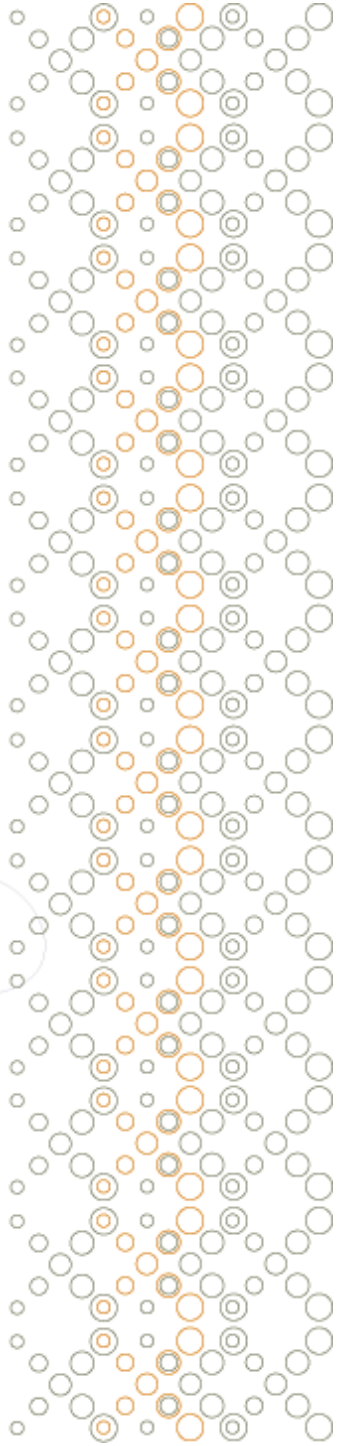
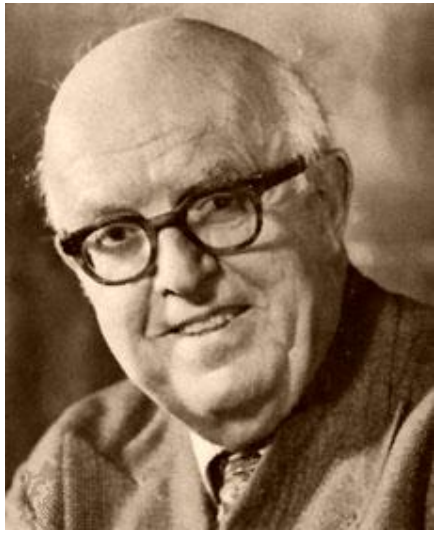
DXARTS 471

Lecture 1: Introducing Mechatronic Art

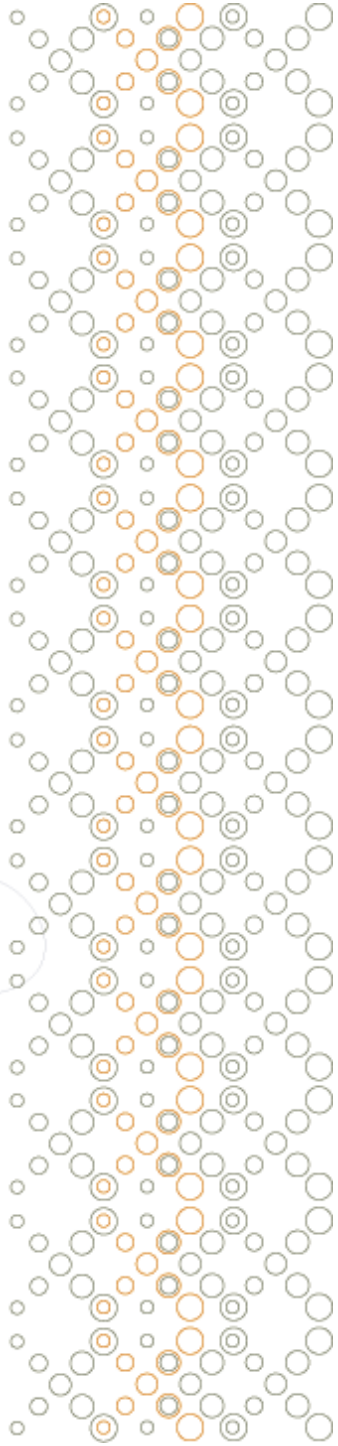


C.P. Snow: ‘The Two Cultures’ (1959)

“A good many times I have been present at gatherings of people who, by the standards of the traditional culture, are thought highly educated and who have with considerable gusto been expressing their incredulity of scientists. Once or twice I have been provoked and have asked the company how many of them could describe the Second law of thermodynamics. The response was cold: it was also negative. Yet I was asking something which is the scientific equivalent of: Have you read a work of Shakespeare's?”



So what is the second law of thermodynamics?



