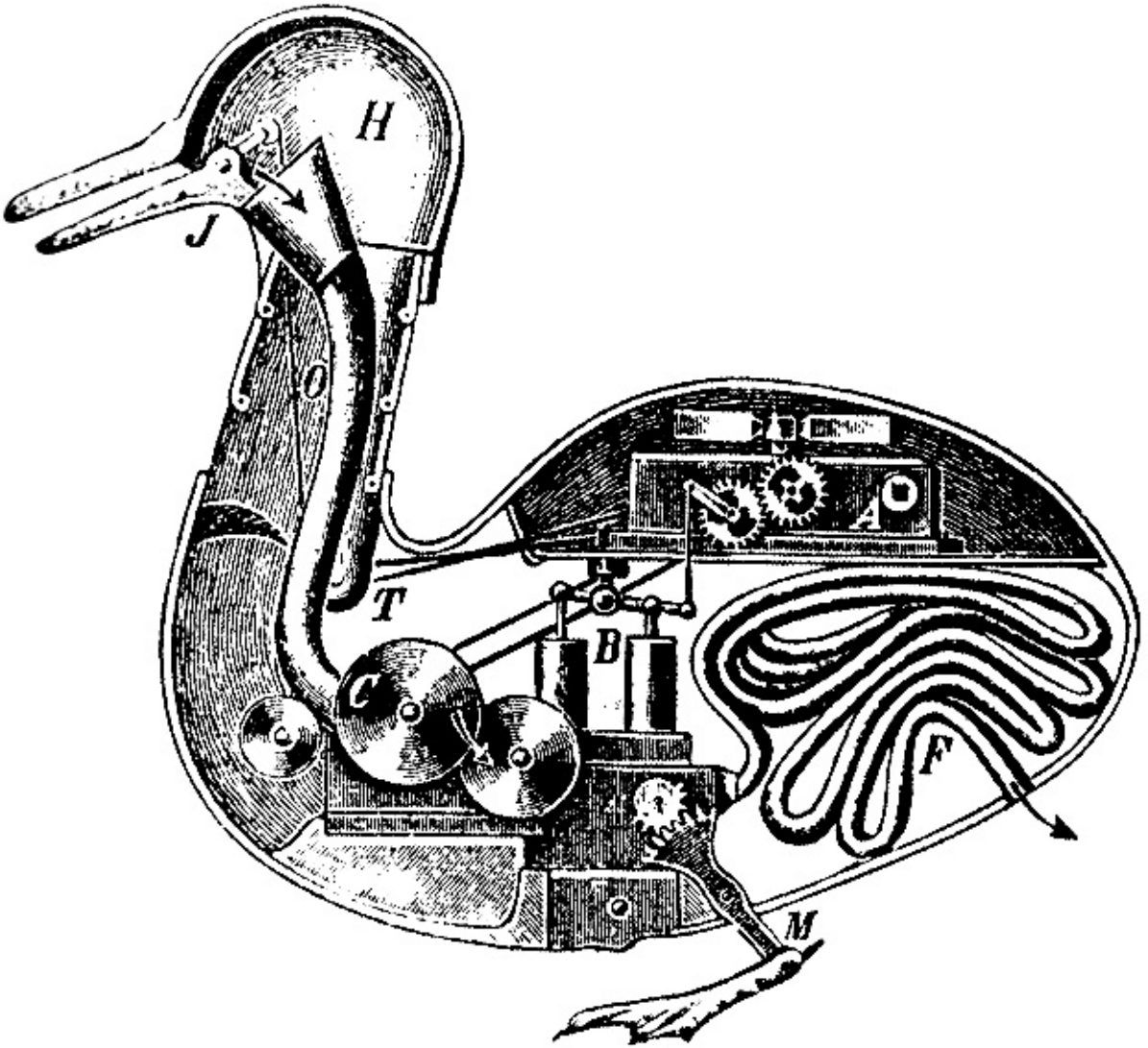

SUSPECT
APPROACHING
00:17:24:58

> My second Machine, or Automaton, is a Duck. . . . The Duck stretches out its Neck to take Corn out of your Hand; it swallows it, digests it, and discharges it digested by the usual Passage.
>
> —JACQUES VAUCANSON, letter to Abbé Desfontaines, 1738[1]

> Squirt is the smallest robot we have built . . . . Its normal mode of operation is to act as a "bug," hiding in dark corners and venturing out in the direction of noises.
>
> —RODNEY BROOKS, "Elephants Don't Play Chess," 1990[2]

An eighteenth-century mechanical duck that swallowed corn and grain and, after a pregnant pause, relieved itself of an authentic-looking burden was the improbable forebear of modern technologies designed to simulate animal and intelligent processes. Quaint as the Duck now seems, we remain in an age that it inaugurated; its mixed career set in

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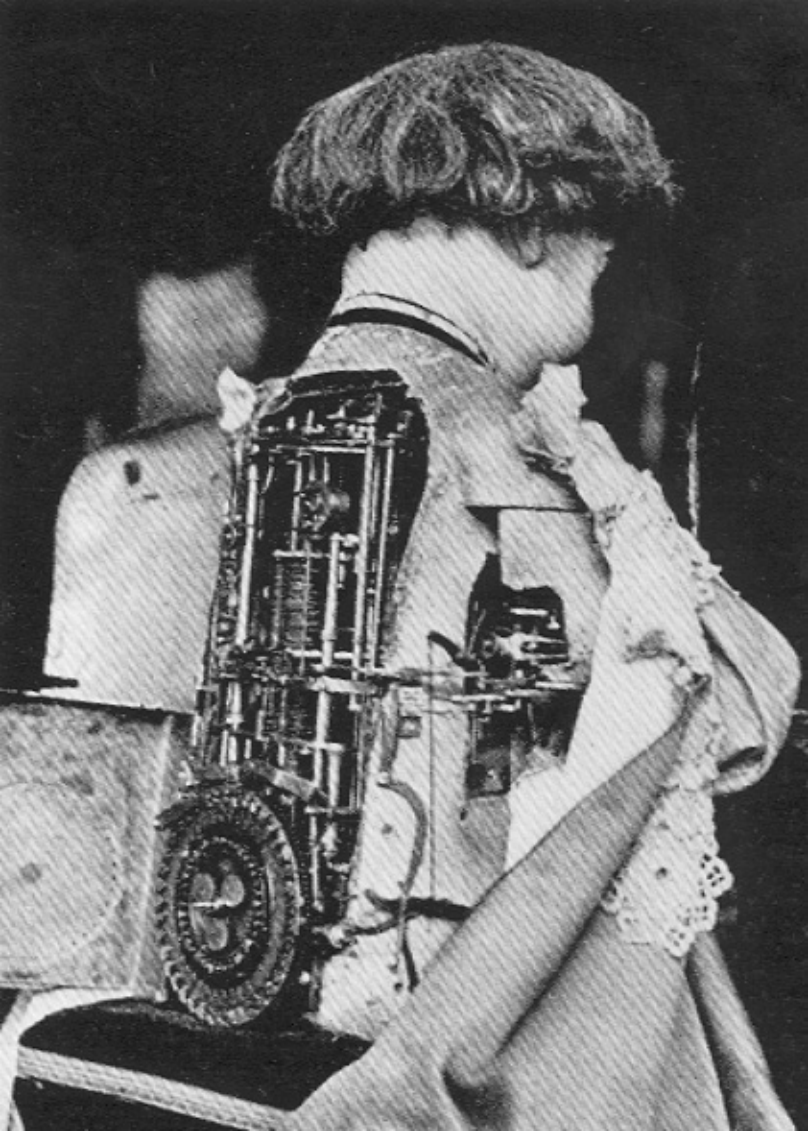
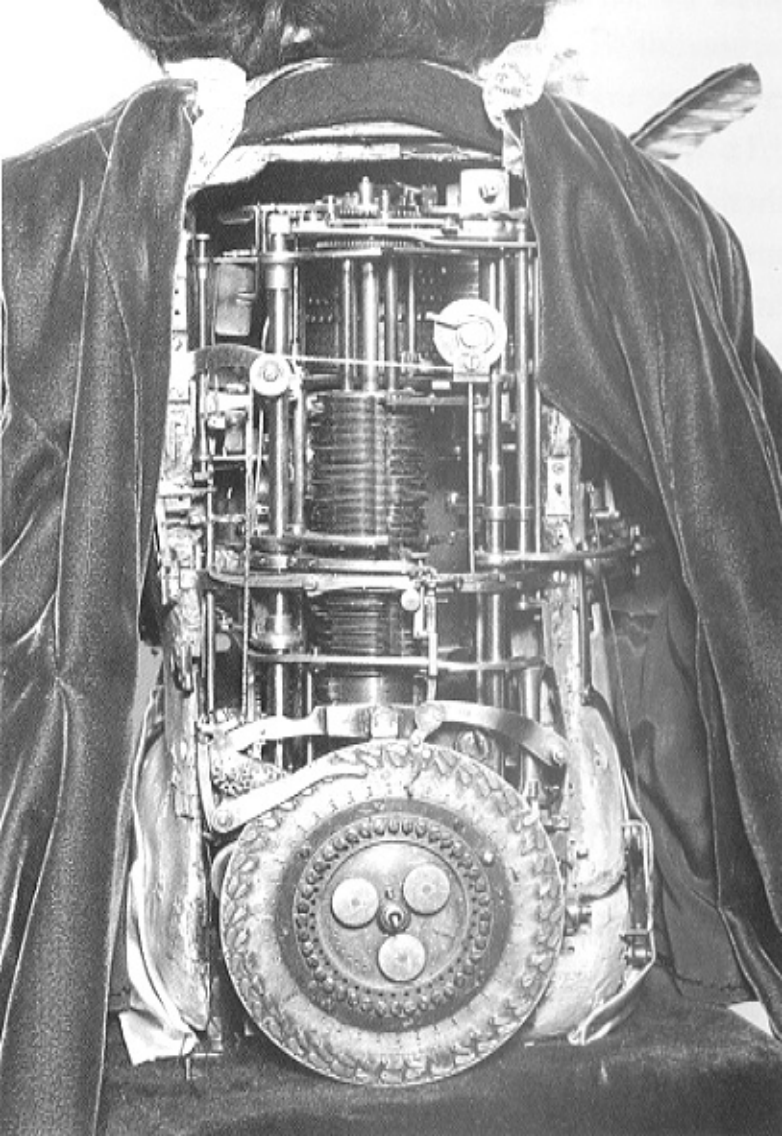
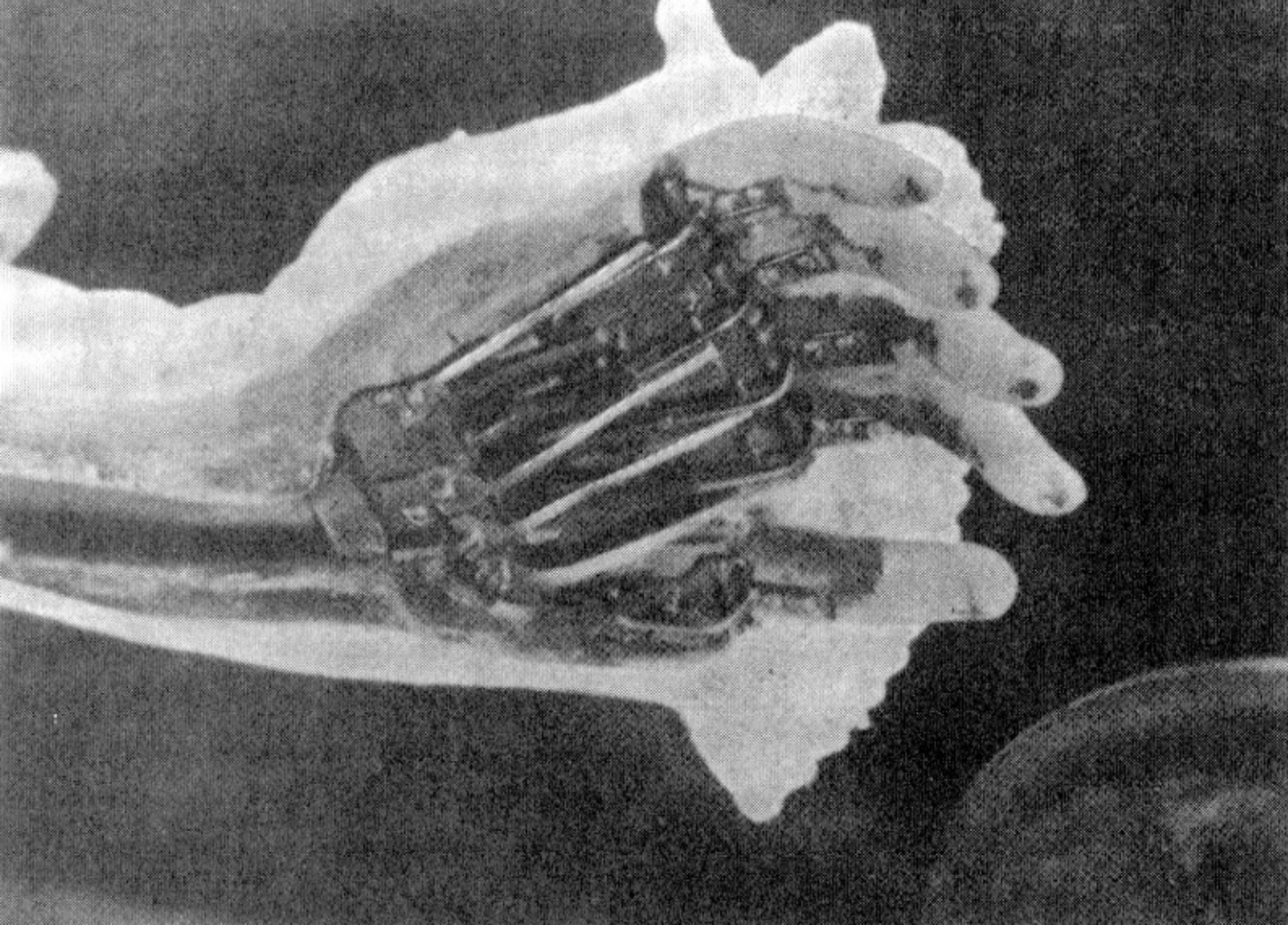
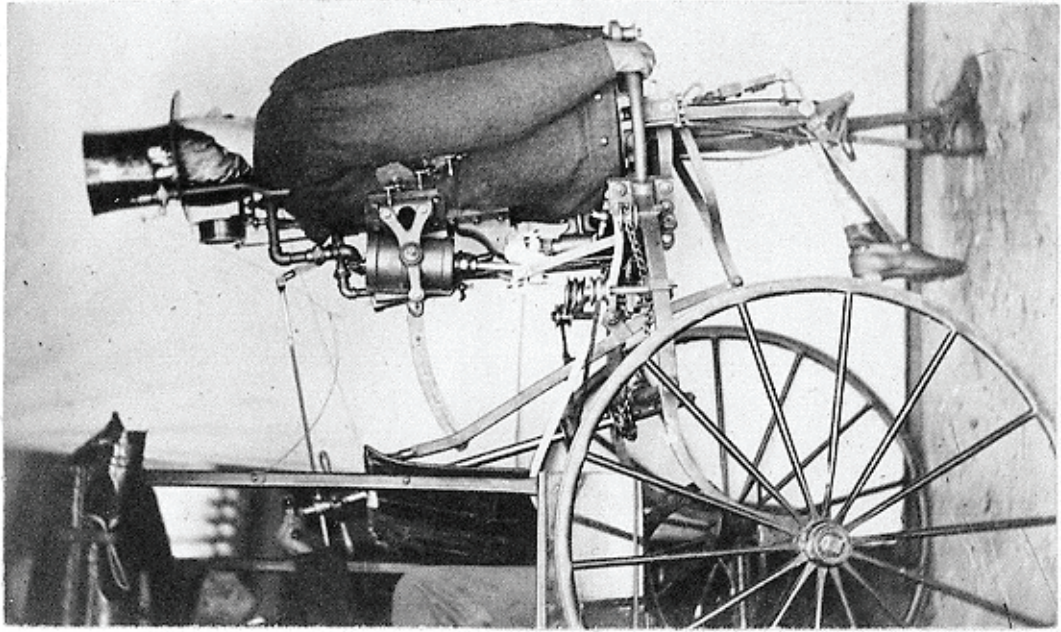
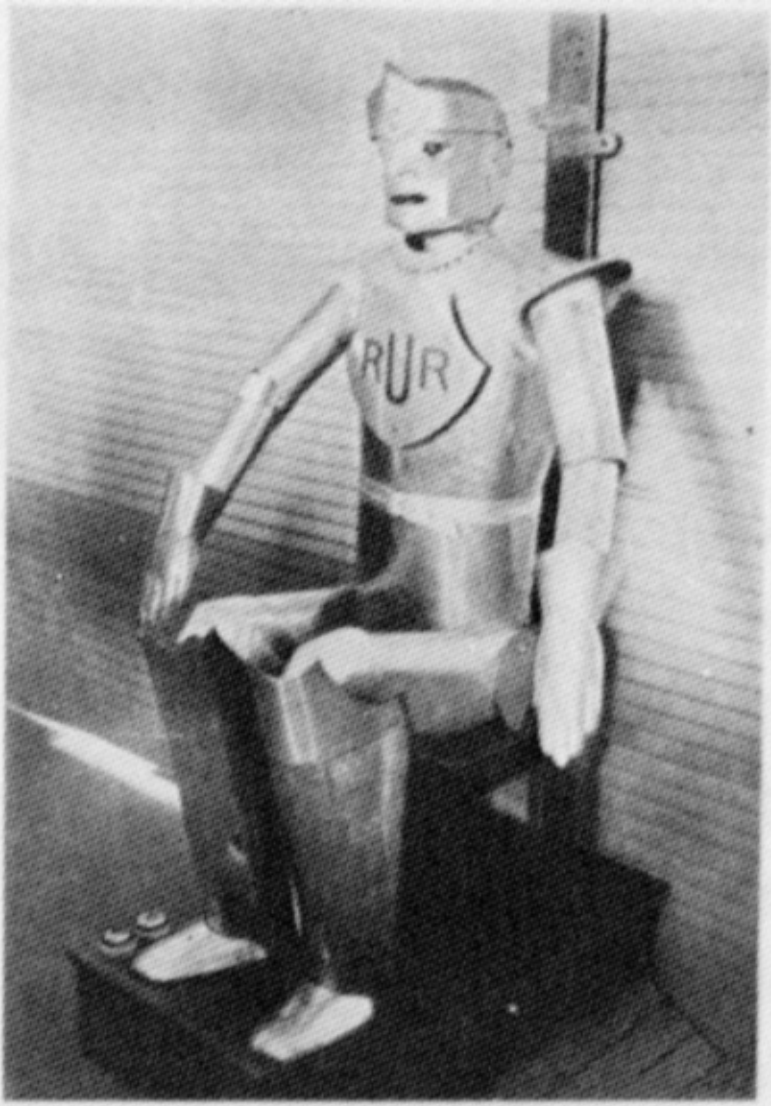




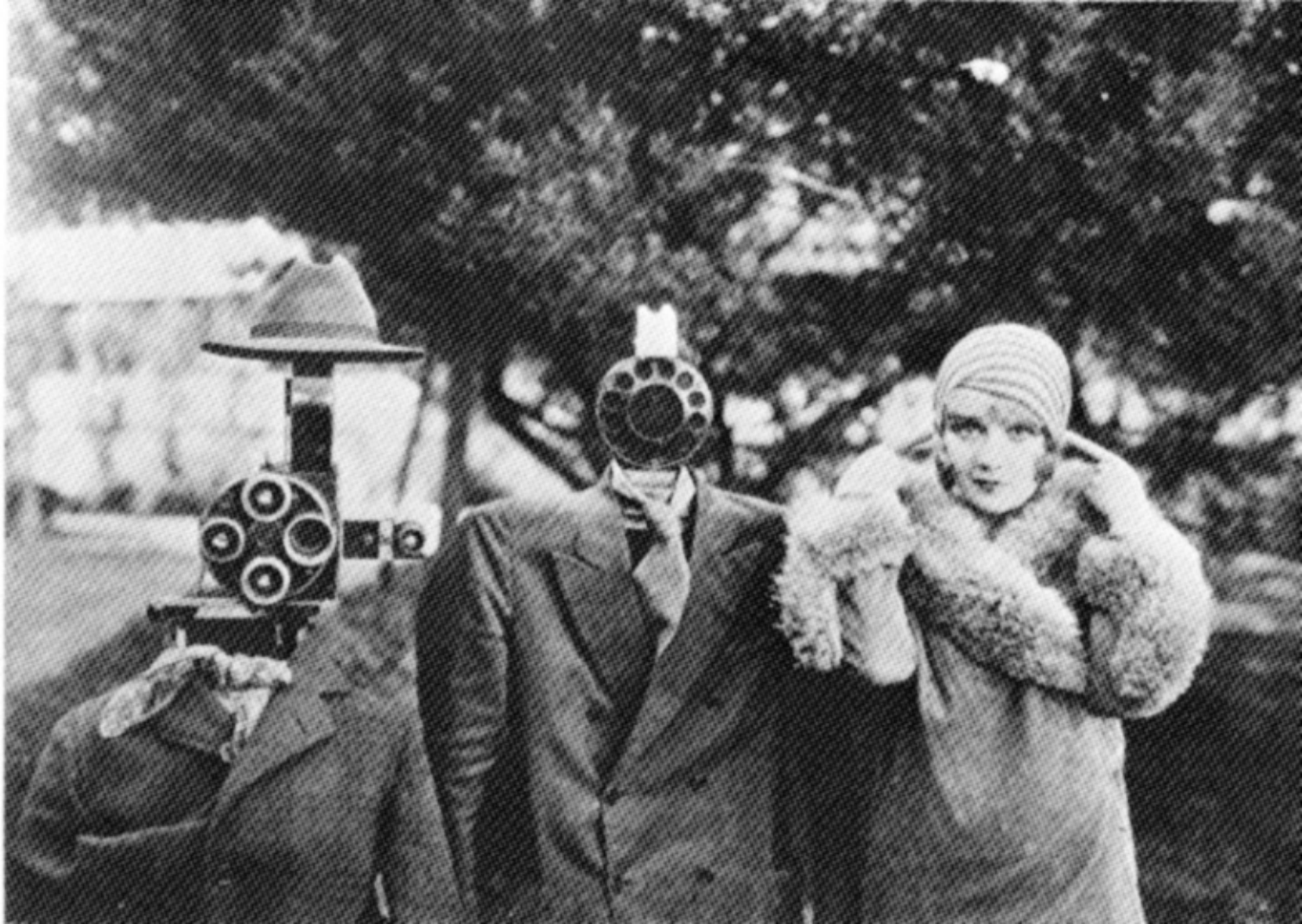
By imitating the stuff of life, automaton makers were once again aiming, not merely for verisimilitude, but for simulation; they hoped to make the parts of their machines work as much as possible like the parts of living things and thereby to test the limits of resemblance between synthetic and natural life.

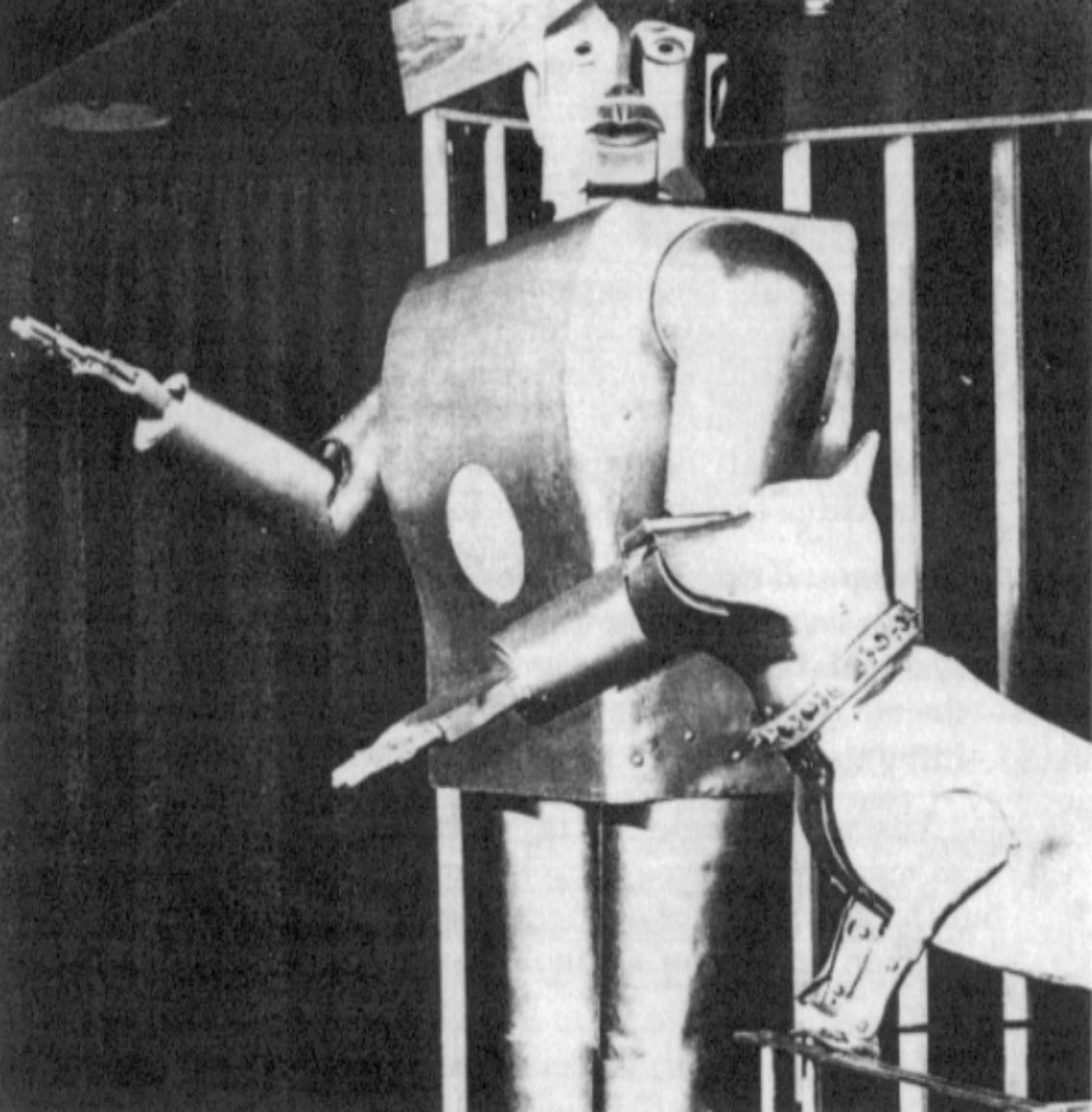




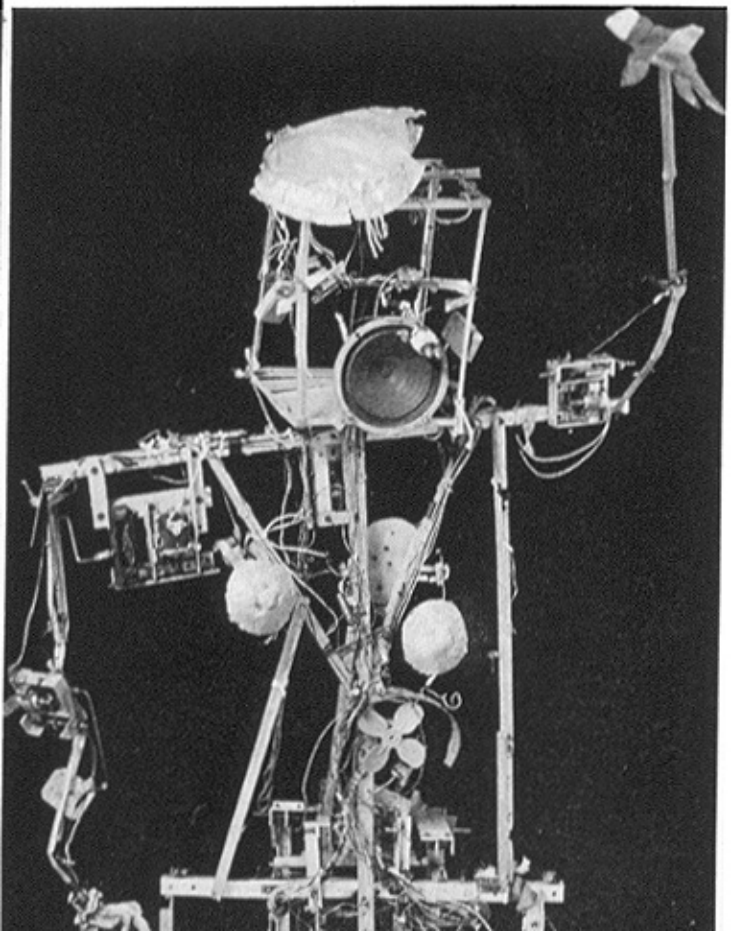


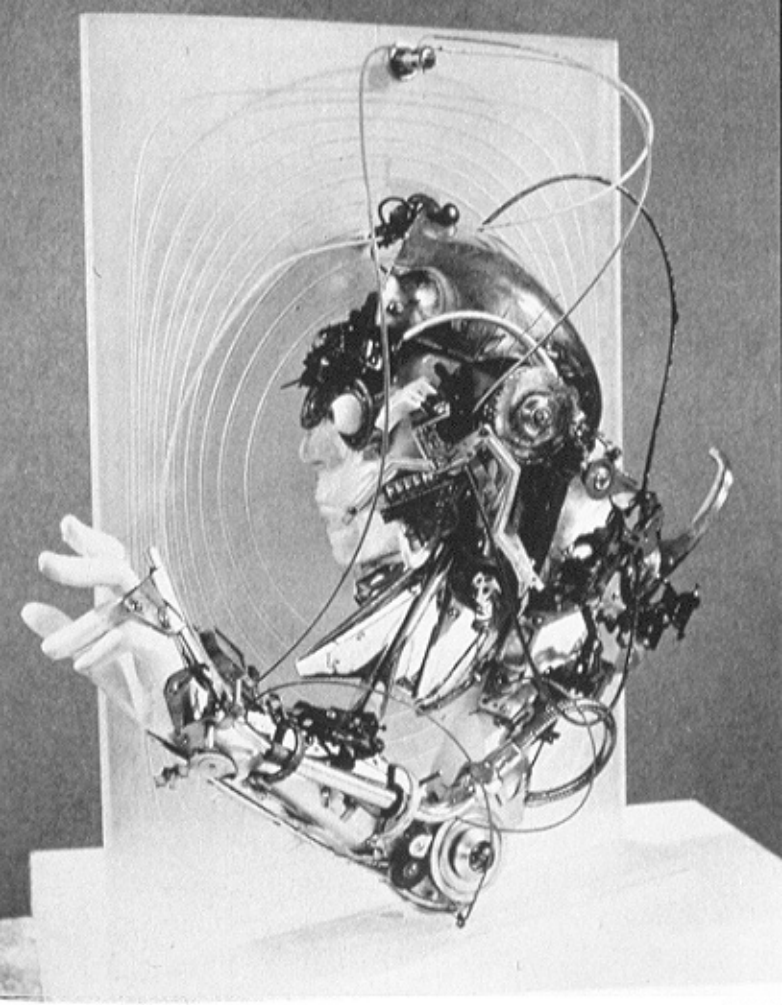
L'automate d'acier R. U. R.



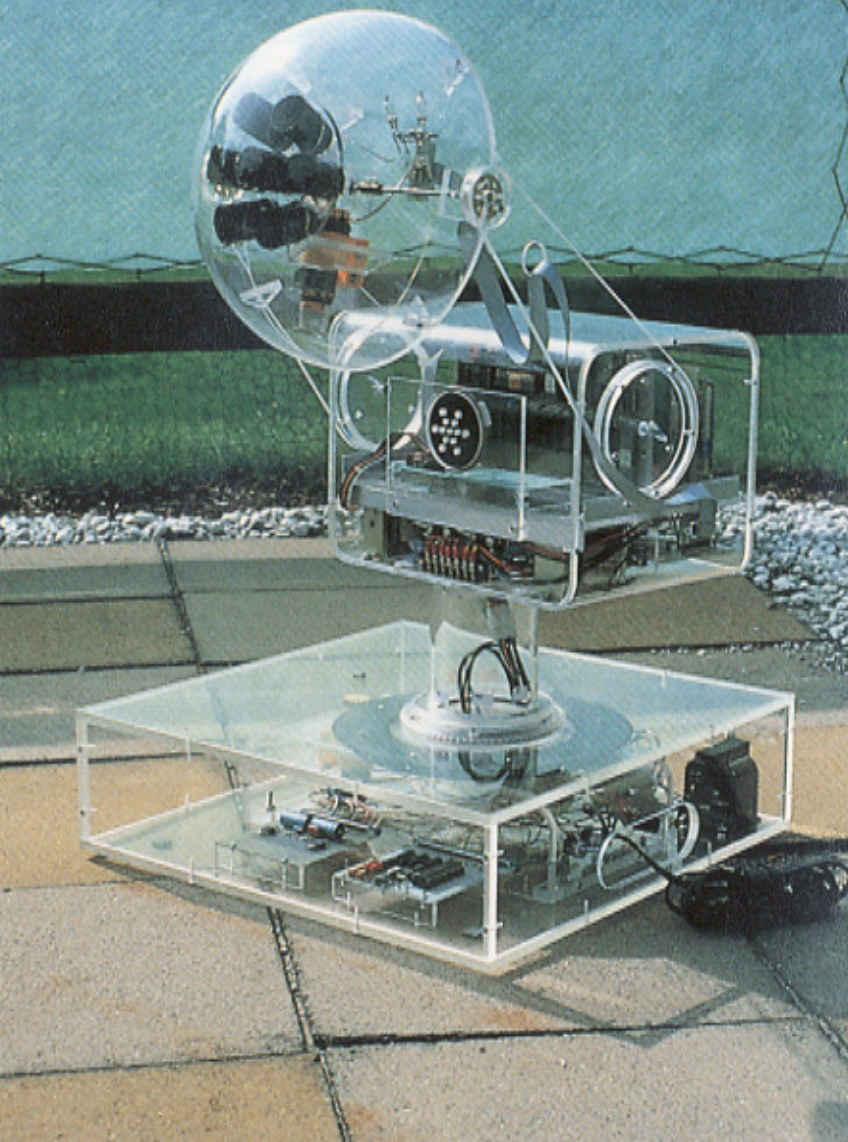


Nam June Paik. *Robot K-456,* 1965. Motorized construction. 32″ x 24″ x 6′ h. This walking man-lady responds to radio controls in a more or less faithful way. Courtesy Howard Wise Gallery, New York. Photo © 1965 by Peter Moore.

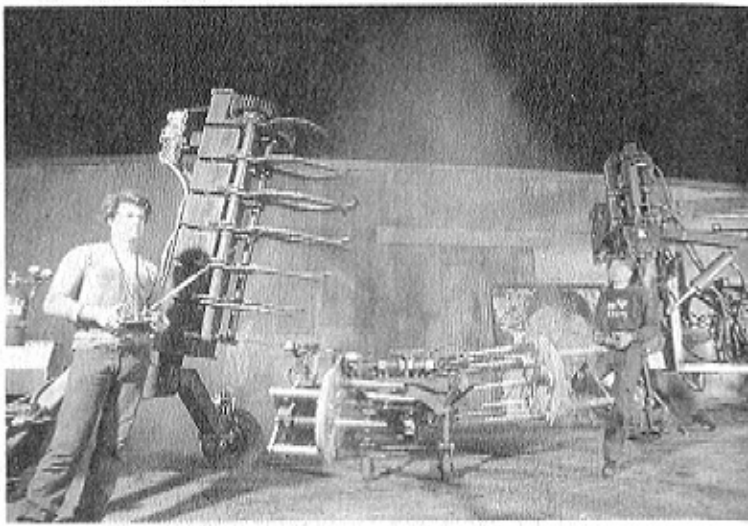




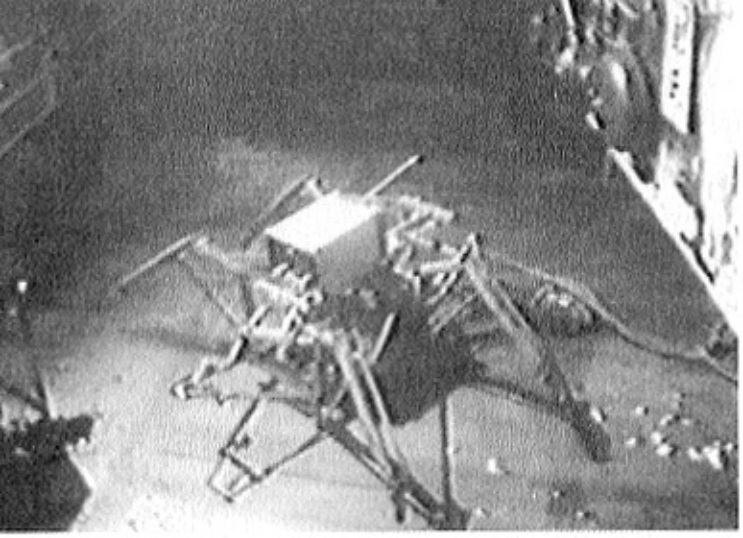
Paul van Hoeydonck. *CYB Head and Arm,* 1969. Plexiglass, aluminum, and wires. Courtesy Waddell Gallery, New York.



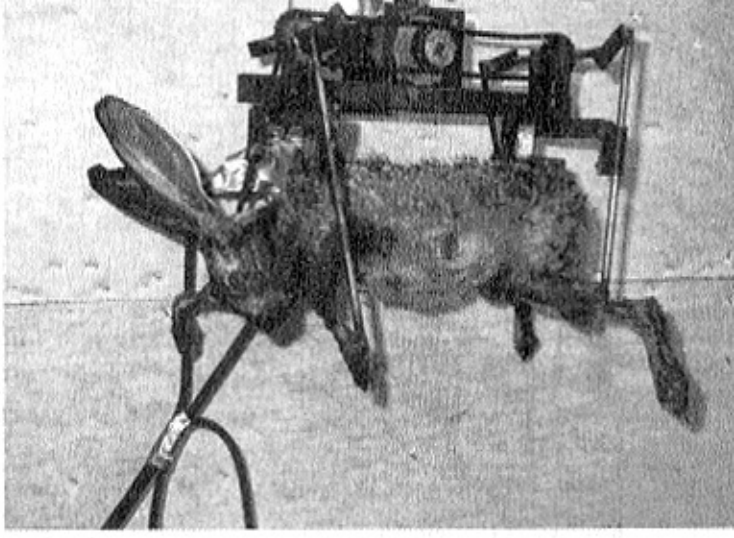
Matt Heckert and Mark Pauline of Survival Research Laboratories. *Photo: Bobby Neel Adams*



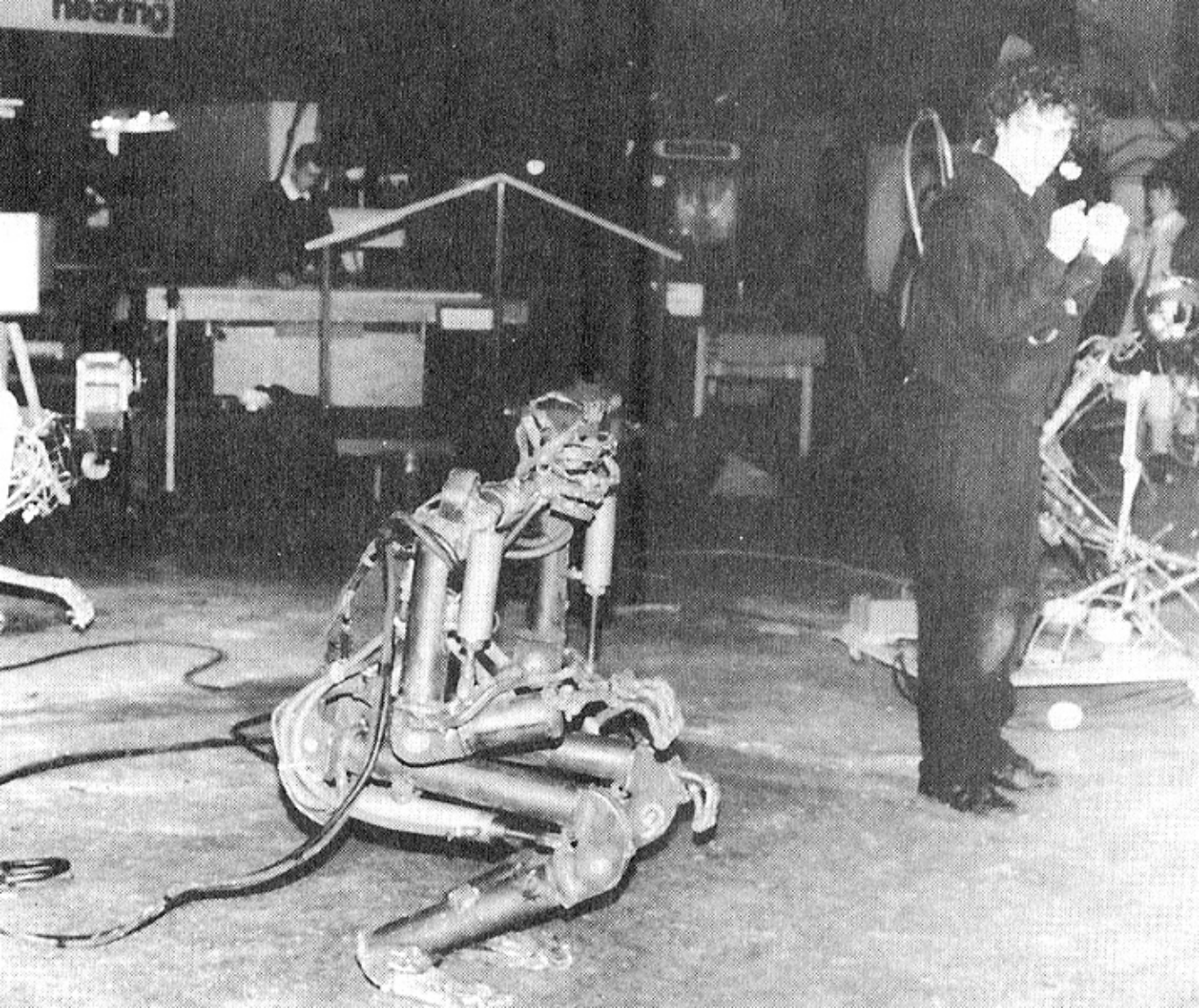
Pauline amid mechanical mayhem, with the Inchworm at left, the Inspector in the foreground, and the Walking Machine at right. © *1995 SRL*



Guinea pig–controlled walking machine in a 1985 installation at New York's AREA nightclub. © *SRL/Jonathan Reiss*



Rabot. © *1995 Mark Sangerman*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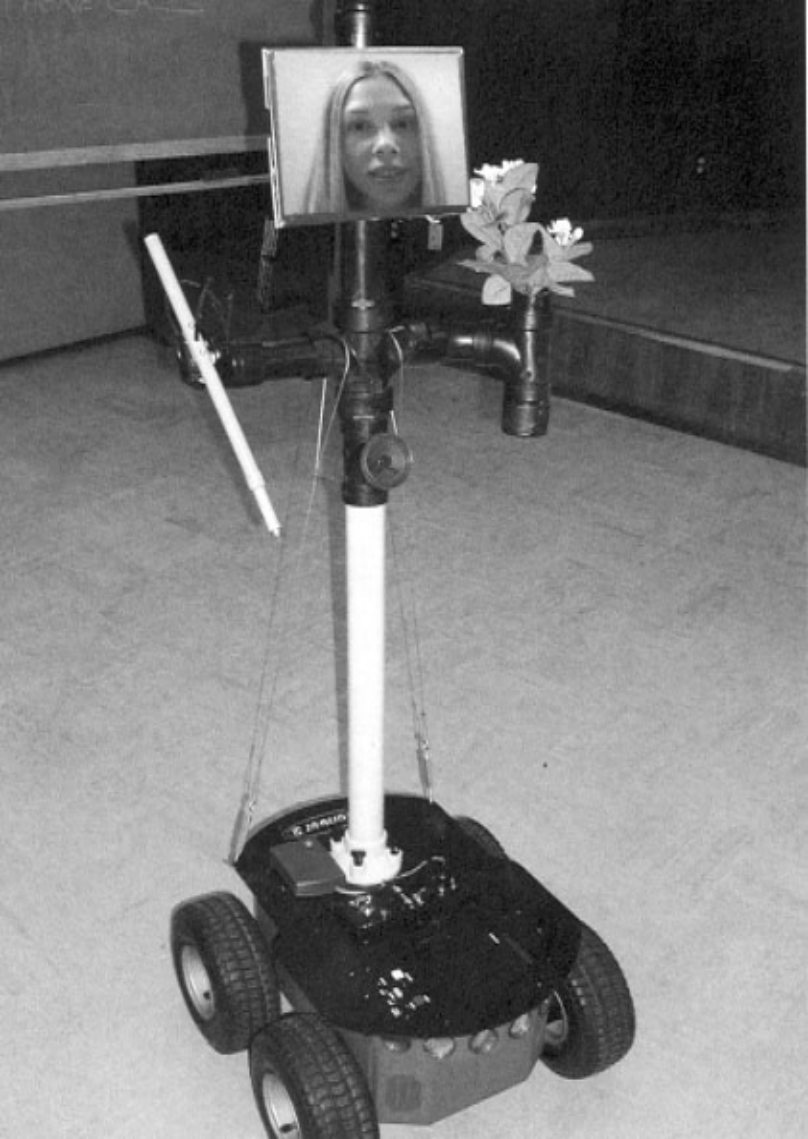


Brasil
High-
Tech

Figure 10.1. RC Robot, Eduardo Kac, 1986. Exhibited in the context of the exhibition "Brasil High Tech," realized at the Centro Empresarial Rio, in Rio de Janeiro, in 1986, RC Robot was a host (welcoming the public), a performer (participating in special events), and a work of art. Through the remote agency of humans, RC Robot conversed bidirectionally with exhibition visitors. Both motion control and two-way audio were realized through radio links. The picture above shows a member of the audience embracing RC Robot at the opening of the "Brasil High Tech" show. Photo: Eduardo Kac.