Time and movement

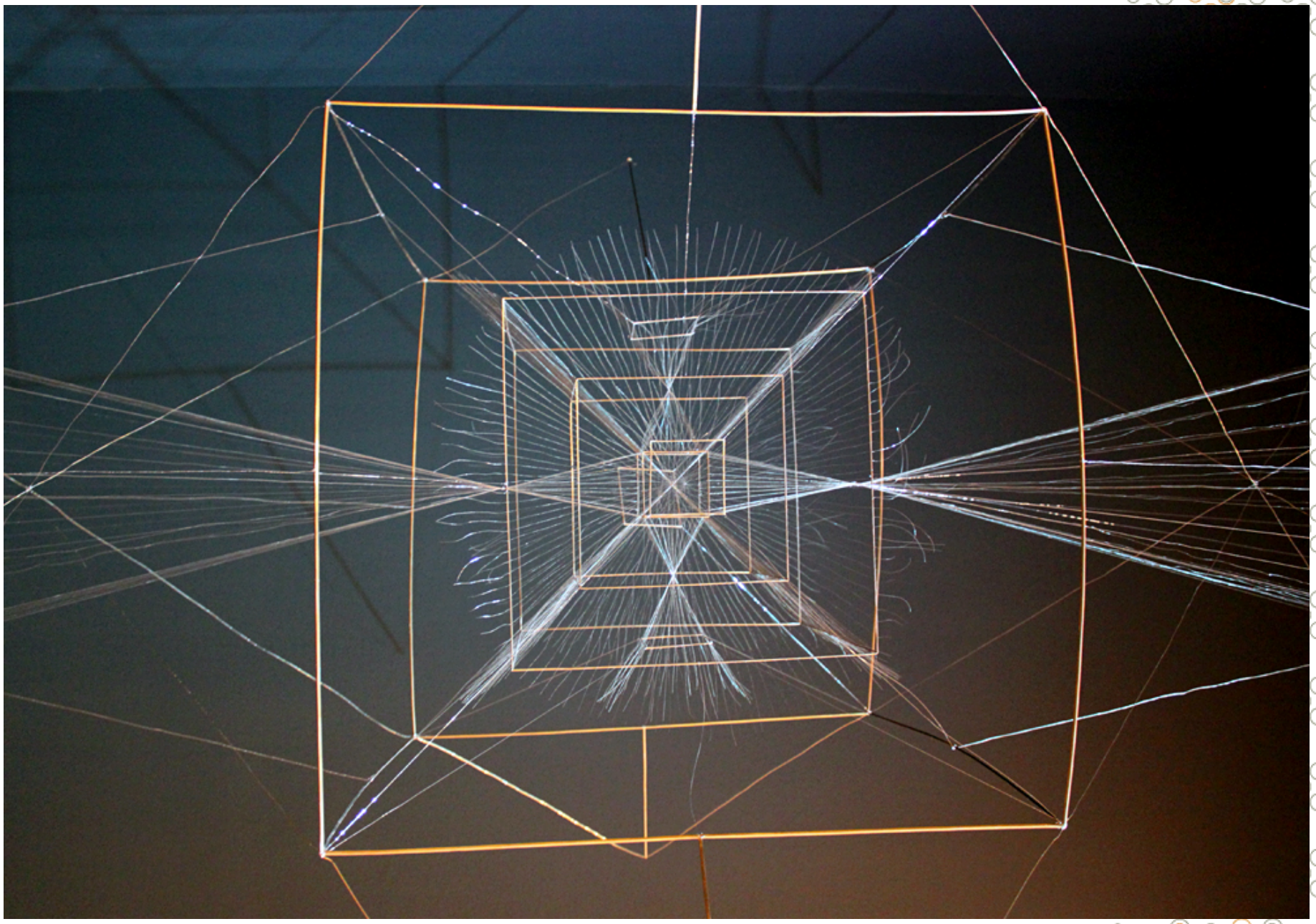
Bayeux Tapestry, c. 1476

Nike of Samothrace, 2nd Century BC

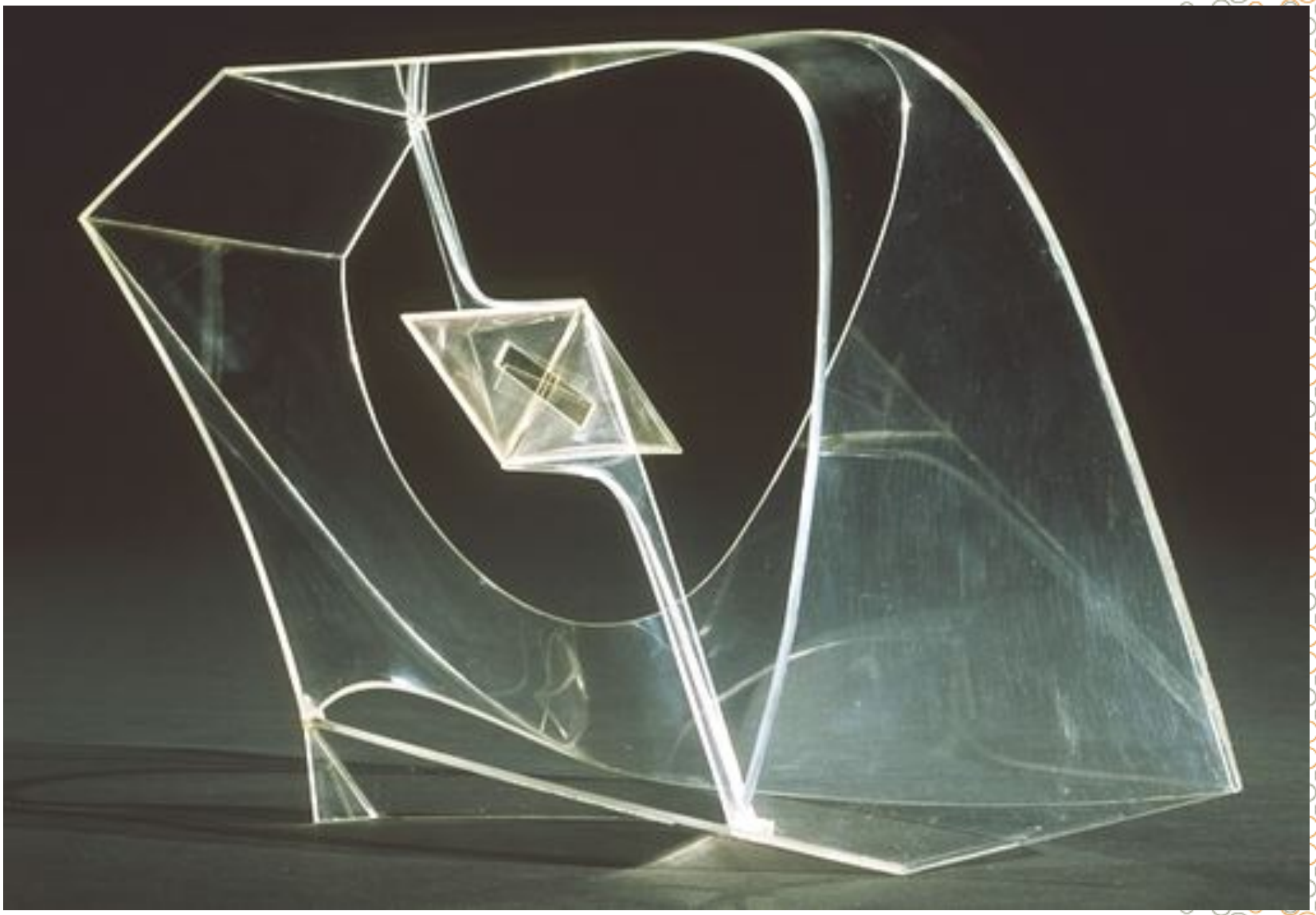
Tintoretto, *Miracle of the Slave*, 1548