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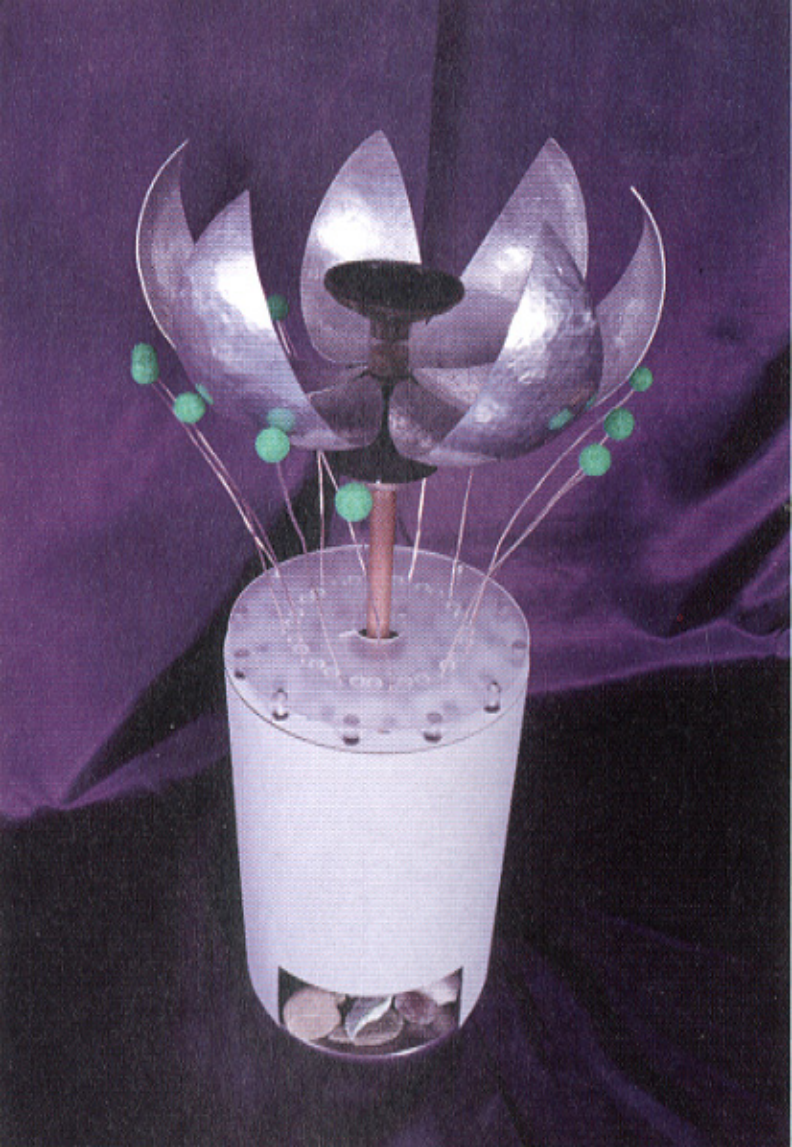
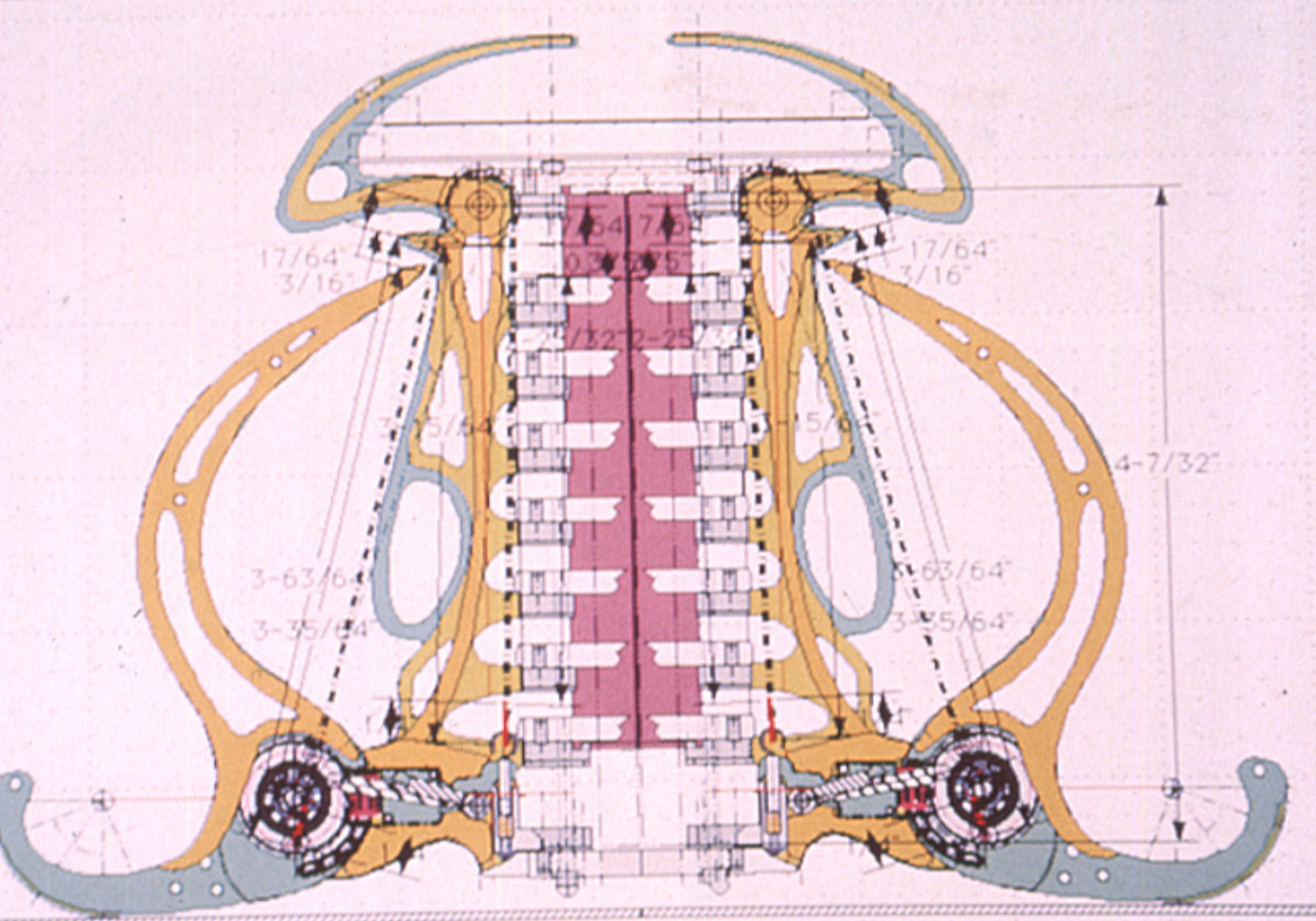
VIVO

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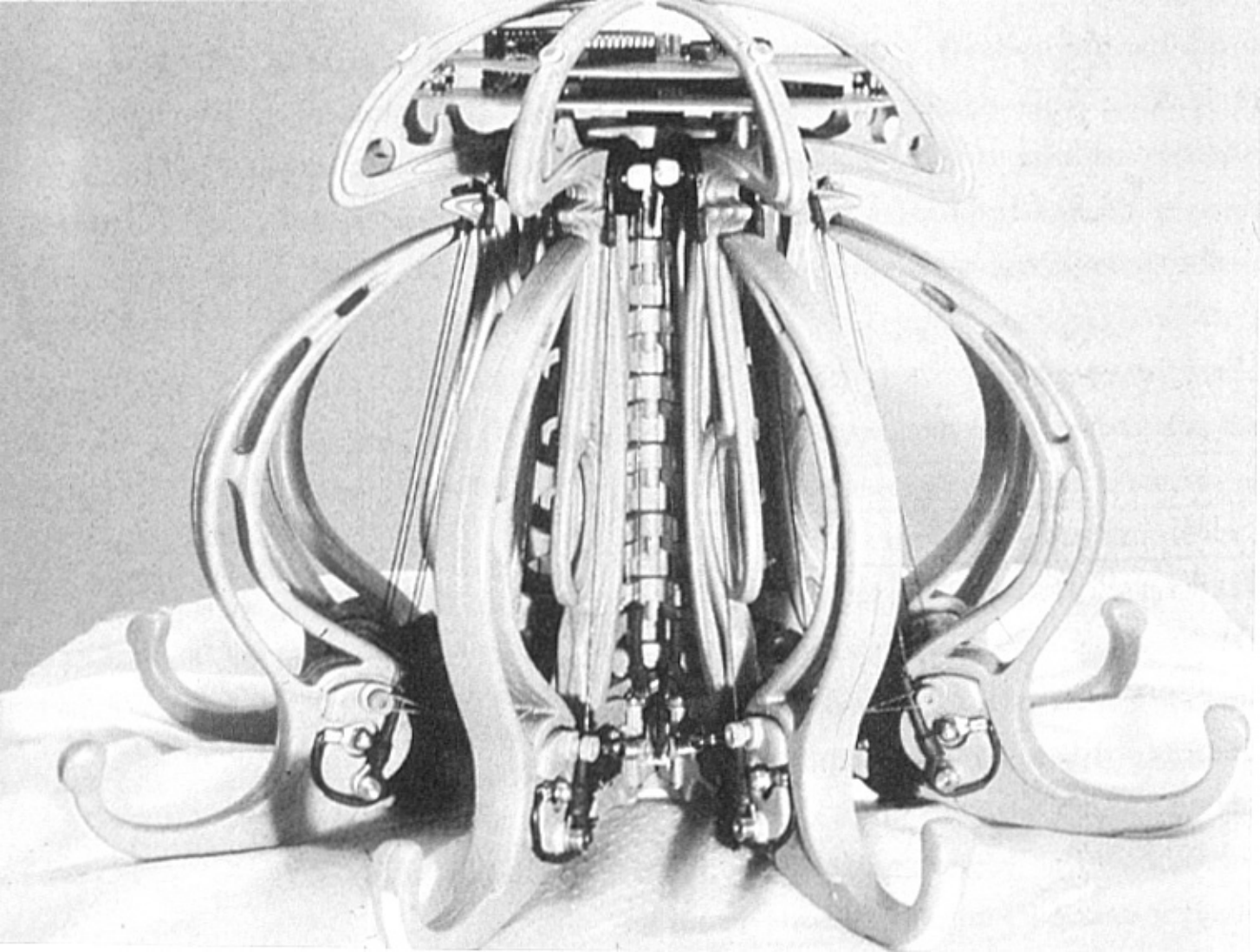


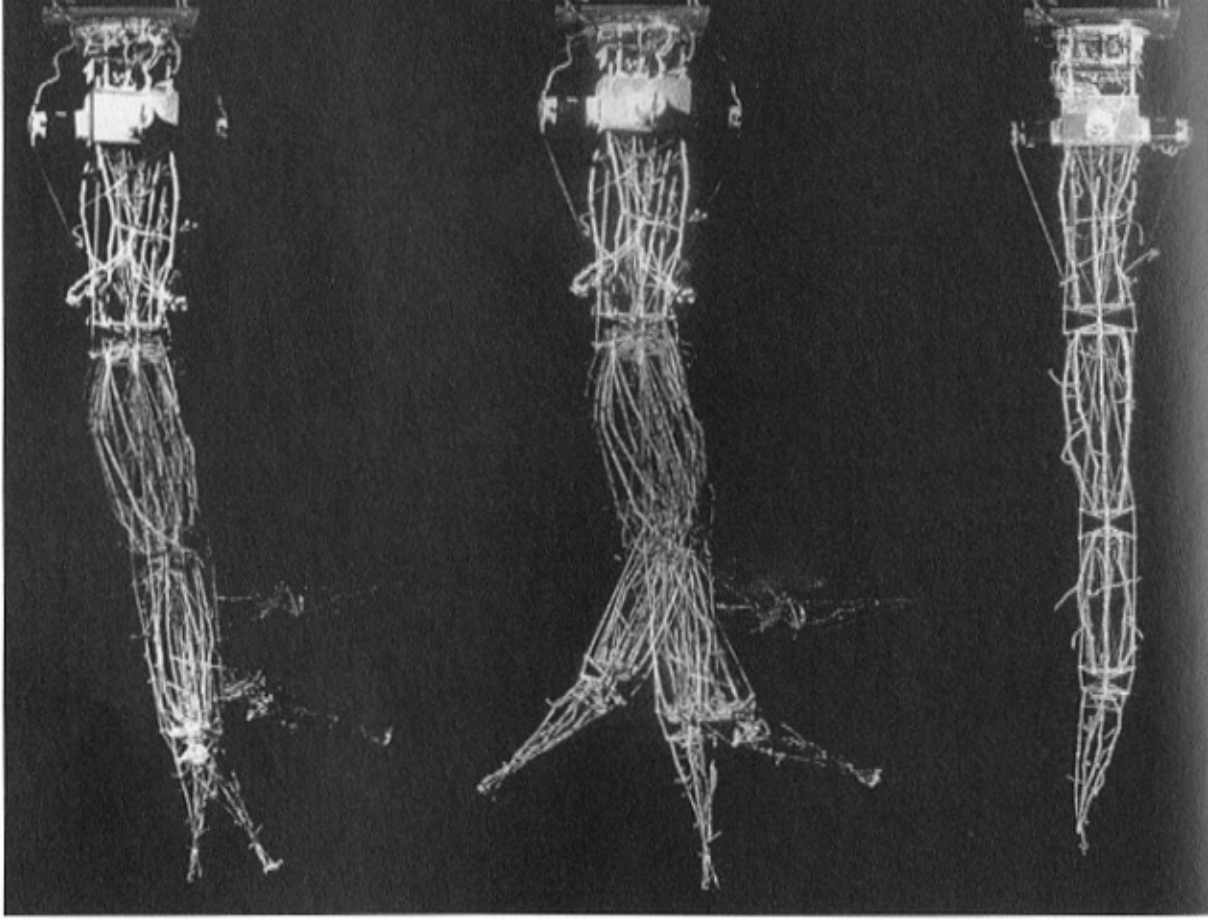
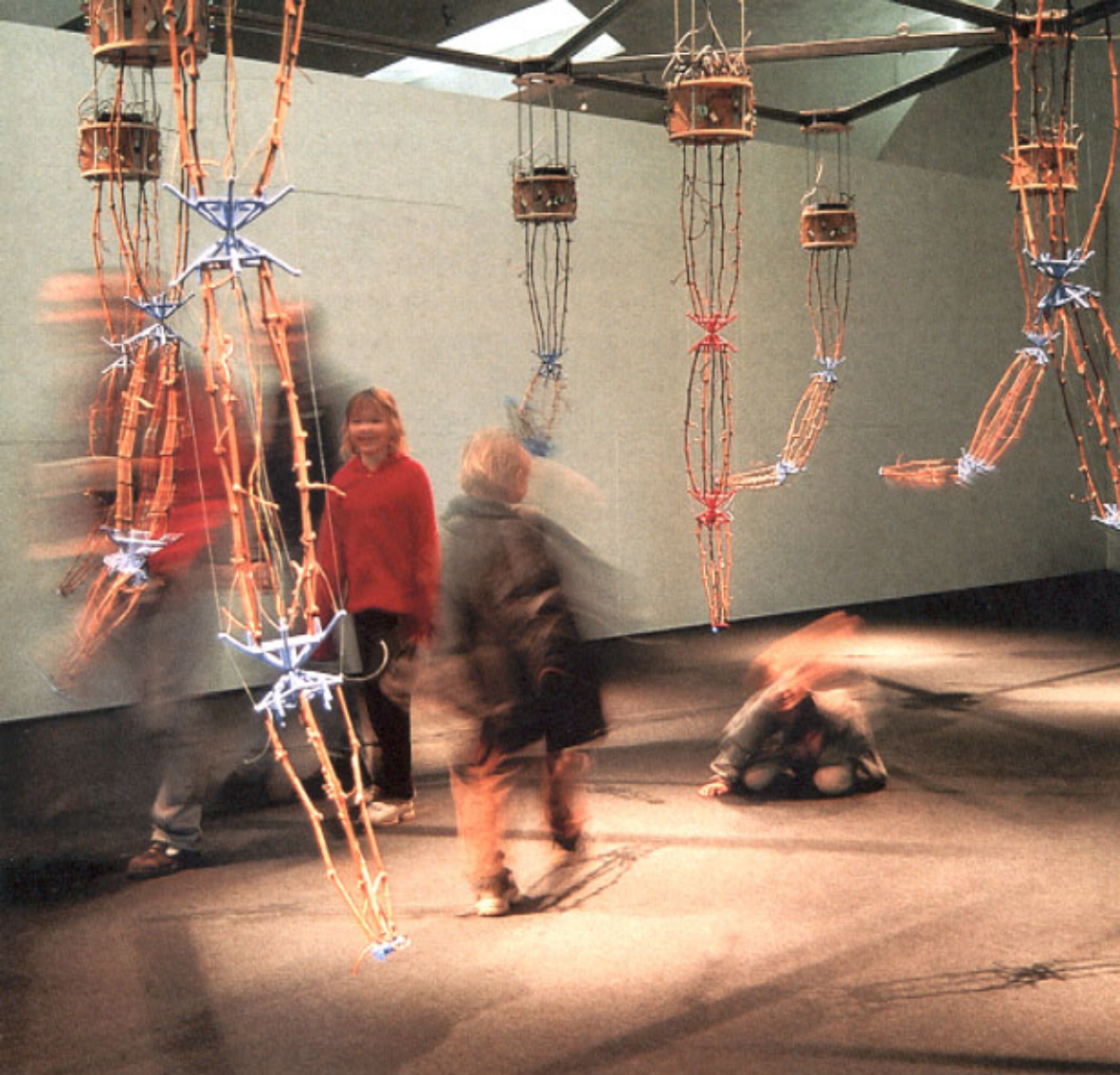


Fig. 3. The computer-controlled robot arms of *The Flock* respond to human voice and presence. Each arm may talk to the next one by passing messages in audible telephone tones. *The Flock*'s members display complex flocking behaviors determined by a combination of preprogramming and input from visitors. (Photo by Liz Civic)

There are four distinct facets of distributed being that supply vivisystems heir character:

- The absence of imposed centralized control
- The autonomous nature of subunits
- The high connectivity between the subunits
- The webby nonlinear causality of peers influencing peers.




6311
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6311

In the Gallery, *Stock Market Skirt* is displayed on a dressmaker's mannequin, or "Judy," located next to a computer and several monitors of varying sizes. In large white type against a blue background (matching the blue of the taffeta skirt), the stock ticker symbol and constantly updated price scroll from right to left in simulation of the pixel board displays used to track stock values on traditional exchange-room floors. Stock quotes are retrieved at least once per second (depending on the speed of connection) from stock-quote pages online, with the hemline moving in response to the changing values. Custom-designed PERL scripts running under Linux retrieve and parse the code. These data are sent to a custom-designed controller that accordingly sends positive or negative pulses to the stepper motor mounted up and under the skirt. A bullish market triggers the hemline to be seductively raised, and the hemline is lowered to correspond to falling stock prices. There is a range of six hundred steps between the skirt at its most mini and at its most modest length.