Marcel Duchamp, *Nude Descending a Staircase*, 1912

Camille Pissarro, *Avenue de l'Opera*, 1898



Richard Lippold, *Variation Number 7 Full Moon*, 1950

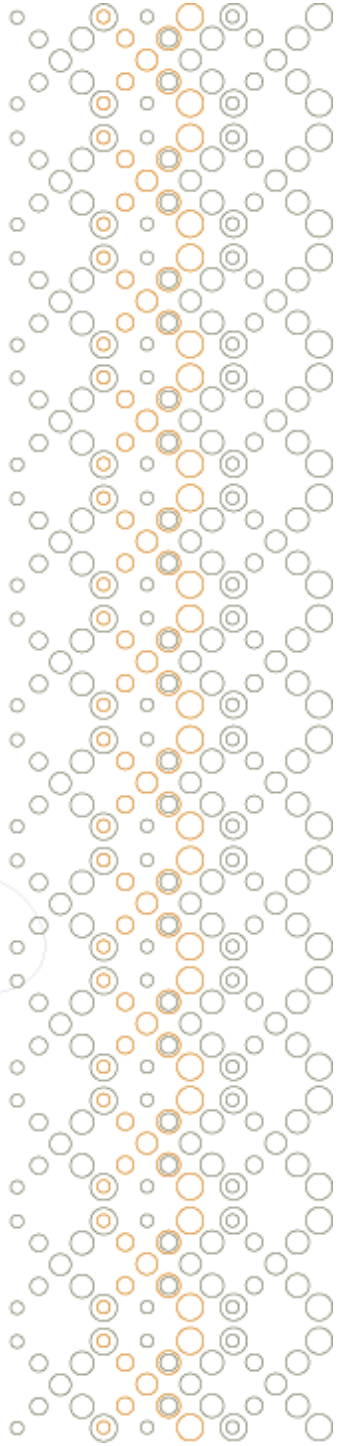


Naum Gabo, *Construction in Space with Crystalline Center*, 1938-40

Alexander Calder, *Triumphant Red*, 1959-63

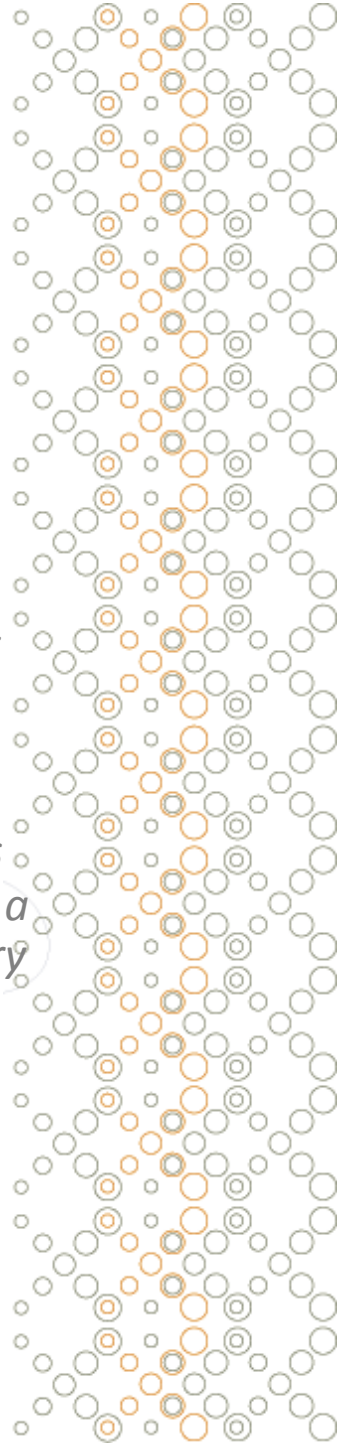
Art and Science

- Do these works reflect the scientific world views of their time?
- *What we find in art is less the expression of new scientific concepts than the negation of old assumptions. While science, today, limits itself to suggesting a probable structure of things, art tries to give us a possible image of this new world…* (Eco, *The Open Work*)
- How are art and science different?
- Read and discuss: “Science is more beautiful than art”



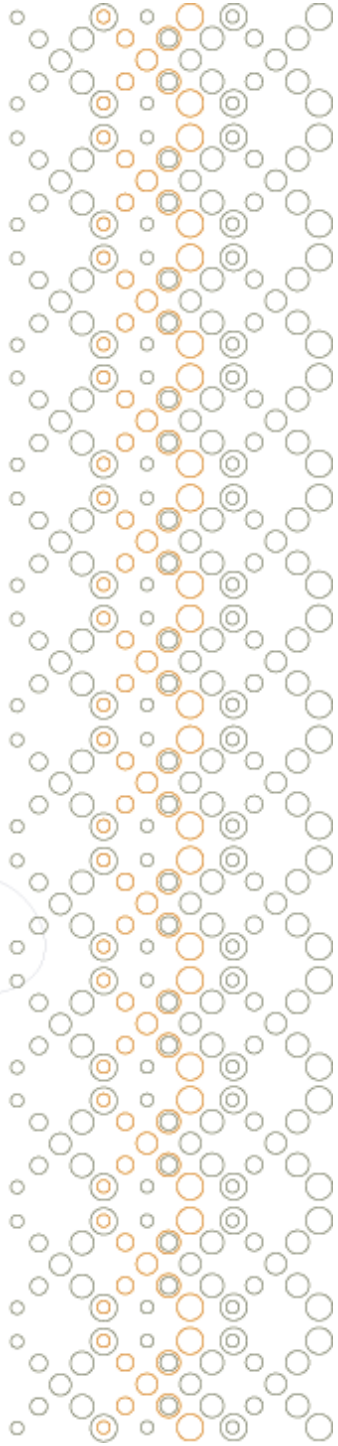
Art and Science

- Art and Science often share common tools and materials, and inevitably language:
  - Indeterminacy
  - Information
  - Entropy
- *When we encounter an artist who uses scientific terminology to define his artistic intentions we will not assume that the structures of his art are a reflection of the presumed structures of the real universe; rather, we will point out that the diffusion of certain notions in a cultural milieu has particularly influenced the artist in question, so that his art wants and has to be seen as the imaginative reaction, the structural metaphorization, of a certain vision of things (which science has made available to contemporary man).* (Eco, *The Open Work*)



A chaotic universe

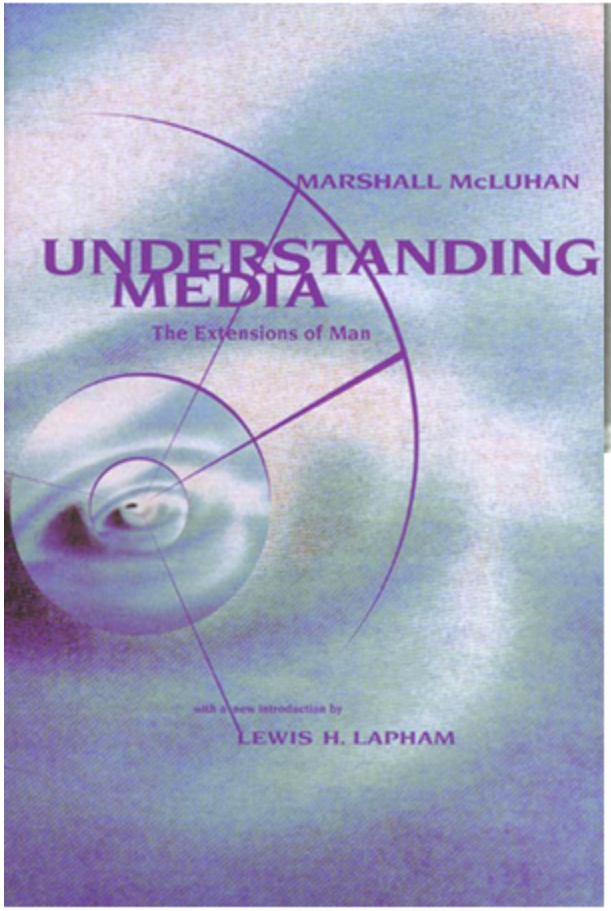
- Game Theory vs. Cartesian Rationalism
  - Zero-sum game or eternal truths?
- Information Theory
  - Meaning vs. information
  - How much information do we need to successfully communicate the meaning?
  - How do we know when it is not just noise?
  - Where are the clues to help us understand what we are experiencing?
- Artificial Intelligence
  - Are we as complicated as we think we are?
- Cybernetics / Feedback
  - Can a system 'learn'
- Heisenberg's Uncertainty Principle
  - Does the act of viewing change things?

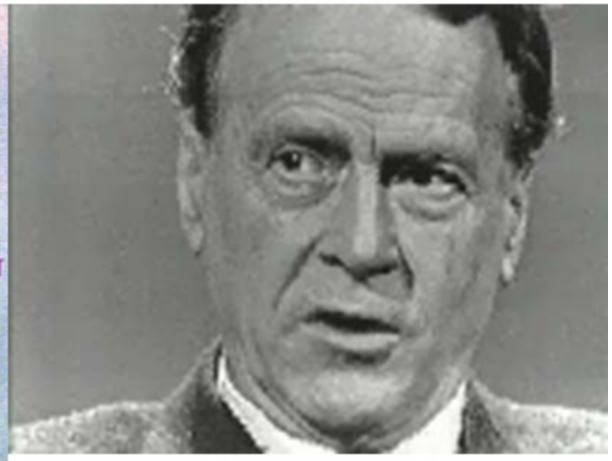


Mechatronic Art

- In Mechatronic Art, formal clues are not typically sufficient to 'get' the work
  - Change over time
  - Interactivity
  - Generative audio/video
  - Lights, etc.
  - Potentially unique for each viewer
- *The discontinuity of phenomena has called into question the possibility of a unified, definitive image of our universe; art suggests a way for us to see the world in which we live, and, by seeing it, to accept it and integrate it into our sensibility. The open work assumes the task of giving us an image of discontinuity. It does not narrate it; it <u>is</u>* it. (Eco, *The Open Work*)