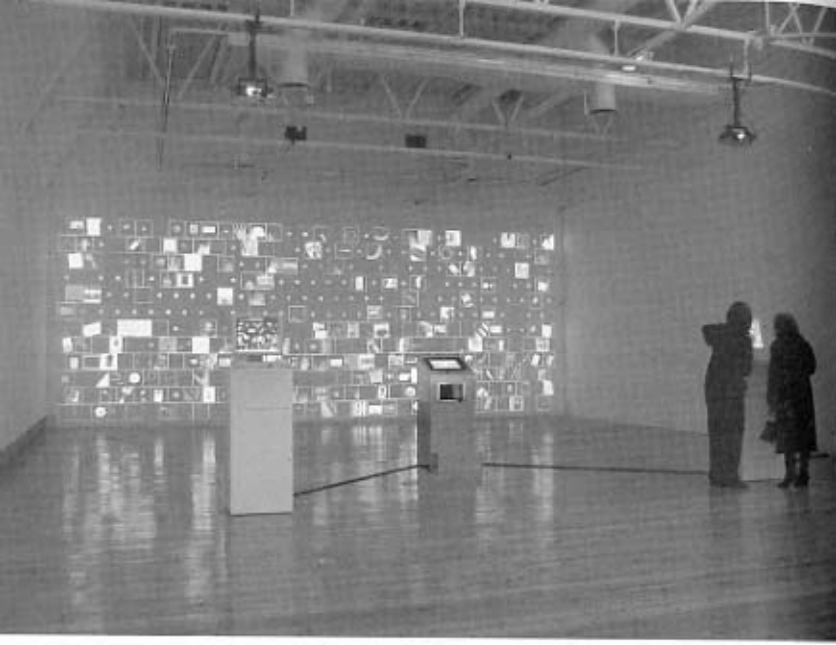


FIGURE 12.1. GEORGE LEGRADY, *POCKETS FULL OF MEMORIES*. INSTALLATION AT THE CORNERHOUSE GALLERY, MANCHESTER. COPYRIGHT 2005 GEORGE LEGRADY

The Self-Organizing Map (SOM, also called Kohonen map) algorithm is the basic method that is used to create the "wall of objects." The SOM organizes the input items (contributed objects by the public) into an ordered display, a 2 dimensional map. On the map, two items tend to appear close to each other if they have similar input features. In this exhibition, the input features consist of attributes and keywords. The attribute values and keywords are given by the exhibition visitor. They are transformed into numerical form that can serve as inputs. The algorithm may start from a random state of the map. Through the process of iteratively (repeated recalculation) handling the inputs, it reaches an ordered state.

The order of the final map is a consequence of all the inputs. The phenomenon is called emergence: the order is not determined beforehand, but rather emerges through audience contributions.

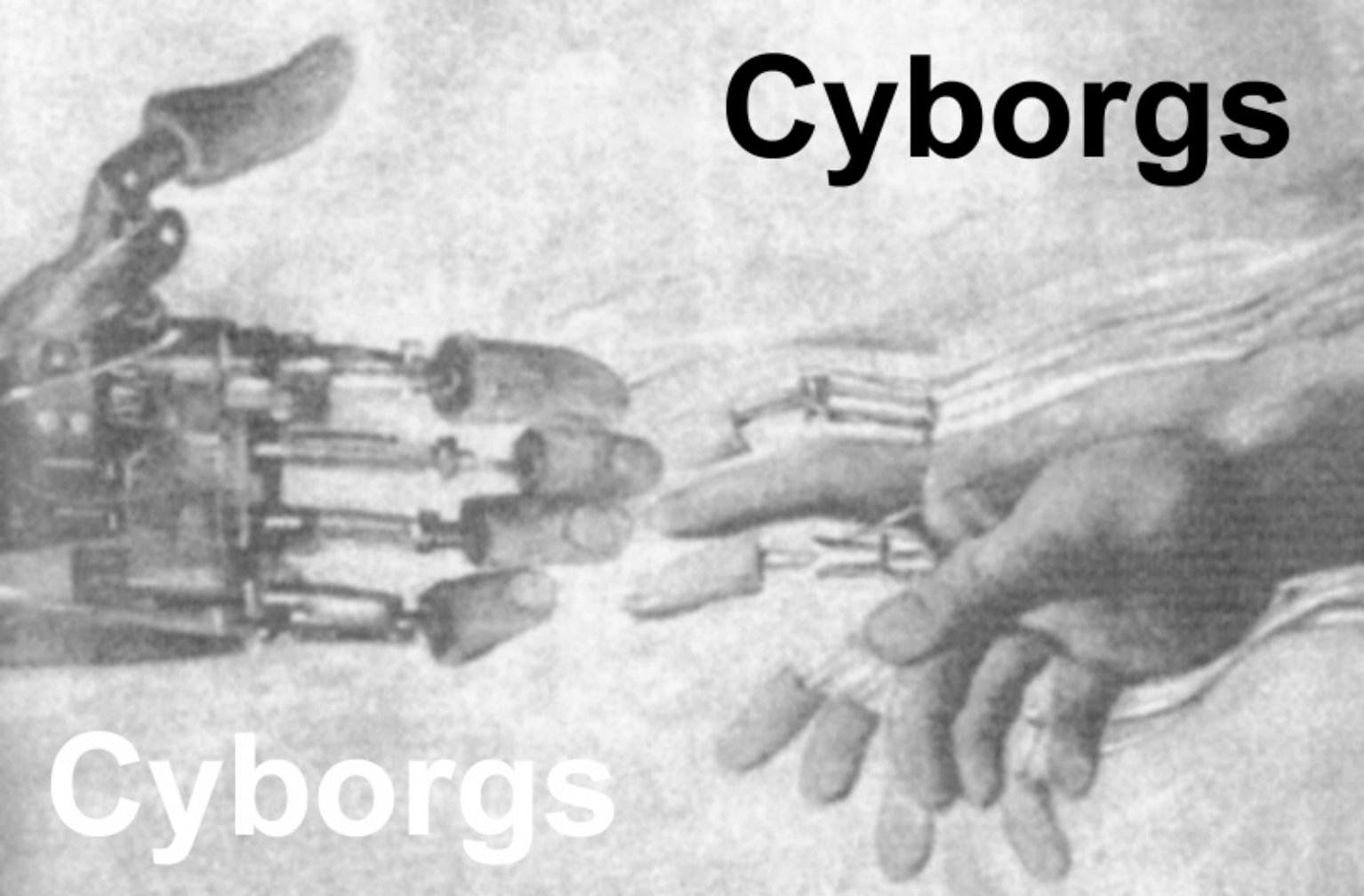

Cyborgs
Cyborgs

FIGURE 5 "Thanks, but we've got it covered." Richard Locher, Chicago *Tribune*.

Biocybernetics, then, refers not only to the field of control and communication, but to that which eludes control and refuses to communicate. In other words, I want to question the notion that our time is adequately described as the age of information, the digital age, or the age of the computer, and suggest a more complex and conflicted model, one which sees all these models of calculation and control as interlocked in a struggle with new forms of incalculability and uncontrollability, from computer viruses to terrorism.

I want to focus on three consequences of the new mode of biocybernetic reproduction, each of which has its counterpart in Benjamin's analysis of mechanical reproduction. I'll put them as three categorical claims: first, the copy is no longer an inferior or decayed relic of the original, but is in principle an improvement on the original; second, the relation between the artist and work, the work and its model, is both more distant and more intimate than anything possible in the realm of mechanical reproduction; and third, a new temporality, characterized by an erosion of the event and a deepening the relevant past, produces a peculiar sense of "accelerated stasis" in our sense of history.

Now we have to say that the copy has, if anything, even *more* aura than the original. More precisely, in a world where the very idea of the unique original seems a merely nominal or legal fiction, the copy has every chance of being an improvement or enhancement of whatever counts as the original.

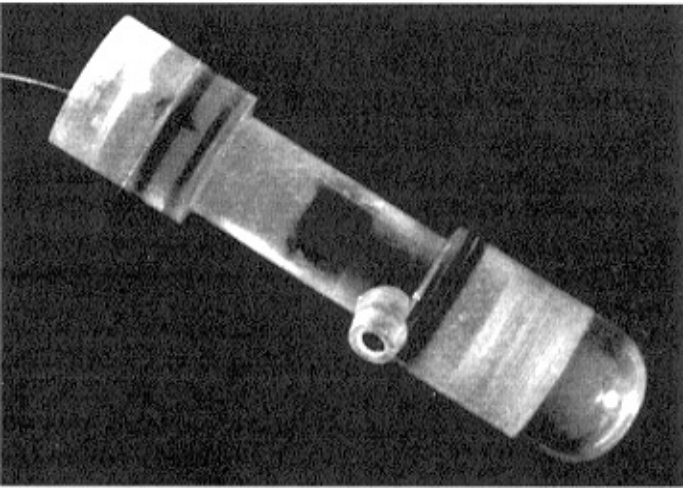
Clynes

Kline

Manfred E. Clynes has since 1956 been chief research scientist at Rockland State, in charge of the Dynamic Simulation Lab. A graduate of the Univ. of Melbourne, Australia, and holder of an M.S. from Juilliard School, he has for the past 10 years been engaged in the design and development of physiological instrumentation and apparatus, ultrasonic transducers, and electronic data-processing systems.

Nathan S. Kline has been director of research at Rockland State since 1952 and an assistant professor of clinical psychiatry at the Columbia Univ. College of Physicians and Surgeons since 1957. Author of more than 100 papers, Dr. Kline holds a New York Newspaper Guild Page One Award in science, the Adolph Meyer Award of the Assn. for Improvement of Mental Health, and the Albert Lasker Award of the American Public Health Association.

One of the first Cyborgs, this 220-gm rat has under its skin the Rose osmotic pump (shown in close-up below), designed to permit continuous injections of chemicals at a slow controlled rate into an organism without any attention on the part of the organism.



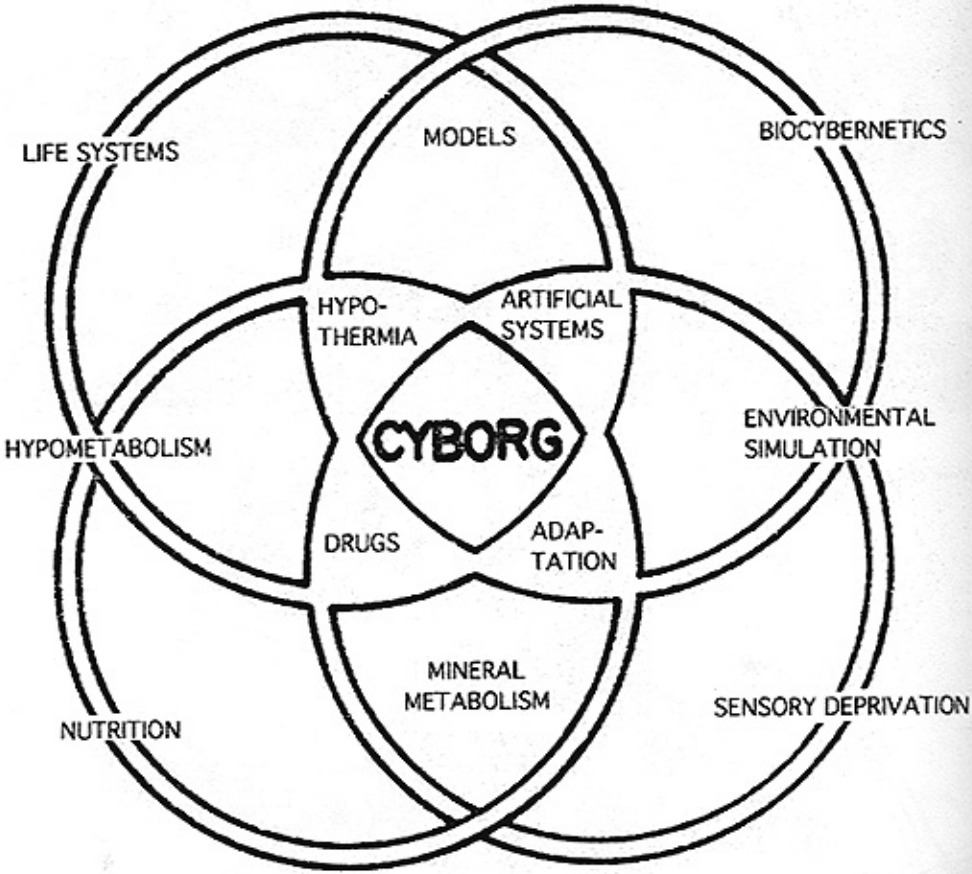
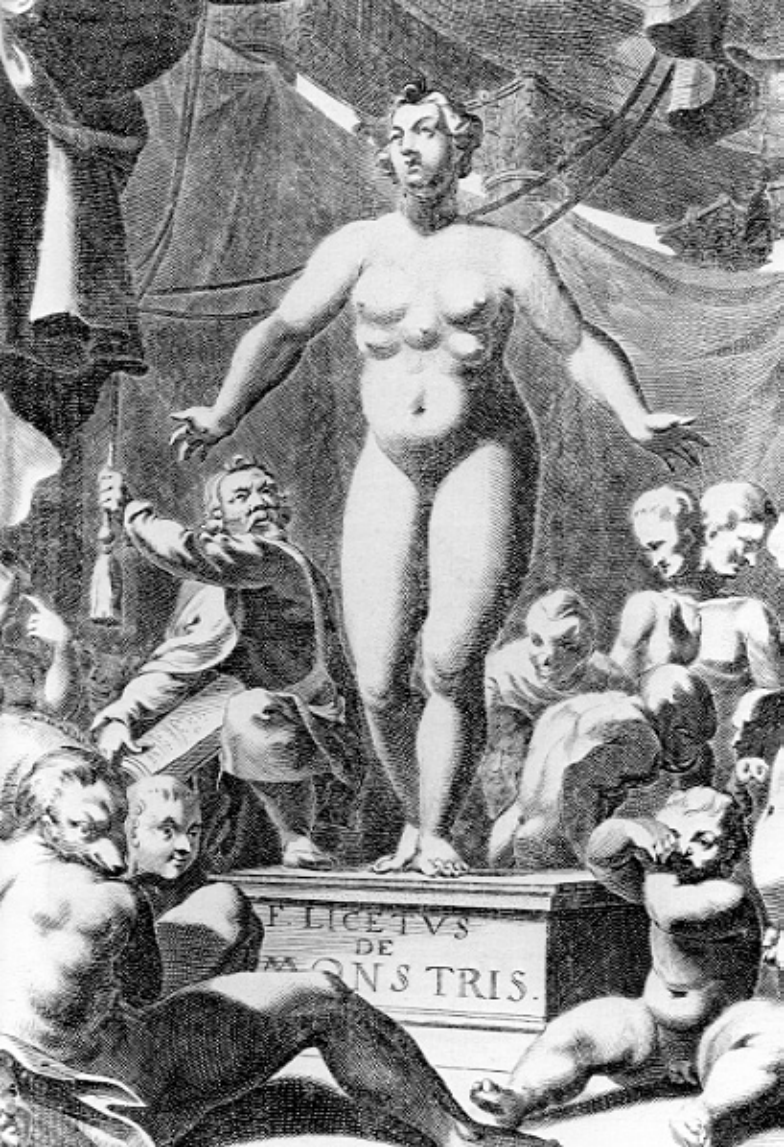


FIGURE 4. This diagram is from the only NASA report that focused on the idea of the cyborg. It shows that even though the term cyborg makes many a bureaucrat nervous, the concept of the cyborg is situated at the heart of a number of engineering, scientific, and medical fields. Cyborg symbol reworked by Corey Alexander Grayson.


breastpads
arm pad
arm pad
back effectors/
sensors
controller
genital sensors/effectors
leg pad
leg pad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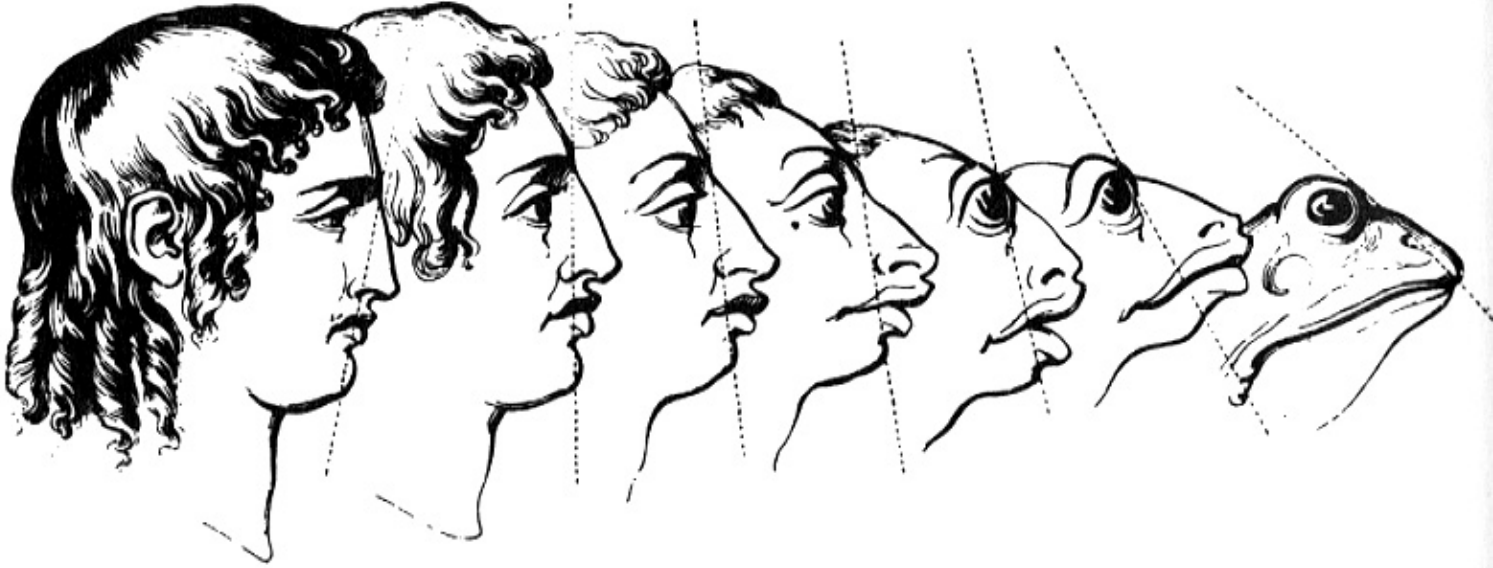

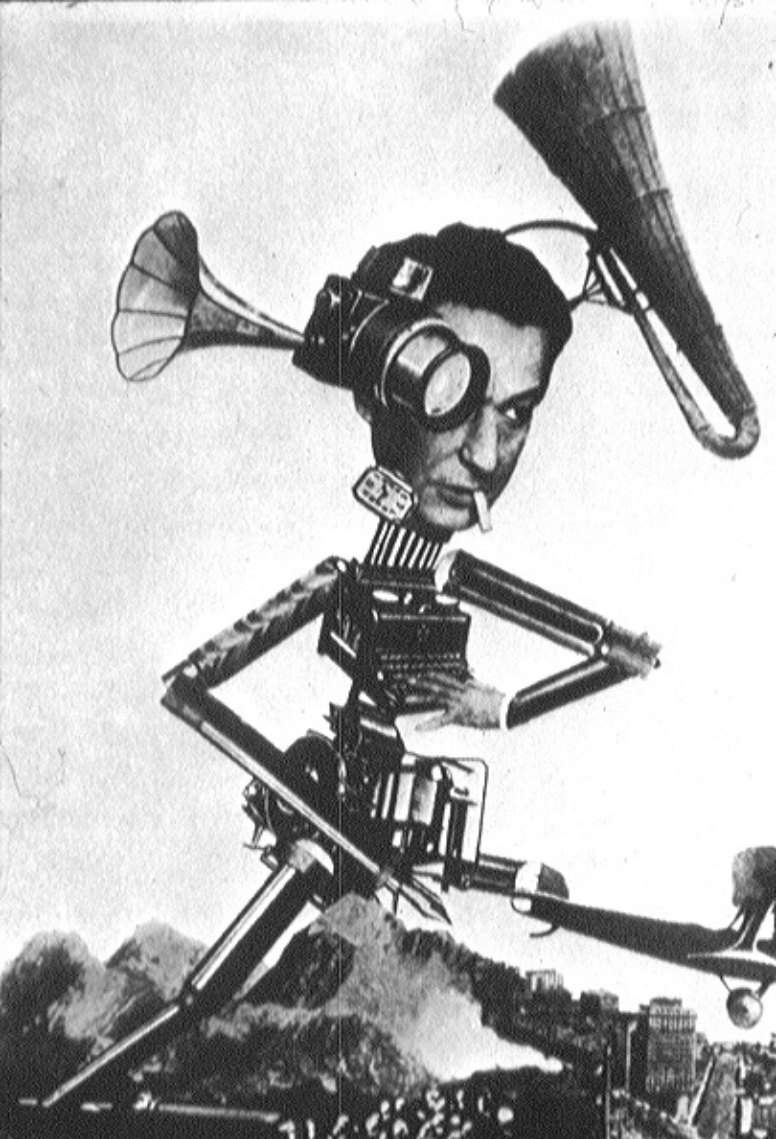

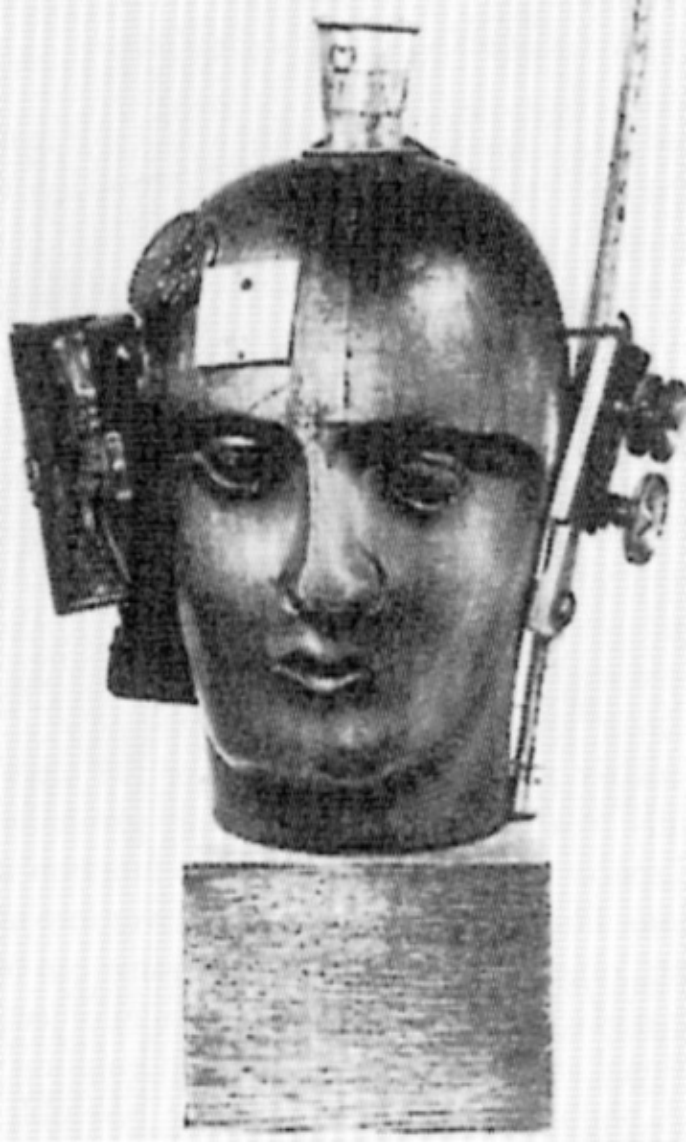

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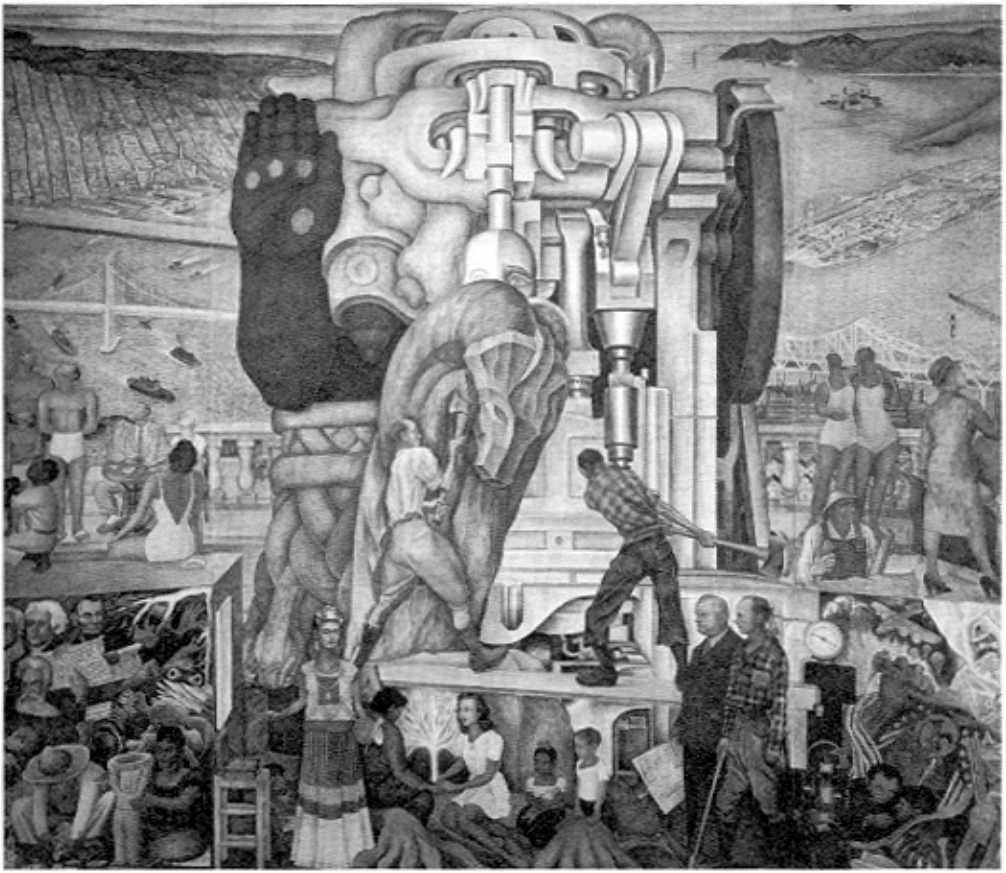


FIGURE 1. Diego Rivera's beautiful mural, Pan American Unity, graces San Francisco City College. It expresses the liberatory potential of cyborgization by showing Goddess and Machine in productive harmony. On one level Rivera was calling for a synthesis of North and South, but clearly the mural cries out for transcending all simple dichotomies. *Pan American Unity* by Diego Rivera.


Wafaa Bilal
3rd I (2010)


THIS... THIS IS MY BODY, RALPH...
SEVENTY PERCENT OF MY BODY IS BIONIC, COVERED WITH SYNTH-FLESH.

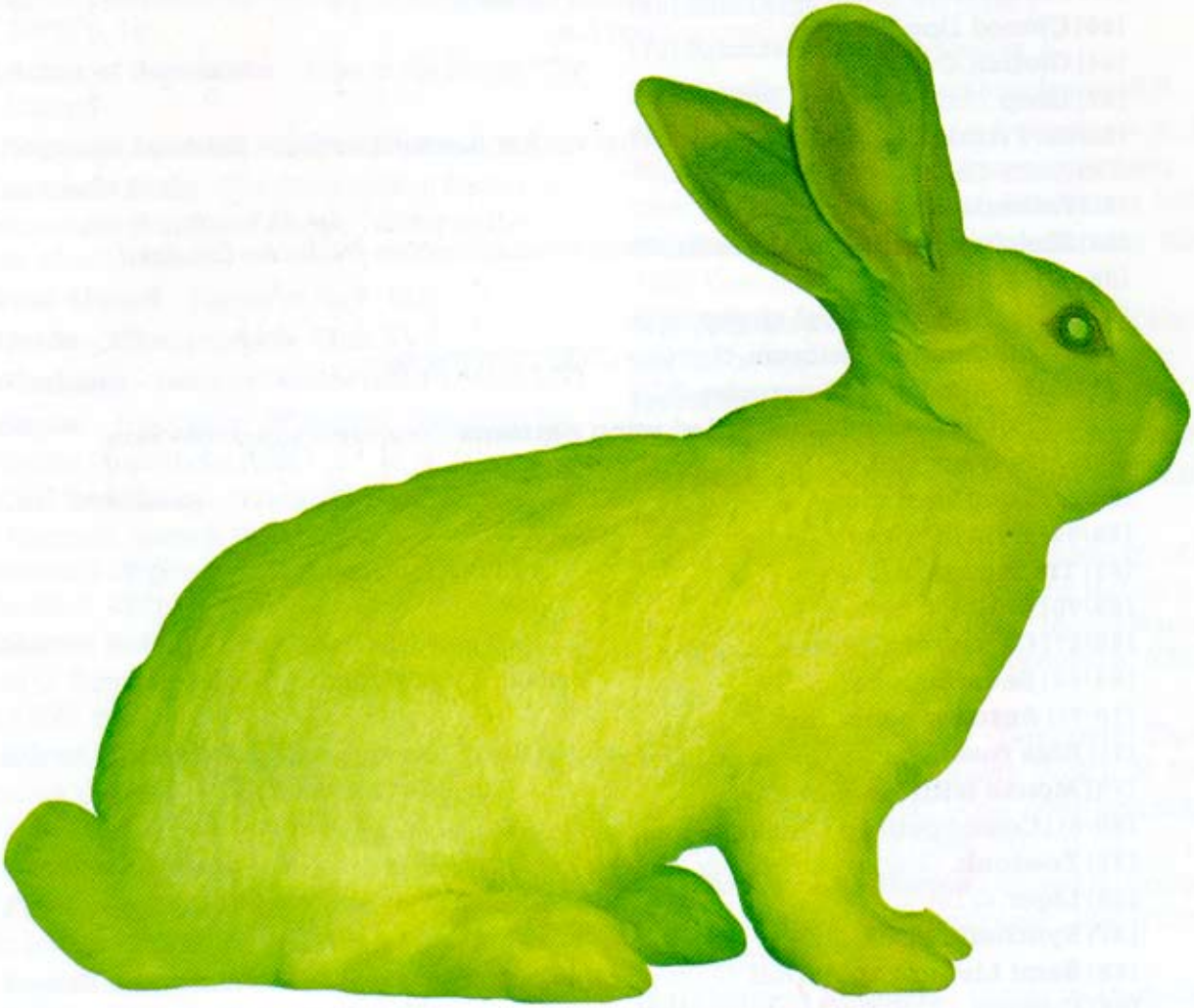
Thanks to the decryption of the map of the human genome, geneticists are now using cloning in the quest for the *chimera*, the hybridization of man and animal. How can we fail to see that these 'scientific extremists', far from merely threatening the unicity of the human race by trafficking embryos, are also taking their axe to the whole philosophical and physiological panoply that previously gave the term SCIENCE its very meaning? In so doing, they threaten science itself with disappearance.

Extreme arts, such as transgenic practices, aim at nothing less than to embark BIOLOGY on the road to a kind of 'expressionism' whereby teratology will no longer be content just to study malformations, but will resolutely set off in quest of their chimeric reproduction.


Dolly the Sheep

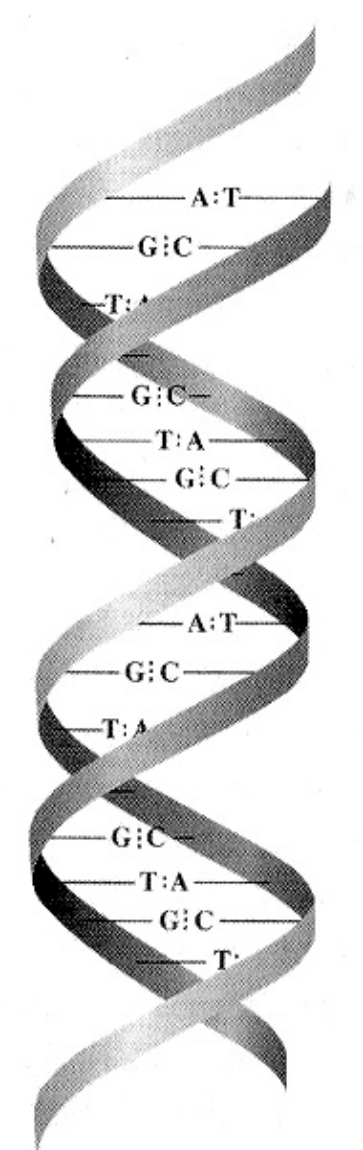
Dolly, the cloned Sheep

While it is generally acknowledged that biologist J. B. S . Haldane coined the term "clone" in 1963, in a speech entitled "Biological Possibilities for the Human Species of the Next Ten-Thousand Years," it was on the 5th July 1996 that Dolly was born. In 1997 she was announced to the world. For the first time in history, an adult mammal produced an offspring without an egg being fertilized by a sperm. Contrary to popular belief, Dolly was not born with the genetic characteristics of an old animal. In an attempt to show that she was physiologically normal, scientists bred her with a Welsh mountain ram, resulting in 6 lambs. Their first, Bonny, was born in the spring of 1998. The next year they had twins. They had triplets the year after that. In 2001 it was found that Dolly had arthritis.



Alba, the bunny

In 2000 Eduardo Kac created the fluorescent rabbit called Alba. The artist inserted in a rabbit fertilized ovum the fluorescence genes found in the jellyfish Aequorea victoria (aka crystal jelly), native to the west coast of North America. The fluorescence feature was transferred to Alba. As a result, when exposed to blue light of a specific frequency, Alba glows green.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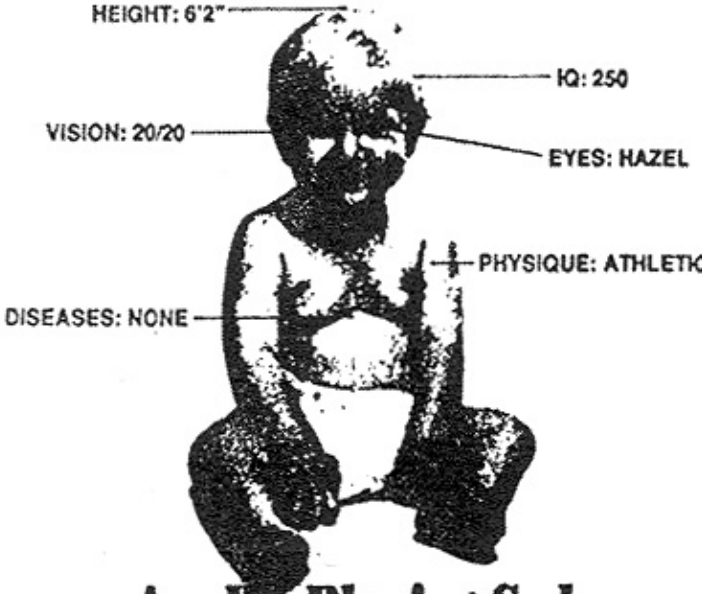


Are We Playing God Or Just Playing It Smart?

Soon you'll be able to make a "perfect baby".

Choose its sex. Make it handsome, make it smart. Even make it free from disease.

But what are the consequences of tampering with our genes?

Tonight, Barbara Walters looks at how the babies of the future will be made in the laboratory.

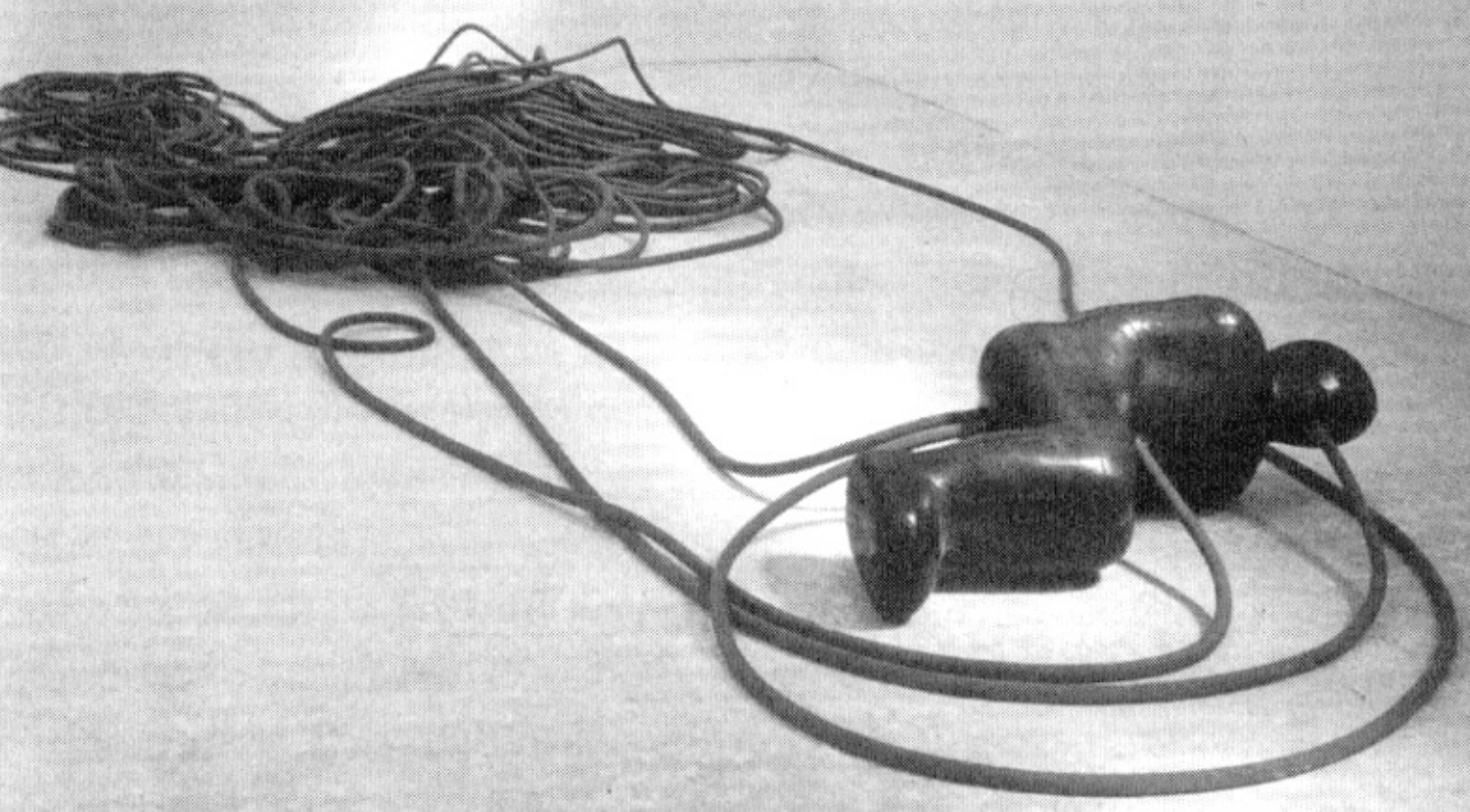
"THE PERFECT BABY"
AN ABC NEWS SPECIAL WITH BARBARA WALTERS.
Tonight at 10PM

ABCNEWS

7 11 13

Thanks to the decryption of the map of the human genome, geneticists are now using cloning in the quest for the *chimera*, the hybridization of man and animal. How can we fail to see that these 'scientific extremists', far from merely threatening the unicity of the human race by trafficking embryos, are also taking their axe to the whole philosophical and physiological panoply that previously gave the term SCIENCE its very meaning? In so doing, they threaten science itself with disappearance.

Extreme arts, such as transgenic practices, aim at nothing less than to embark BIOLOGY on the road to a kind of 'expressionism' whereby teratology will no longer be content just to study malformations, but will resolutely set off in quest of their chimeric reproduction.



The most concentrated sculptural rendering I have seen of the dystopia of biocybernetics is Antony Gormley's *Sovereign State* (fig. 94). This is a mathematically expanded concrete casting of the artist's own body lying on its side in a fetal position. Large rubber hoses are attached to the body's orifices, as if draining and drinking, output and input were all tangled together in an image of waste products recycled as food. This is a figure of the neomort, neonatal, or comatose human body as if in suspended animation, like a cryogenic incubator keeping someone alive till the next millennium; or (if wired to a virtual reality network) one could imagine it as the exact counterpart of the human inhabitants of *The Matrix*.

APPROACHES TO REPRODUCTIVE PROCESSES

MODERN

Goal: *control over* reproductive processes bodies via universal technologies;

Means: Fordist emphases on

1) development and mass production of new goods (e.g. commercial menstrual products); new technologies (e.g. hormones, contraceptives);
2) organization and mass distribution of basic reproductive services (e.g. obstetrics, functional gynecology, "family planning")
3) "one size fits all" approach to mass product and technology development
4) universalizing of women and technologies

Reproductive Processes focused on:

childbirth
menstruation
pregnancy
contraception
abortion
menopause

Lived body: to be controlled (ideally across the full life span); changes and new directions to be planned
Social body: naturalized "traditional nuclear family" to be created and maintained via rationalized management
Body politic: population control via contraception; enhanced legitimation and legalization of interventions in reproductive processes.