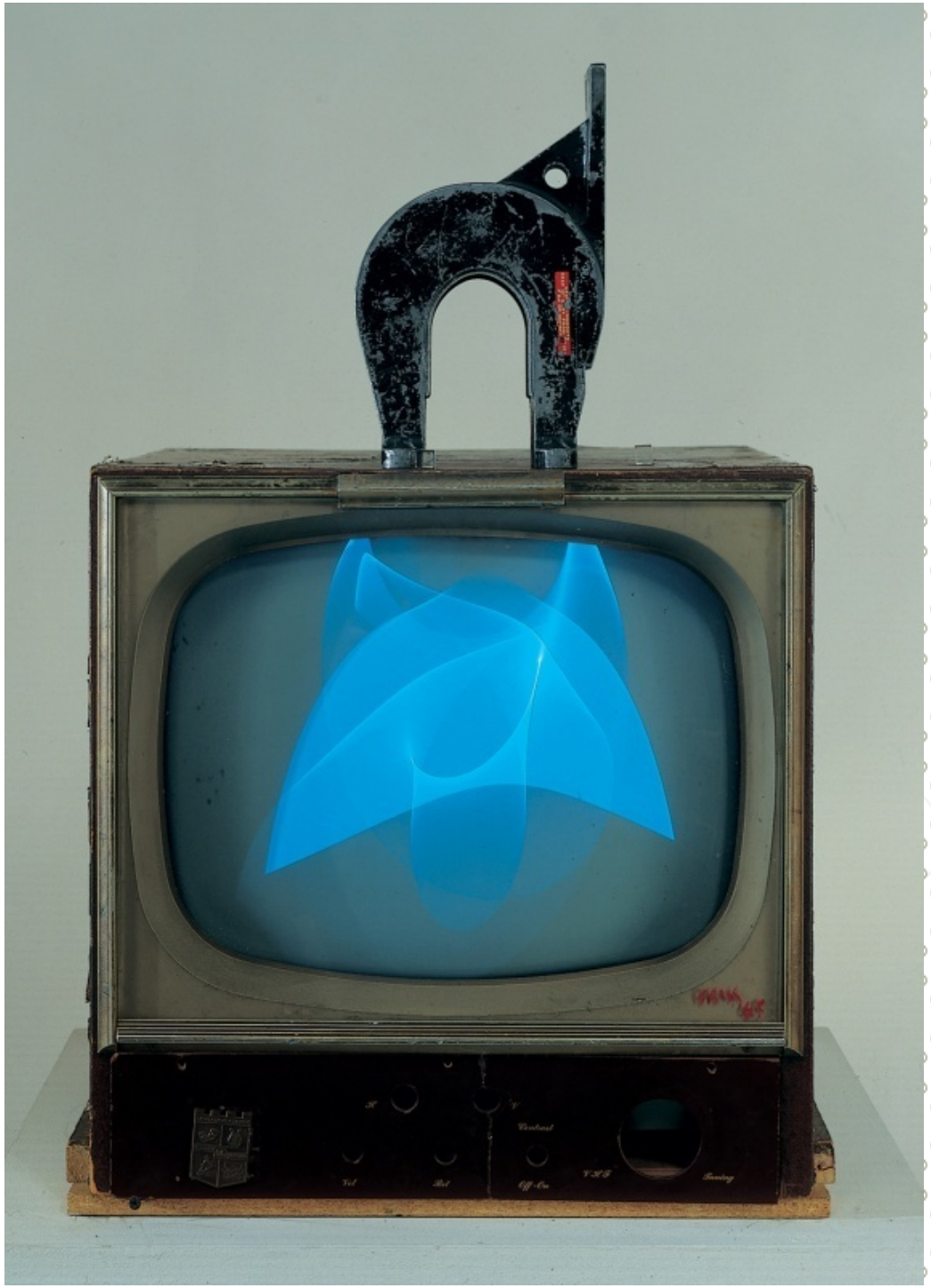
Marshall McLuhan: The Medium is the Message





The medium is the message, therefore the audience is the content.