POSTMODERN

Goal: *transformation* of reproductive processes for a variety of specific and often highly local, individual, and differentiated goals;

Means: emphasis on flexible accumulation via

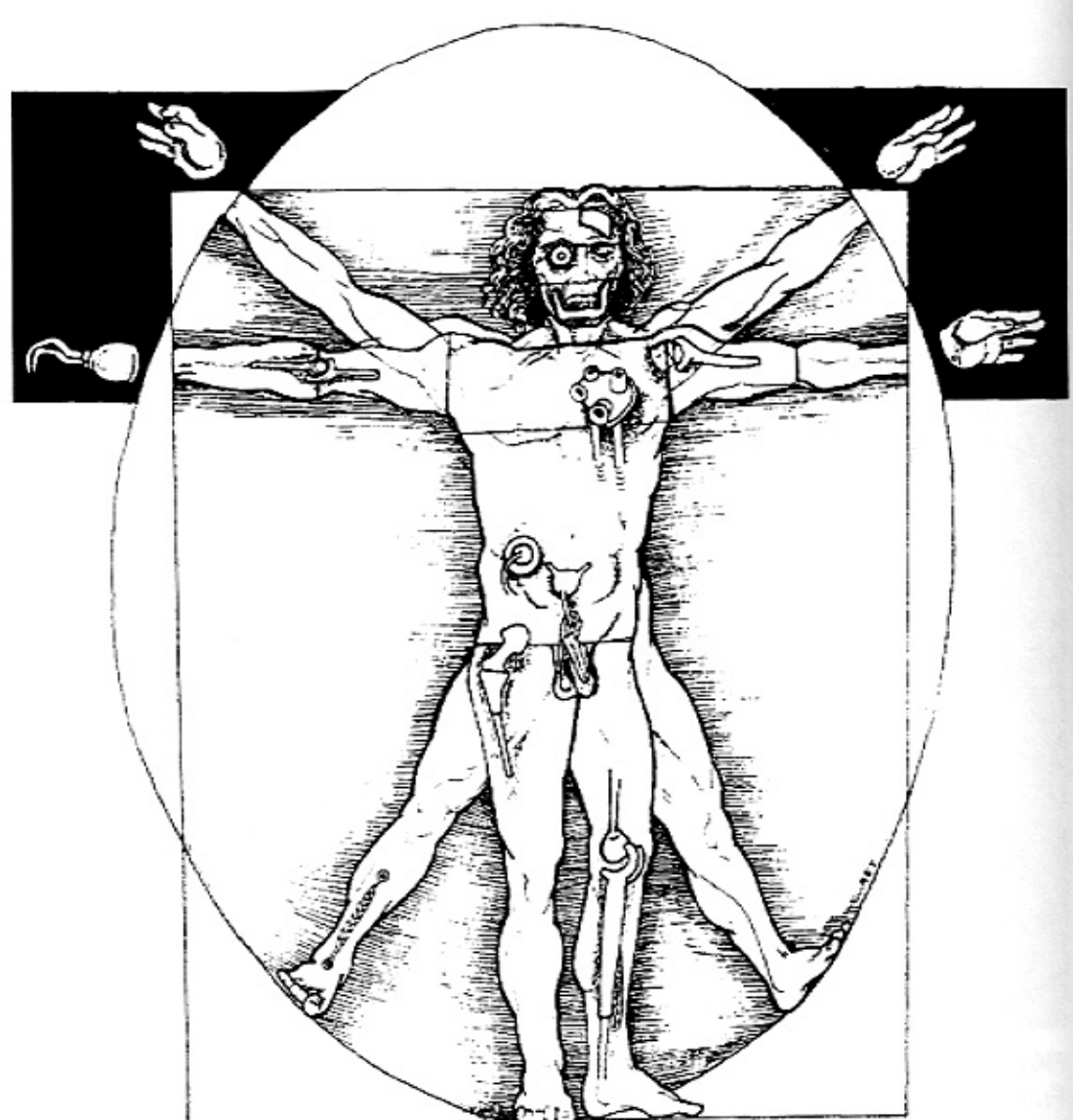
1) elaboration of specific services (re)organized for selectively targeted delivery:
   infertility services
   sex preselection services
   fetal treatments and surgeries
2) elaboration of specific services (re)organized for mass delivery toward targeted individuals/families:
   –genetic screening and counseling
   –fetal screening and counseling
3) individually tailored technological alternations
4) differentiation of women, men and technologies

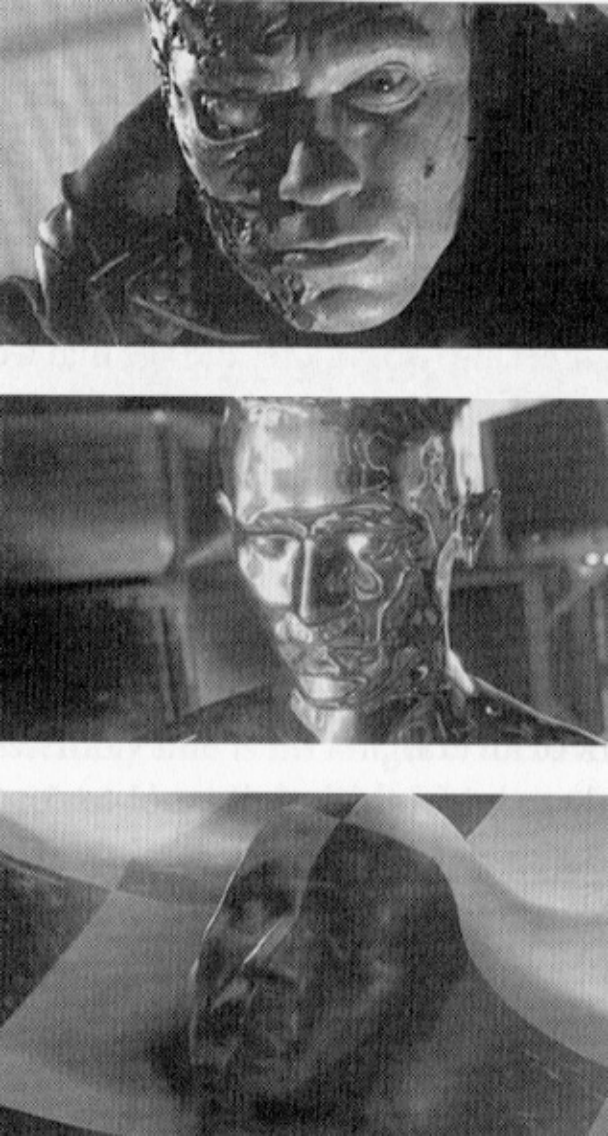
Reproductive Processes focused on

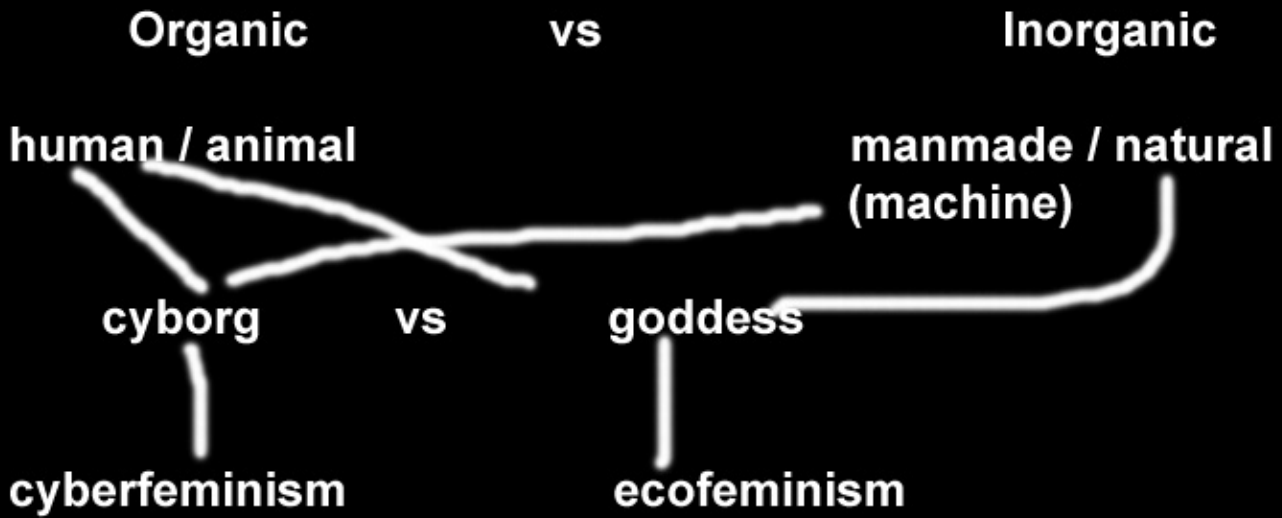
conception/infertility
pregnancy
heredity/clinical genetics
male reproduction

Lived body: to be transformed and customized/manipulated; cyborg with "tailor-made specificities"
Social body: transformed and/or reconstructed heterogeneous "families" with new meanings for gender, mother, father and family (biological/social/surrogate/donor/other) via constructing cyborgs
Body politic: "deconstruction of motherhood"? "family" as a new industry/market and policy niche; surveillance strategies; the state confronts cyborgs

Note: simultaneity of premodern, modern and postmodern approaches sustained through present moment.







nature / culture
sex / gender

Binaries to be deconstructed

Donna Haraway's *Cyborg Manifesto*

First published in *Socialist Review* ub 1985, then in a new version in 1991. It is divided into five sections:

1) **"Ironic Dream of a Common Language" on boundary breakdowns and hybridity.**
2) **"Fractured Identities" on anti-essentialist identities.**
3) **"The Informatics of Domination" diagrams differences between capitalism and virtual capitalism.**
4) **"Women in the Integrated Circuit" looks at gender and the globalized economy.**
5) **"Cyborgs: A Myth of Political Identity" on hybrid states in feminist science fiction and in writings of women of color.**

Cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves. . . . Though both are bound in the spiral dance, I would rather be a cyborg than a goddess.

Donna Haraway's academic training is as a biologist and philosopher, and her political affiliations are those of a socialist feminist. She wrote her "Cyborg Manifesto" in 1986, revising and expanding it again for publication in 1991. Among the many things occuring at the time was Ronald Reagan's so-called "Star Wars" defense system. The C3I, command-control-communication-intelligence, was an $84 billion item in 1984's US defense budget.

Haraway's worries were born out in the "Goddess feminism" movement, an American attempt to reject things technological and return women to nature. Haraway saw this movement in particular as reactionary rather than progressive feminist politics.

Still, certain feminist thinkers of the 1980's held great appeal for Haraway. She was particularly influenced by the French writers Monique Wittig and Luce Irigaray, who exhorted women to reject masculinist histories and instead "write the truth of their bodies" through methods like autobiography and performance. This practice, which they called "feminine writing", influenced a generation of feminists. To a large degree Haraway's Manifesto operates in the spirit of "l'ecriture feminine", using non-linear, performative and autobiographical language to describe the truth of a new kind of body: that of the cyborg.

Definition of a Cyborg

The anchoring metaphor for her essay, Haraway writes, is the image of cyborg. She defines this image in four different ways. The first is as a "cybernetic organism." The second is as "a hybrid of machine and organism." The third is as "a creature of lived social reality", and the fourth is as a "creature of fiction."

Cyborg changes what counts as experience.

It is important to understand that for Haraway, these four descriptions of the cyborg (cybernetic, hybrid, of the present, of the future) are not discrete, but rather co-determinate. For instance, Haraway argues that in philosophical terms, there is no real space between "lived social reality" and "fiction", because one category is constantly defining and refining the other. Haraway points out how feminists have deployed the notion of "women's experience" using it both as "fiction and a fact of the most crucial, political kind." In a similar way, Haraway argues, the cyborg will "change what counts as experience" for women in the late twentieth century.

Cyborgs already give us our politics.

Thus far, argues Haraway, cyborg politics have been linked to oppressive mythologies: scientific progress; racist, male-dominated capitalism; the exploitation of nature to serve the needs of culture. This doesn't have to remain the case, however. Indeed, Haraway writes that her Manifesto is an argument for "pleasure in the confusion of boundaries and for responsibility in their construction. "

The cyborg doesn't have a Freudian origin.

Haraway concedes that part of the reason she is attracted to the metaphor of the cyborg lies with its ability to help her reconceptualize socialist feminism in a "postmodernist, non-naturalist" mode. Because it doesn't depend on human reproduction for its existence, the cyborg is "outside gender", reasons Haraway. Indeed, she suggests, the cyborg might the potential to reach beyond Freudian mythologies that have haunted feminism for centuries. The cyborg is no Frankenstein, Haraway argues, waiting to be saved by its master/father. Neither does it seek completeness by searching for a heterosexual soul mate, or desire community by way of a nuclear family, as psychoanalytic mythologies would have things.

Cyborgs are not trustworthy. This might not be a bad thing.

Because they are the "illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism," writes Haraway, cyborgs are never entirely trustworthy creatures. In the end, however, Haraway notes that this may not be such a bad thing. After all, reasons Haraway, illegitimate offspring are often exceedingly unfaithful to their origins.

Border crossings: humans and animals, humans and machines.

Haraway cites three crucial "border crossings" which she argues make the call to "return to nature" an impossibility for feminists. The first is the boundary breakdown between humans and animals, which has occurred as a result of things like pollution, tourism and medical experimentation. Baboon hearts transplants, she points out "evoke national ethical perplexity-- for animal rights activists at least as much as for the guardians of human purity. " The second boundary transgression Haraway describes is between humans and machines. In the past, machines were not self-moving, self-designing, and autonomous. Today, however, machines are making "ambiguous the difference between the natural and the artificial," writes Haraway. Without ever citing the Internet or virtual reality technologies, she alludes to as much when she writes, "Our machines are disturbingly lively, and we ourselves frighteningly inert."

Border crossing: the physical and non physical.

The third boundary crossing Haraway calls a subset of the second: the eroding space between "the physical and the non-physical." Illustrating the ubiquity of microprocessors in contemporary life, Haraway writes that "small is not so much beautiful as pre-eminently dangerous." Haraway cites the cruise missile (which can be transported undetected on the back of a pickup truck) as well as the microchip (which is the size of a thumbnail) as sources of two different sorts of dis-ease that plague the modern world. The first is related to the actual health hazard of producing microprocessors. The second is pervasive stress (the "invisible illness") of consuming them everyday through computer and media culture.

Haraway details these three border crossings (there are others) in order to get American socialist feminists used to the idea of politically negotiating through a technological world. She understands why feminists might advocate turning away from technology. After all, the world's poorest women are the ones who suffer the most from technological "progress", as exploited sweatshop laborers, as underpaid "home-workers" and as test cases in reproductive medical trials. She also concedes that to some degree, the cyborg is to the "final abstraction embodied in a Star Wars apocalypse waged in the name of defense, about the final appropriation of women's bodies in a masculinist orgy of war (Sofia, 1984)."

Women of color as a cyborg strategy of affinity

Cyborgs are hybrid and provisional, Haraway points out, and for this reason, they can have no truck with political categories requiring a stabile, essentialist identity. Rather than using identity as a political category, Haraway advocates feminists consider building coalitions based on the more cyborg-friendly notion of "affinity."

To ground her argument, Haraway analyzes the phrase "women of color," suggesting it as one possible category of affinity politics. Whereas a category like "Chicana" designates a sort of racial essence, the theorist Chela Sandoval has argued that there is nothing that a woman of color essentially is. Sandoval coins the term "oppositional consciousness" to describe the effect that the phrase "women of color" has had on the feminist community. Haraway takes oppositional consciousness to be consistent with a cyborg politics, because rather than identity it stresses how affinity comes as a result of "otherness, difference, and specificity."

Chela Sandoval

Sandoval equates Haraway's "cyborg feminism" with "US Third World feminism" which can also be identified with such terms as: "mestiza consciousness," "situated subjectivities," and "differential consciousness."

Sandoval argues that the border consciousness and survival strategies of subaltern peoples predates the cyborgian strategies touted by Haraway. Both use: "transgressed boundaries, potent fusions, and dangerous possibilities."

Representation	Simulation
Bourgeois novel, realism	Science fiction, postmodernism
Organism	Biotic component
Depth, integrity	Surface, boundary
Heat	Noise
Biology as clinical practice	Biology as inscription
Physiology	Communications engineering
Small group	Subsystem
Perfection	Optimization
Eugenics	Population Control
Decadence, *Magic Mountain*	Obsolescence, *Future Shock*
Hygiene	Stress Management
Microbiology, tuberculosis	Immunology, AIDS
Organic division of labour	Ergonomics / cybernetics of labour
Functional specialization	Modular construction
Reproduction	Replication
Organic sex role specialization	Optimal genetic strategies
Biological determinism	Evolutionary inertia, constraints
Community ecology	Ecosystem
Racial chain of being	Neo-imperialism, United Nations humanism

Essential components are replaced by network descriptions.

Haraway argues that certain things need to be realized about her taxonomy. "First," she points out, "the objects on the right-hand side cannot be coded as 'natural', a realization that subverts naturalistic coding for the left-hand side as well." Because nature and culture exist side by side, Haraway explains that scientists have ceased speaking about essential components of phenomena (or "roots" to use the radical feminist analogy) and instead discuss things in terms of interconnected networks.

This is a long way of saying communications and biotechnologies are now of a piece, suggests Haraway. For example, philosophizing in an era of managed pregnancies and cloning now has to do with essentialist notions of human life than it does with the "design, boundary constraints, rates of flows, systems logics, and costs of lowering constraints" of population control.

The integrated circuit marks the breakdown of public/private

In this section, Haraway further considers the ways in which the new economy has served to break down earlier distinctions between public and private domains. In the industrial era, Haraway argues, it was popular to speak about women's lives by making distinctions between (for example) the factory, the market, and the home. Today, homework economies and surveillance technologies make such distinctions impossible to maintain. To describe the fact that women today live in a world "intimately restructured through the social relations of science and technology," Haraway borrows the metaphor of the "integrated circuit" from theorist Rachel Grossman.

The power of cyborg feminist science fiction

Haraway points out that because the cyborgs populating feminist science fiction blur boundaries between the status of men and women, human and machine, and individual and community, it is often difficult for student readers to identity with them in any traditional sense. Haraway details some "classic" cyborg tales, like Joanna Russ' *The Female Man*, which "is the story of four versions of one genotype, all of whom meet, but even taken together do not make a whole." She mentions Samuel R. Delany's *Tales of Neveyon*, which mocks stories of origin by redoing the neolithic revolution, and James Tiptree, Jr, who "tells tales of reproduction based on non-mammalian technologies like alternation of generations of male brood pouches and male nurturing." Author John Varley is cited for constructing a "supreme cyborg in his arch-feminist exploration of Gaea," and Octavia Butler is celebrated for writing a series of novels which "interrogate reproductive, linguistic, and nuclear politics in a mythic field structured by late twentieth-century race and gender." Finally, Vonda McIntyre's *Superluminal* is mentioned as a fiction "where no character is 'simply' human, and human status is highly problematic", and where feminist theory collides with colonial discourse in the sphere of science fiction.

A restatement of three crucial arguments

Haraway finishes her Manifesto by restating two crucial arguments in this essay:

1. **"The production of universal, totalizing theory is a major mistake that misses most of reality, probably always, but certainly now."**
2. **"Taking responsibility for the social relations of science and technology means refusing an anti-science metaphysics, a demonology of technology." Haraway adds that taking responsibility also means "embracing the skilful task of reconstructing the boundaries of daily life, in partial connection with others, in communication with all of our parts."**

Haraway then adds her third and final argument, which is:

3. **Cyborg imagery suggests "a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves."**

She'd rather be a cyborg than a goddess.

Once again, Haraway emphasizes that hers is not a dream of a universal feminist language for all, but rather of a "powerful infidel heteroglossia." For Haraway, a cyborg politics will be both pleasant and dangerous, and will require both a building and a destroying of "machines, identities, categories, relationships, space stories."

Finally, she admits that though both creation and destruction are bound to be part of this "spiral dance" of a cyborg future, she would still "rather be a cyborg than a goddess."

Haraway and ANT

Haraway is NOT a technological determinist, but a social constructiionist who has been influenced by Bruno Latour and Michel Callon's actor-network theory (ANT): both human and non-human entities can function as "actants" semiologically in society. Thus human and machine can both function as agents in social change. This opens sociology to the study of the non-human, which traditionally was only concerned with humans.

I attribute the "earthquake" effect of the Cyborg Manifesto (and its close relatives, Haraway 1988, 1989b, 1991b, 1992) as arising in large part from the way it introduces terms and ideas from social studies of science, especially actor-network theory, into debates in feminist theory and political struggles for identity and subjectivity (especially by US Third World Women; Sandoval 1991), and from there into a wide range of textual and cultural studies.

It helped clarify differences between techno- and eco-oriented feminists, and those who didn't subscribe to cosmic feminism could find in Haraway a voice that validated a range of other approaches to studying, interpreting, dreaming, and mythologizing about the woman-technoscience-world relation

Stabile accuses Haraway of installing a feminist avant-gardism (Stabile 1994, 145) and of promoting a cyborg subject that doesn't have to *do* anything in order to be political, since "[p]olitics are, so to speak, embedded in the cyborg body." This critique, I would counter, applies less to Haraway than to some of her over-enthusiastic and under-politicized readers, especially those caught in the "textualist turn" and hence liable to equate semiotic ambiguity with political subversiveness (bolstered in some cases by Derrida's deconstructionism or notions of the carnivalesque from Bahktin, Kristeva, or Stallybrass and White).

Cyberfeminism

Key texts:
1) Donna Haraway, *A Cyborg Manifesto* (1991)
2) Sandy Stone, *The War of Desire and Technology at the Close of the Mechanical Age* (1995)
3) Rosi Braidotti, *Cyberfeminism with a Difference* (1998)
4) Sadie Plant, *Zeroes and Ones* (1999)

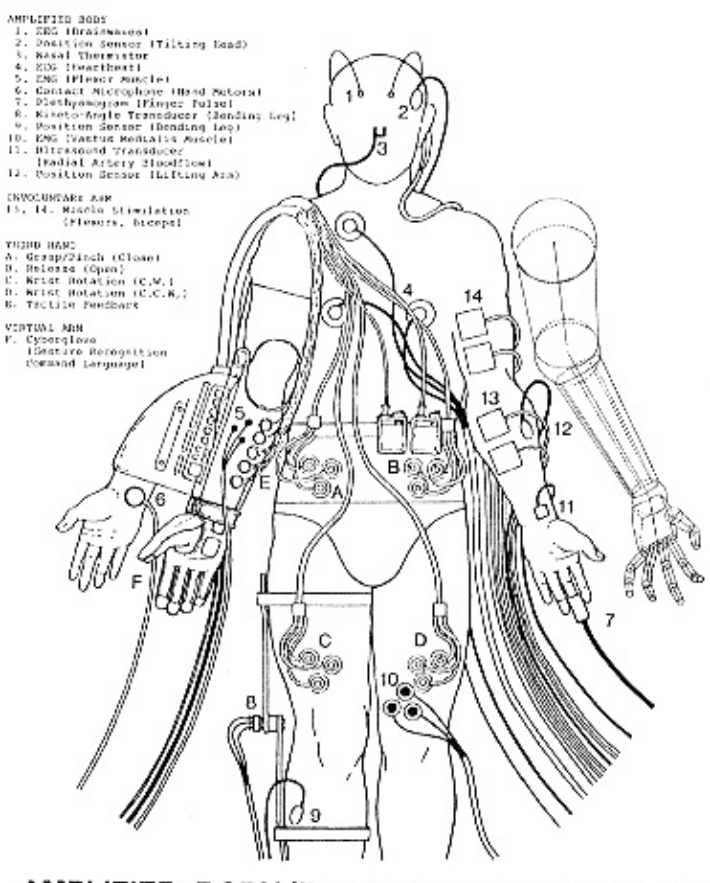
Related theorists:
1) Judith Butler
2) Chela Sandoval
3) Claudia Springer
4)Nina Wakeford

Critique of cyberfeminism made by Judith Squires

Proto-cyberfeminism

Shulamith Firestone's *The Dialectic of Sex* (1972) argues for cybernetics to eventually free women of the burden of childbearing, to escape the confines of the body and, thus, being able to achieve greater equality and empowerment in society. Thus the "sex distinction" with be removed.

The term "cyberfeminist" arose simultaneously in 1991 for scholar Sadie Plant in England, and the Australian feminist art group VNS Matrix. Like many Australian feminists, VNS Matrix became aware of Haraway's Manifesto when it was reprinted in the journal *Australian Feminist Studies* in 1987, and paid homage to it in their (1992) *Cyberfeminist Manifesto for the 21st Century.* Produced using electronic image-making technologies, it featured a horned woman in a shell amidst a molecular matrix, with a text announcing "the clitoris is a direct line to the matrix" and proclaiming themselves as the "virus of the new world order … saboteurs of big daddy mainframe … terminators of the moral code … mercenaries of slime … we are the future [etc.]." The group went on to produce *All New Gen*, a series of lightboxes and the prototype of a computer game based on these themes.

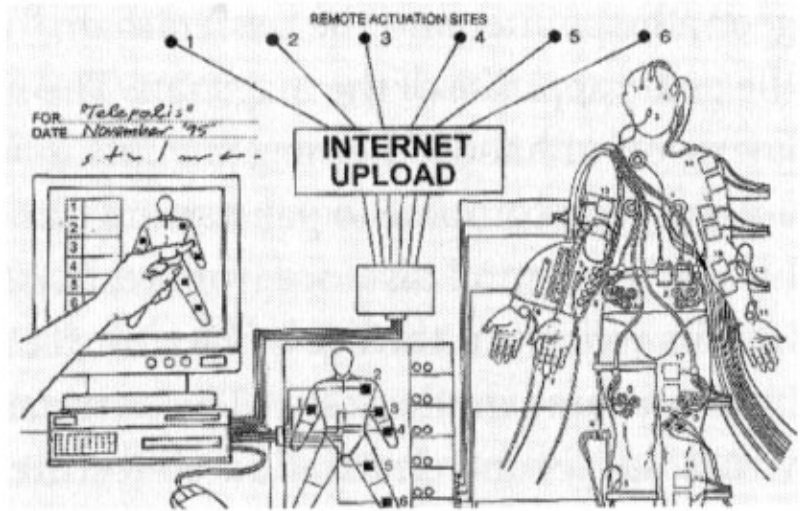


AMPLIFIED BODY/THIRD HAND/VIRTUAL ARM

In *The Art of the Motor* and in 'Silence on Trial', for instance, Virilio rejects the screaming and streaming multimedia performances of the body artist Stelarc. As Virilio notes, it is of fundamental importance that the hyperviolence and hypersexuality that at present rule the screens of hypermodernity are challenged given that they are the supreme instigators of social insecurity and the crisis in figurative art. He understands the art of the mass media consequently as the most perilous effort yet to manage the silent majority through a spurious voice conveyed through public opinion polls, corporate sponsorship and advertising.

Rejection of the human body or its virtualization, declares Virilio, are the only alternatives presented to the art lover by the multimedia academy led by body artists such as Orlan and Stelarc. For him, these and other artists and the multimedia events they perform disclose their anti-humanism and lack of respect for the body.

Similarly, the cyber artist operates simultaneously within a closer and a more distant relationship to the real. In the case of a performance artist like Stelarc, the materiality of the work is the artist's own body, subjected to prosthetic surgeries to graft on additional limbs, while the actualities of performance may involve wiring the artist's body up to remote locations in other countries, so that an interactive performance may be conducted with spectators controlling the movements of the artist's body. The relationship of artist to work to corporeal reality is thus made more intimate than ever, at the same time the artist's subjectivity is dispersed and fragmented across the circuitry of prosthetic limbs and remote-control spectatorship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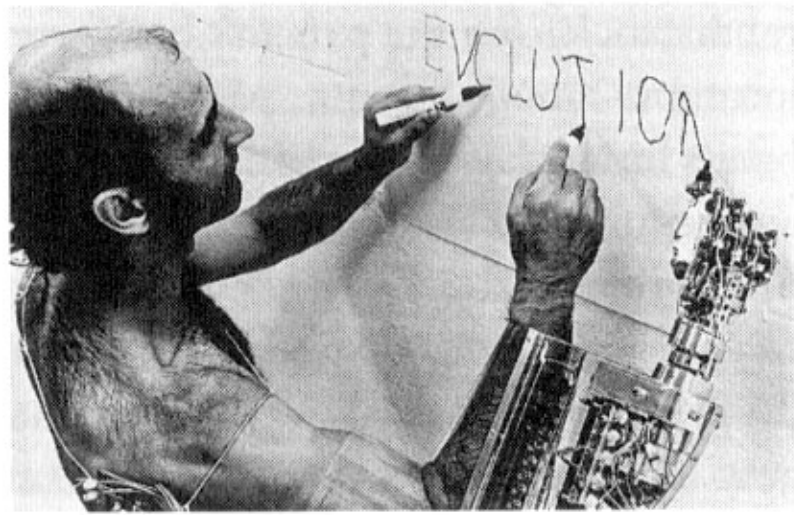
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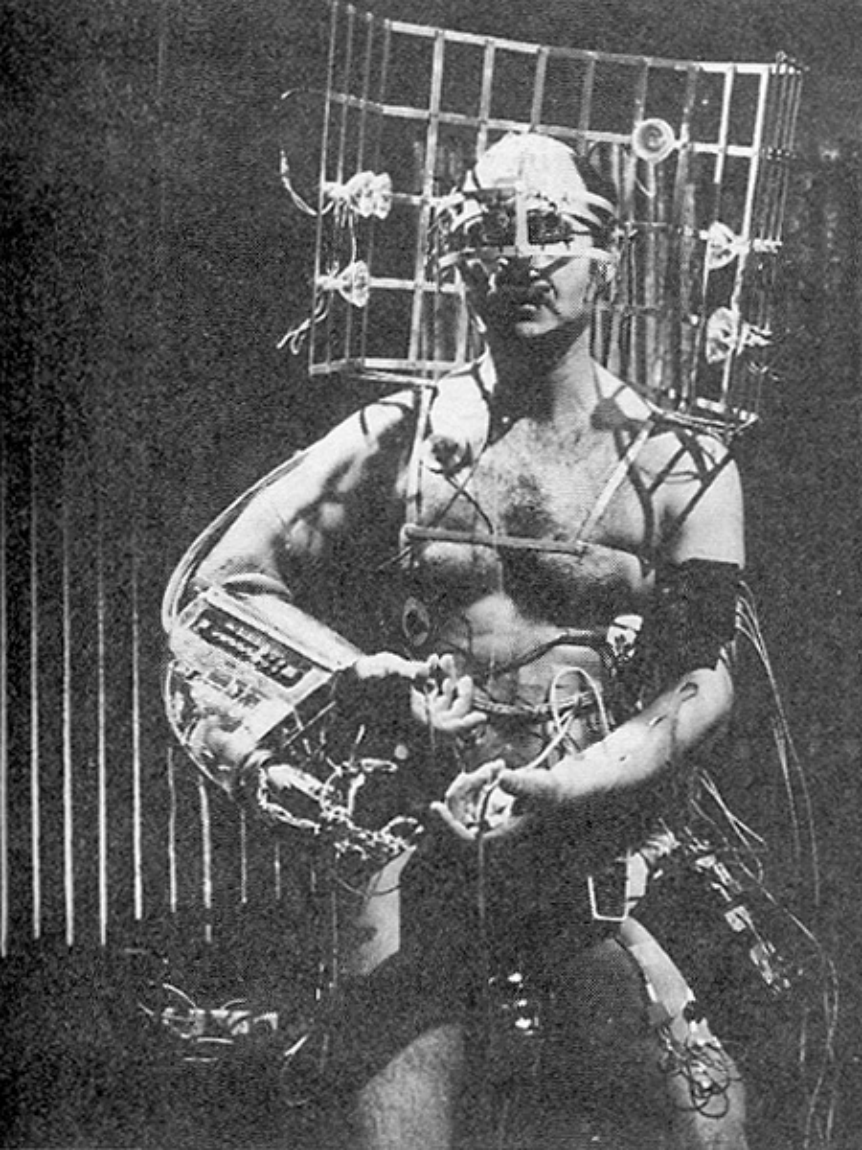
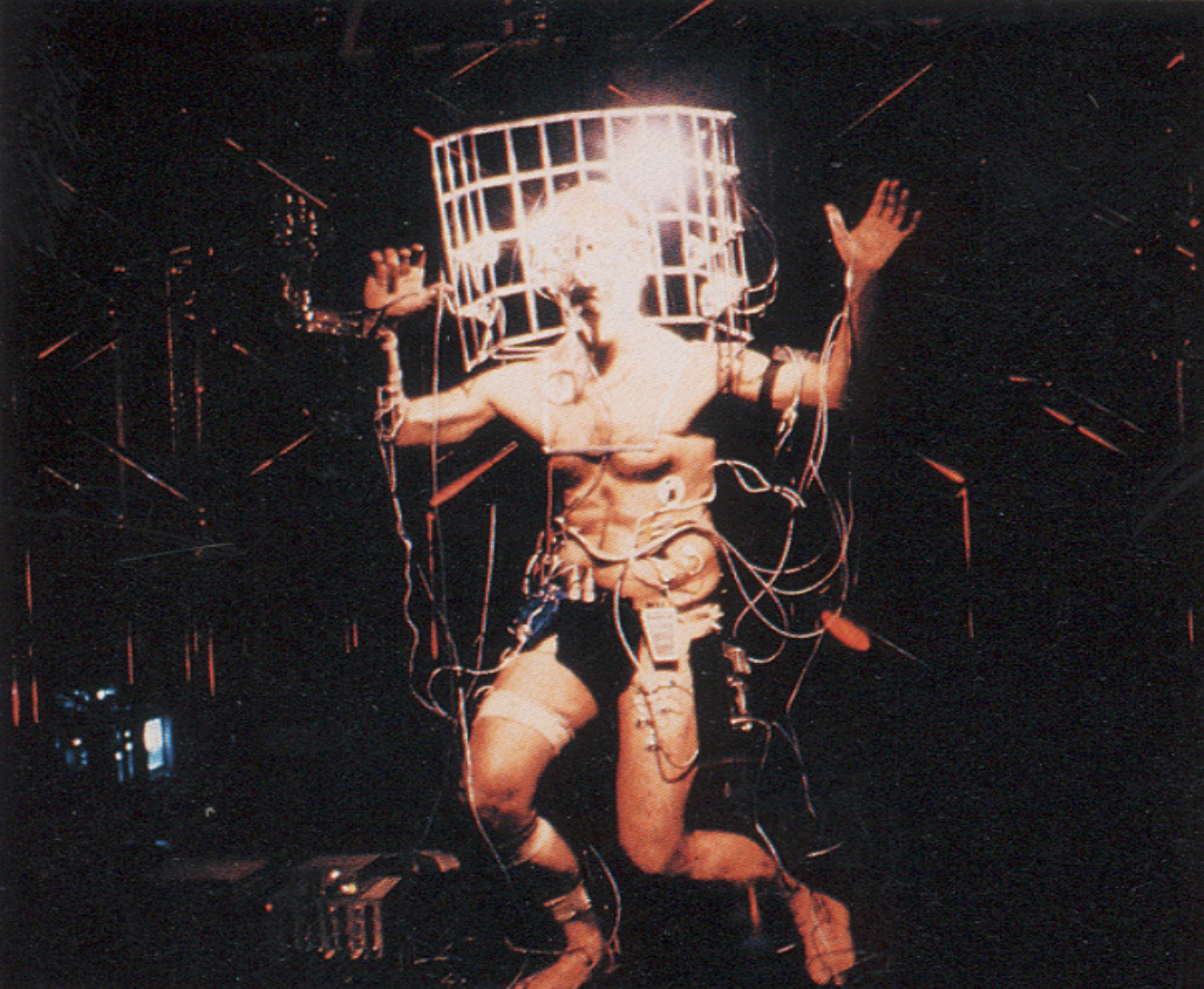
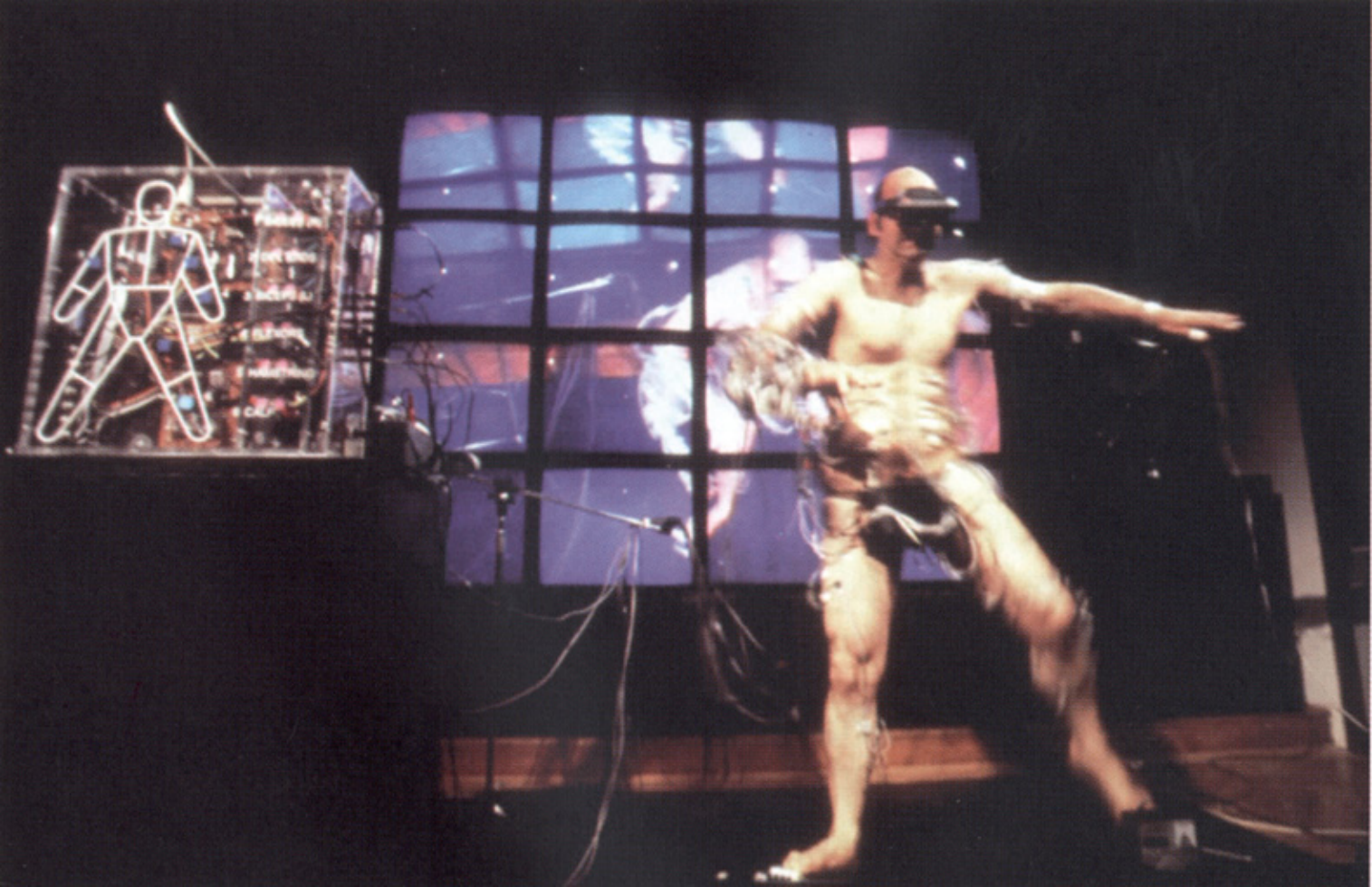
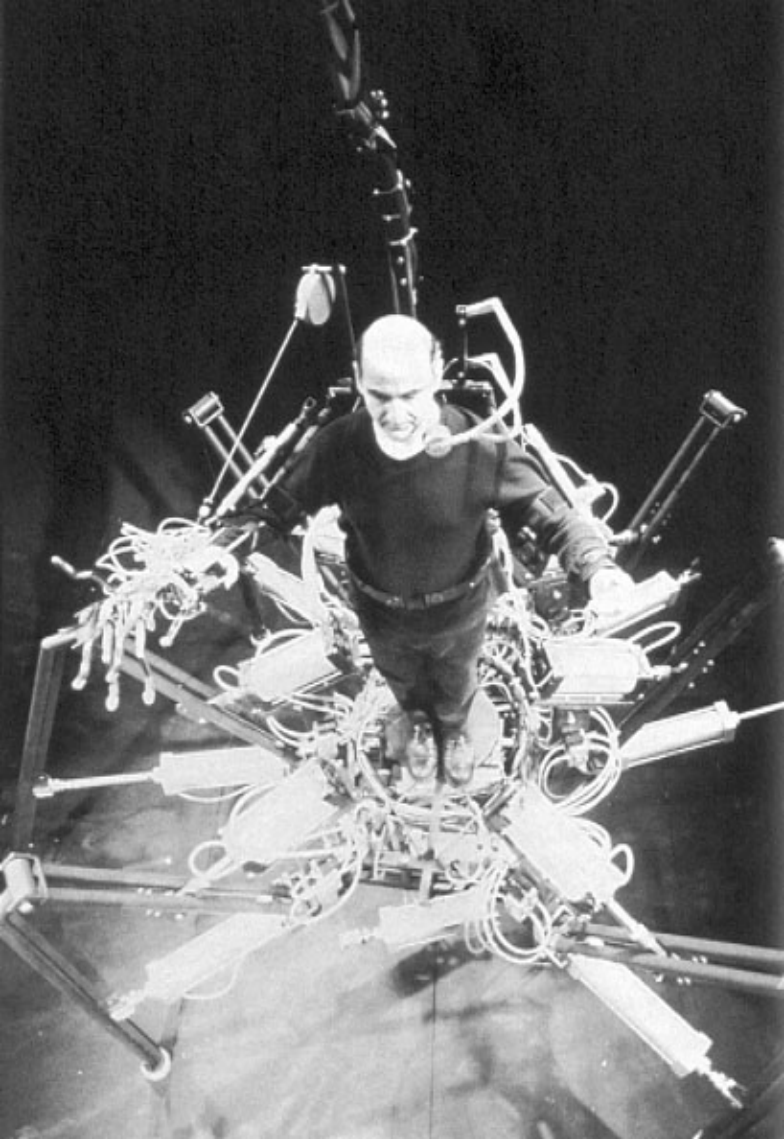