Marshall McLuhan, 1964

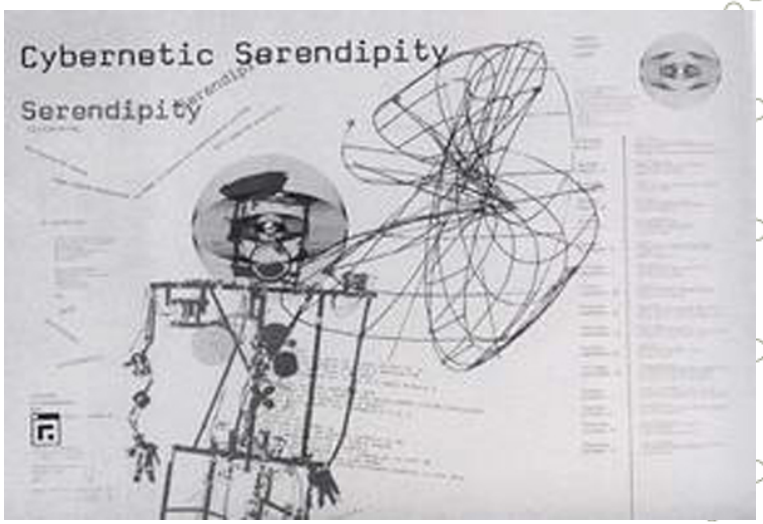


Nam June Paik, *Magnet TV*, 1965

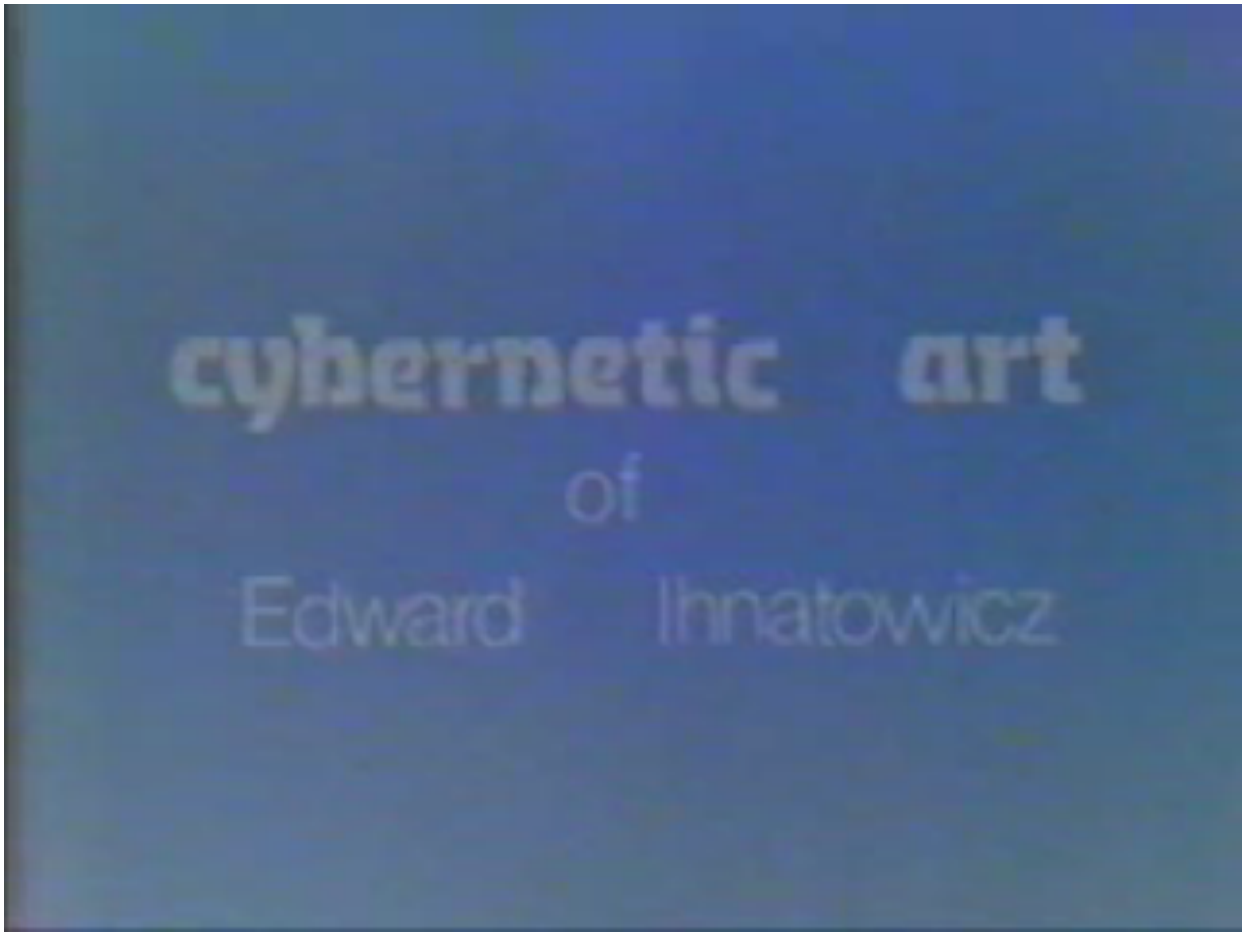
Bruce Nauman, *Live-Taped Video Corridor*, 1970

From Theatre and Engineering to Cybernetic Serendipity…

- Cybernetic Serendipity (1970)
- Software (1970)
- Information (1970)
- Nine Evenings (1966)

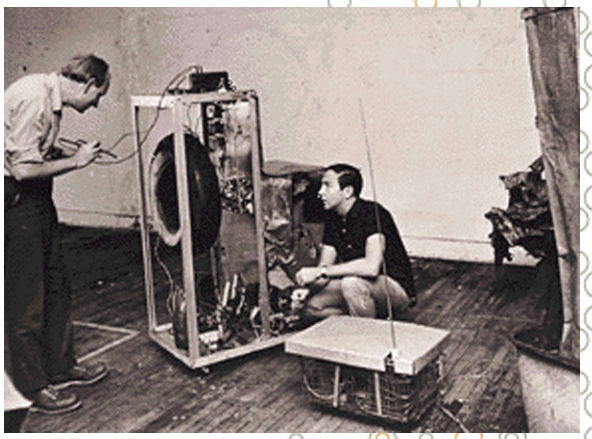


- The Machine as Seen at the End of the Mechanical Age (1968)
- Explorations (1970)



Edward Ihnatowicz, *Senster*, 1970

Billy Kluver: *Nine Evenings: Theatre and Engineering* (1966)



- Artists were paired with Engineers
- Kluver was interested in the value of process as art
  - Project development
  - Research and production
  - Collaborative relationship
  - Audience Responses
  - Critic feedback
  - Ongoing experiment rather than finished object
- Nine Evenings included John Cage, Robert Rauschenberg, Robert Whitman, David Tudor.
- "Working with engineers is inspiring. I could not do what I wanted to do without them. It is no longer possible to by-pass the whole area of technology. We have no assurance, for example, that buildings will have walls for much longer. I can foresee art schools giving courses in electronics and vacuum mouldings. We can't afford to wait. We must force a relationship with technology in order to continue and we must move quickly. The most positive thing I can say is that technology does not lead us back into history, but advances us into the unknown."