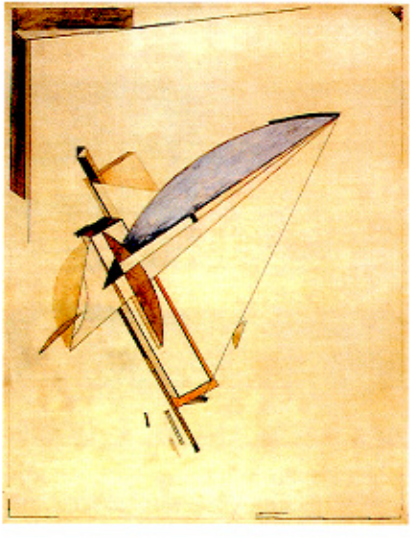




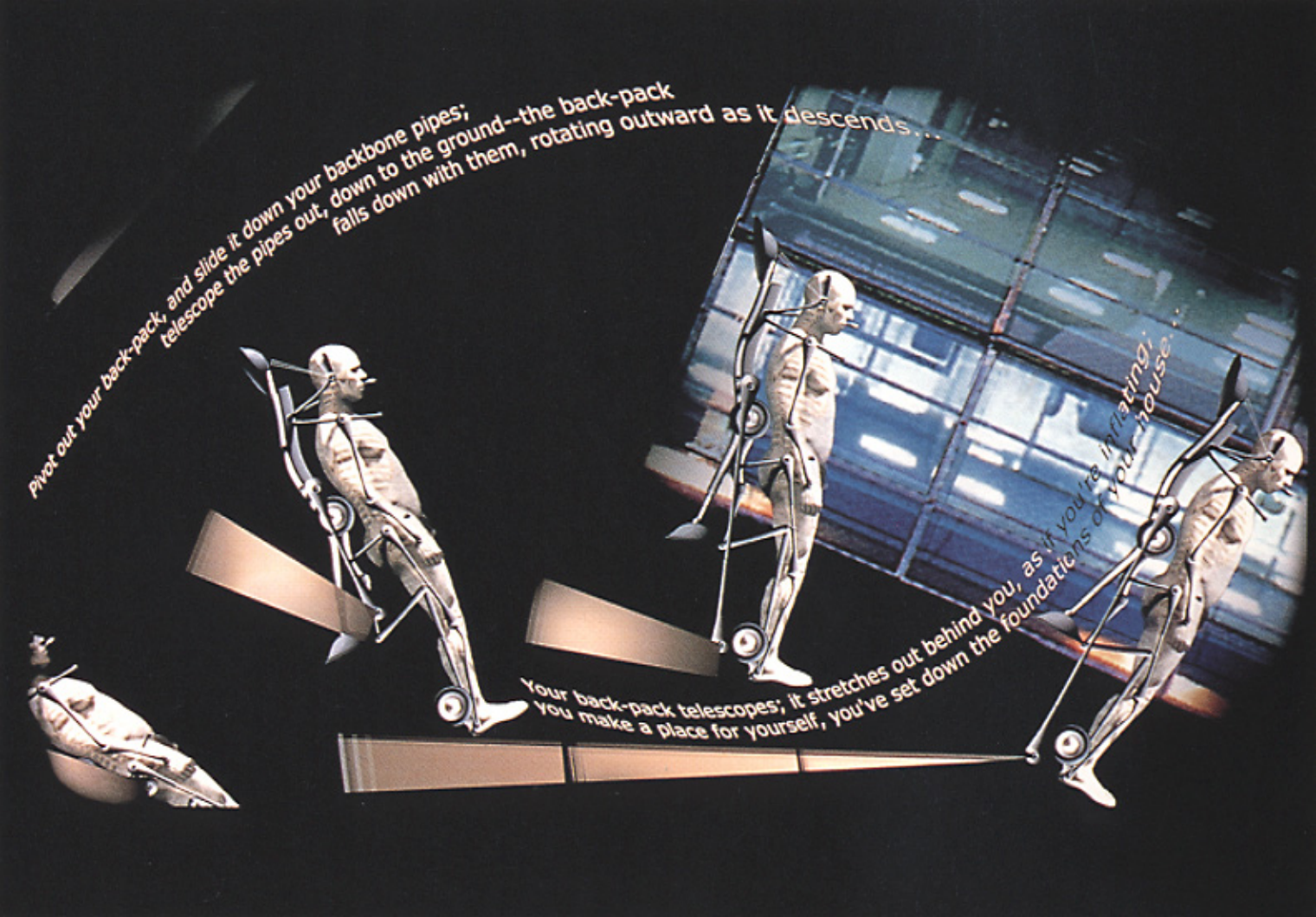


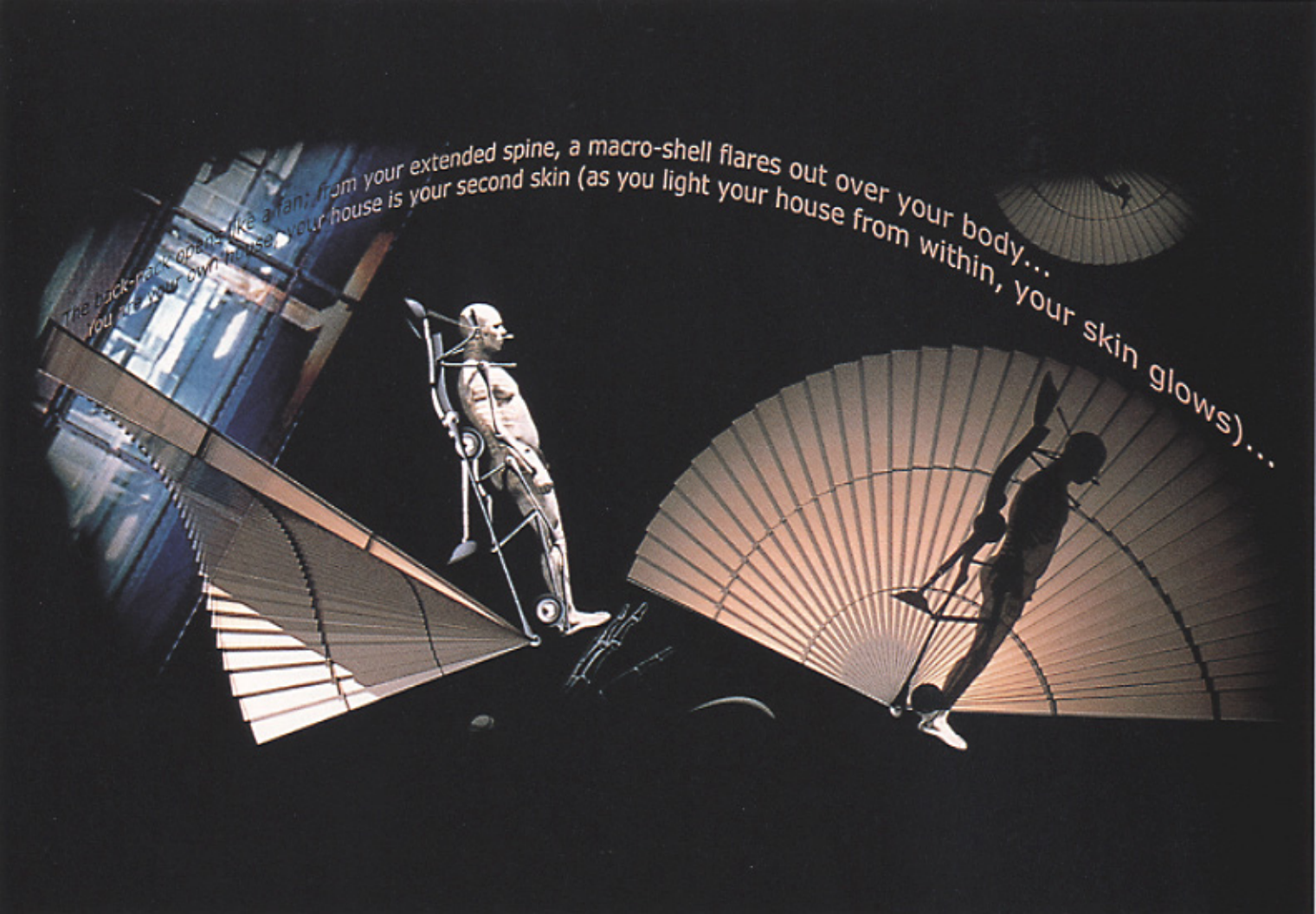
World in Your Bones (1998) is part of a print series for the MAK Center for Art and Architecture in Los Angeles titled 'Micro Space/Global Time'. Eight architects and architectural designers were asked to design digital (Iris) prints, which were produced by Muse X Editions. *World in Your Bones* has no physical existence beyond its representation as a series of prints. It is graphically beautiful: dynamically composed, El Lissitsky-like across the page, a superimposition of partial logarithmic (Platonic, equiangular, fiddlehead, snail-shell) spirals of images and texts, almost illegibly dense at the centre and barely halted by spiral-flung images of building, bus, train and aeroplane in the corners.

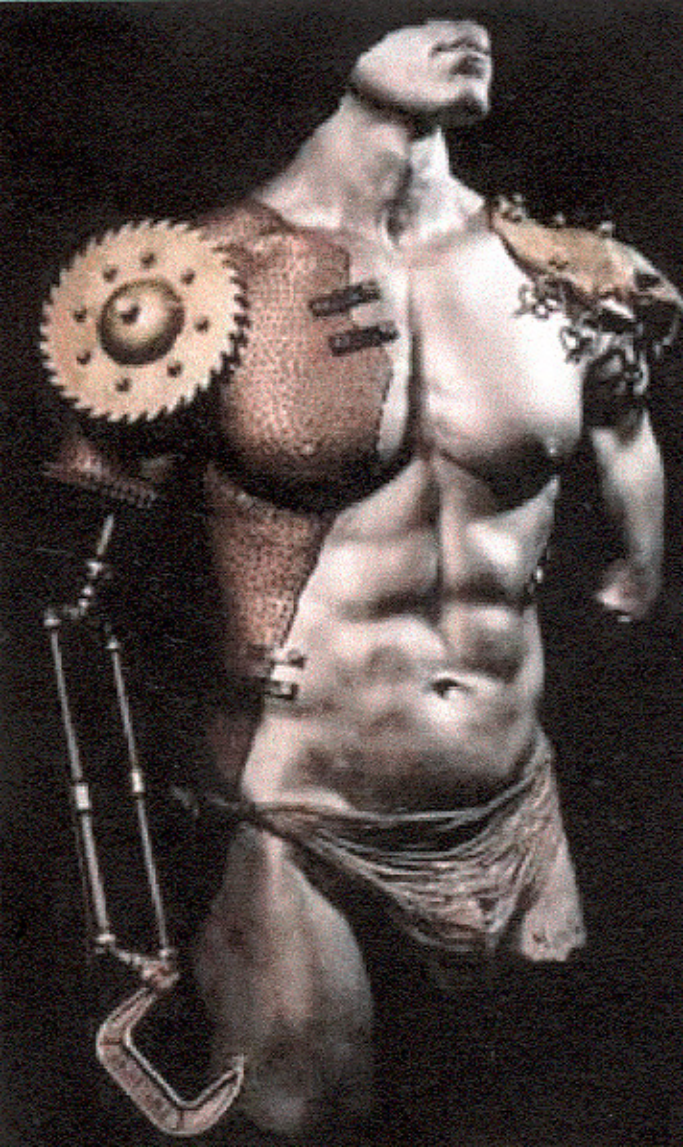
World in Your Bones is a picture, a composition of multiple repetitive images that describe a complex three-dimensional construction. We are meant to look at the picture in order to understand something. Were it a set of conventional architectural drawings,

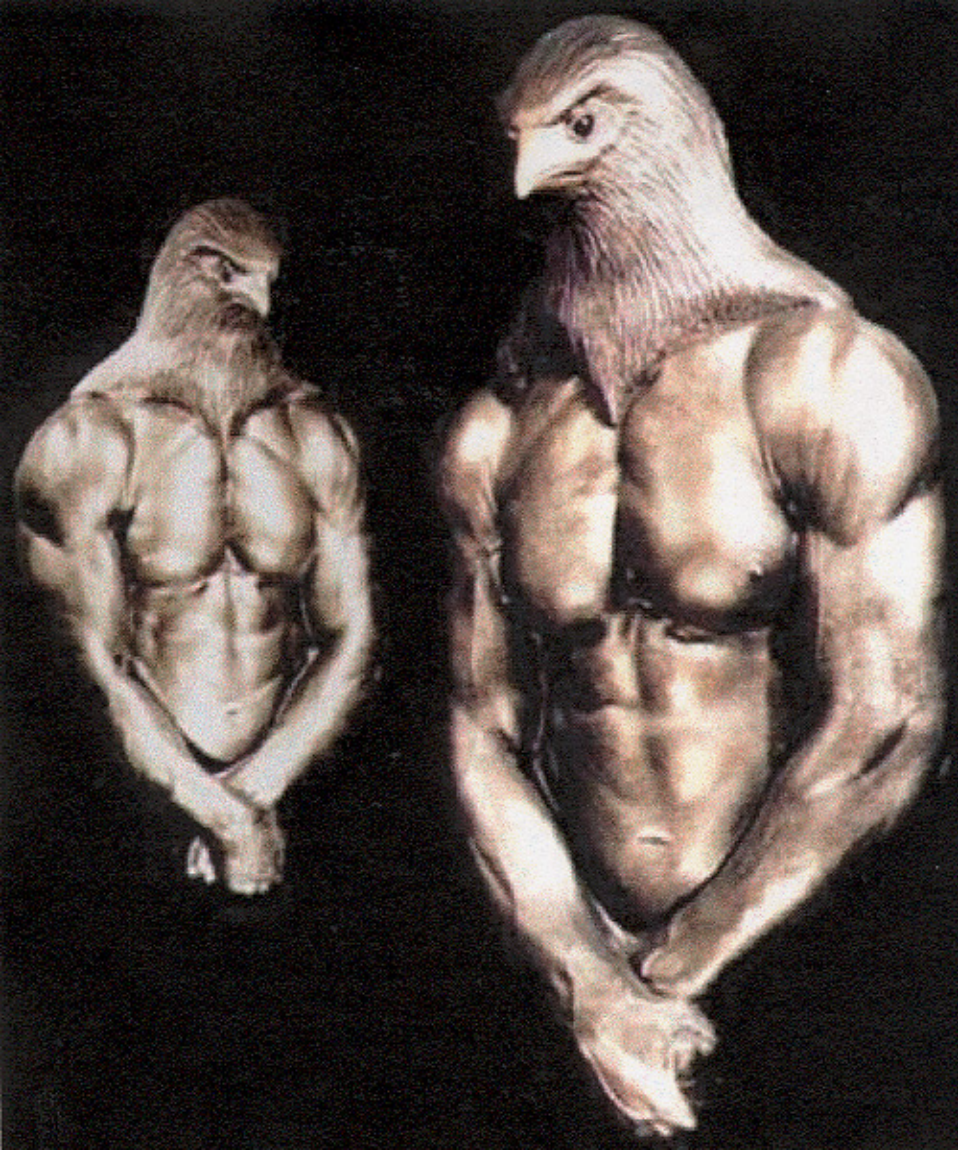


we would be expected to understand it as the projection of an as yet unbuilt construction. What is this fantasized construction? An exoskeletal apparatus of telescoping steel tubes and pins, light fanning panels, wheels, electromagnets and assorted gizmos hooked to a human body by 'cold steel hardware' embedded in its bones. It is: *'screwed into your bones, like a prosthetic skeleton. It lives on your back, on your limbs, on your head; it moves as you move, you barely notice it as you go about your business. When you feel some need, the plot thickens: the tubes slide, pivot, telescope out – you become your own chair,*


Pivot out your back-pack, and slide it down your backbone pipes;
telescope the pipes out, down to the ground--the back-pack
falls down with them, rotating outward as it descends...
Your back-pack telescopes; it stretches out behind you, as if you're inflating;
you make a place for yourself, you've set down the foundations of your house.


from your extended spine, a macro-shell flares out over your body...
your house is your second skin (as you light your house from within, your skin glows)...






月の神。　Ｏｒａｃｌｅ　Ｚｄ様
われ、この地を造り、月を司らんがために、この地に降り立つな
われの創造したもう民：アバタに、夢の祝福をぁぁぁ・・・
太陽の神。　Ｏｒａｃｌｅ　つを様
われ、この地の造り、太陽を司らんがために、この地に降り立つな
われの創造したもう民：アバタに、光の祝福をぁぁぁ・・


WorldsAway
Gate to the Dreamscape
Magic Door
Temple
Temple Street
Fountain
Orchid
Oak
Orchid Drive
Orchid Cul-de-Sac
Promenade
Cypress Street

Cybersex in *The Lawnmower Man.* © *1992 New Line Productions, Inc., and Allied Vision / Lane Pringle. All rights reserved. Photo by Douglas Kirkland; computer animation by Angel Studios, Carlsbad, CA. Photo appears courtesy of New Line Productions, Inc.*

FUTURE Sex

ISSUE • 2

CYBERSEX

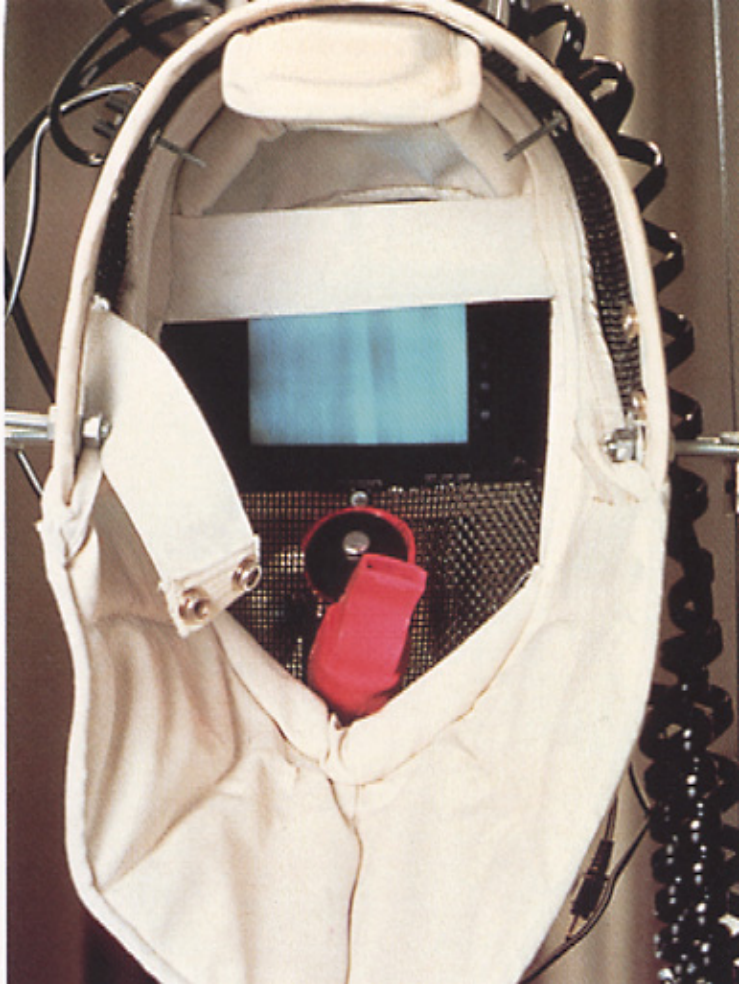
STRAP IN, TWEAK OUT, TURN ON!

SMART APHRODISIACS

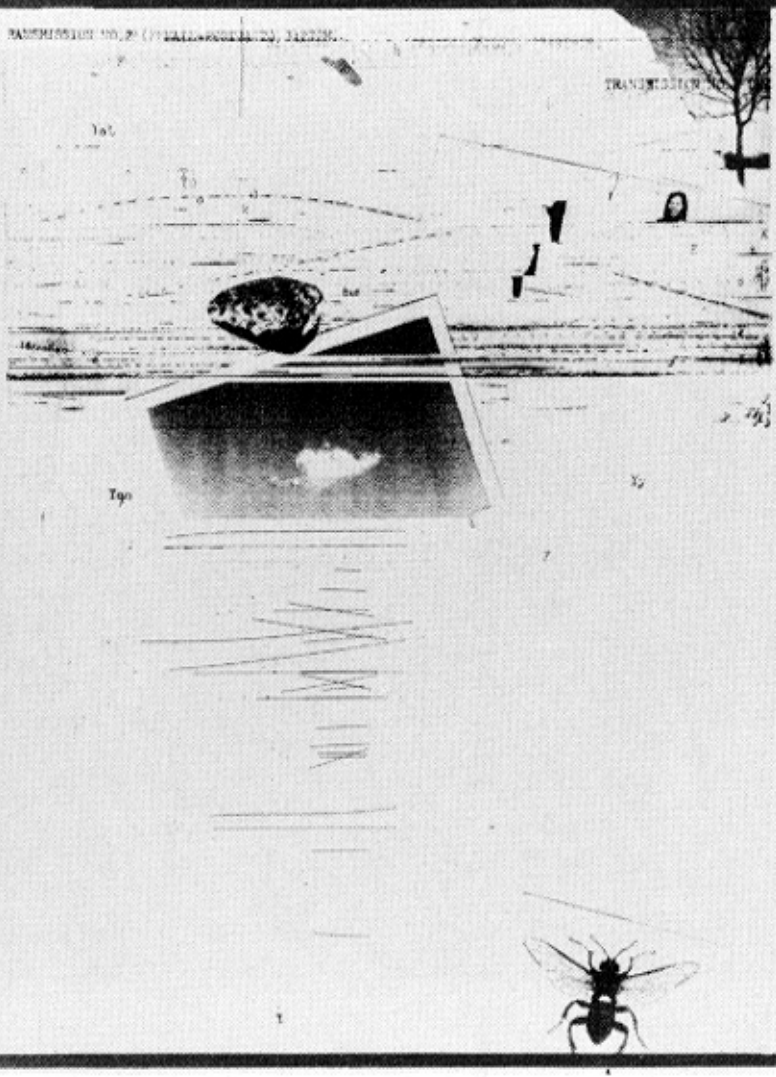
Voyeurism IN Black & White

$4.95 / Canada $5.95

It's a Dick Thing • Degradation for Hire • The Latest in Erotic Entertainment



Communication Art and Hypertexting



The outstanding artist and theoretician in the field of telematics, Roy Ascott, has put to good use the central feature of the video system, its ability to facilitate interaction via the electronic space of computer memory and beyond the normal constraints of time and space that apply to face-to-face communication. His projects employing telematic media and interactive participation have included *The Pleating of the Text: A Planetary Fairy Tale* (in homage to Roland Barthes' *The Pleasure of the Text*), devised for the 'Electra' exhibition at the Musée d'Art Moderne de la Ville de Paris in 1983. It involved the creation of a text by the 'dispersed authorship' of groups of artists located in eleven cities around the world, each group participating through an electronic network. The story developed gradually as each day a piece of text was logged in.

According to Forest, the Aesthetics of Communication Group addresses itself to the technologically sophisticated environment of advanced industrial society, and proposes critical and creative reforms which constitute a rupture with traditional solutions. It places itself at the heart of the changes that are affecting the fields of industrial and communication technologies, taking for its object of investigation the new sensibility brought about by the rapid exchange of information over long distances. The forms that this aesthetic activity takes are the staging of physical presence at a distance, the telescoping of the immediate and the delayed, the playfulness of interactivity, the combination of memory and real time, and planetary communication, as well as the detailed study of human social groupings. Forest informs us that Communication Artists are concerned to draw attention to the splendid future awaiting an inventive use of these developments.


Verkaufsbüro
QM-Kunstland


LA CONFÉRENCE DE BABEL

Another artist of the Aesthetics of Communication Group, Stéphan Barron, began by studying engineering but became, in his own words, a 'bricoleur' (handyman) of the new effects of media technology. Since 1983 he has created several performances using telefax and radio across the Atlantic.


MERIDIEN

Kit Galloway and **Sherrie Rabinowitz** (Mobile Image) *Virtual Space/ Composite Image – Space Dance from Satellite Art Project* (1977).
The image of Mitsu (with white hat) in Maryland was mixed with the image of her dance partners, Keija and Soto, in California, enabling them to dance together in the same live image.

LAISSEZ DE LA NOURRITURE AU MEME ENDROIT TOUS LES JOURS; PARLEZ AUX GENS QUI VIENNENT MANGER ET ORGANISEZ-LES.