  Robert Rauschenberg (1966)

Nine Evenings: Theatre and Engineering

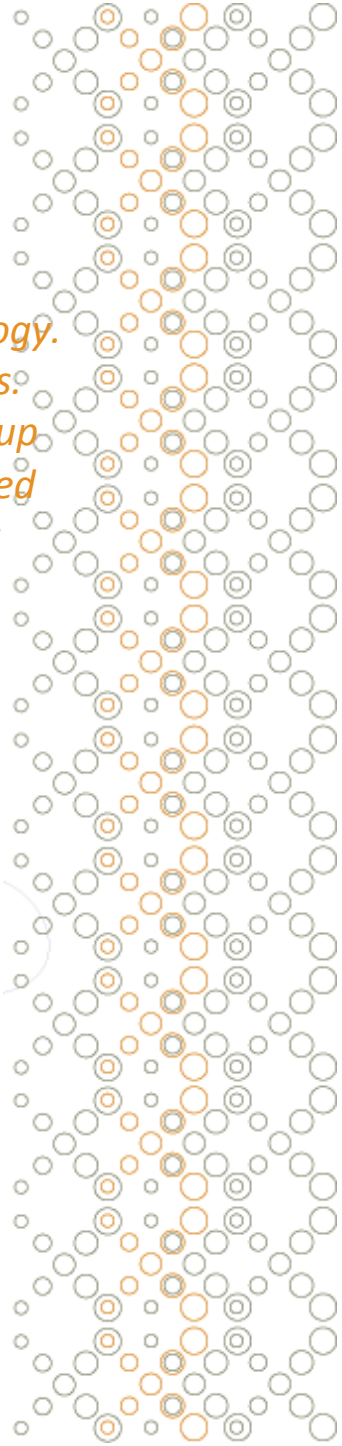
Robert Rauschenberg: *Open Score* (1966)

Towards an Aesthetics of Disappointment

- *Art's latest derangement at the 25th Armory seemed like The Funeral of Technology. Everything electrical and mechanical was buried under various esthetic mutations. The energy of technology was smothered and dimmed. Noise and static opened up the negative dimensions. The audience steeped in agitated stagnation, conditioned by simulated action, and generally turned on, were turned off. This at least was a victory for art.* (Robert Smithson)

- *It is only the final result that counts* (Lucy Lippard)

- *Few if any had the prescience to appreciate the events for what they were: man-made systems with a completely different set of values from those found in structured dramatics or the one-night kinetic spectacular… This suggests that systems-oriented art - dropping the term 'sculpture' - will deal less with artifacts contrived from their formal value, and increasingly with men enmeshed with and within purposeful responsive systems.* (Jack Burnham)



Experiments in Art and Technology (EAT)

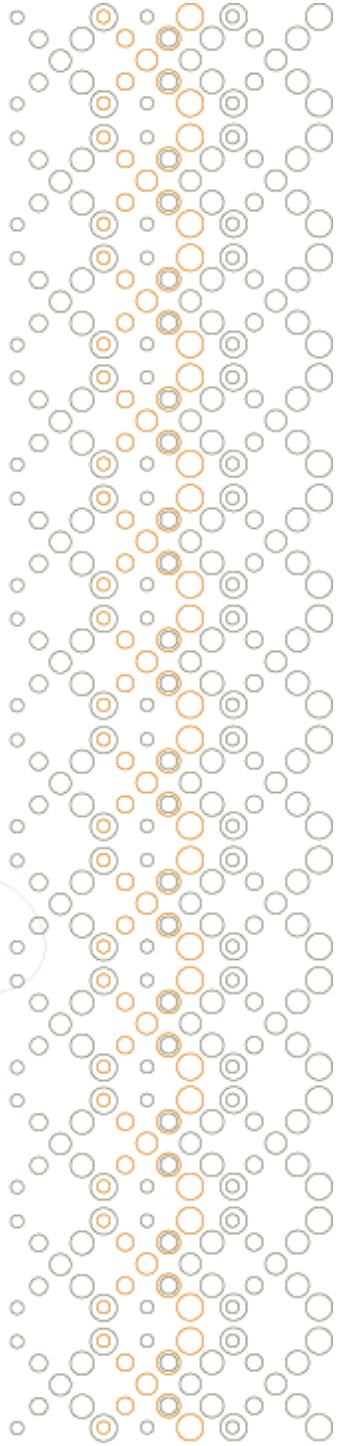
- First meeting took place in Rauschenberg's loft in 1967, promoted by a New York Times advert titled *"Art and Science Proclaim Alliance in Avant-Garde Loft"*
- EAT was funded by NEA, Rockefeller, ARCO, Bell Labs

Burnham: Beyond Modern Sculpture (1968)

- Focuses upon sculpture's tradition of attempting to 'replicate life':
  - Statues
  - Clockwork automata
  - Robots
  - Artificial intelligence
- At odds with aims of modernism
- Cybernetics + art = the ultimate stage of sculpture
- [Artists and scientists shared] *… an unstoppable craving to wrest the secrets of natural order from God -- with the unconscious aim of controlling human destiny, if not in fact becoming God itself. The machine, of course, is the key to this transference of power. If it constructs our destiny, it can do no less than become the medium through which our art is realized.*
- Tension between Burnham's utopianism and the reality of the political technocracy

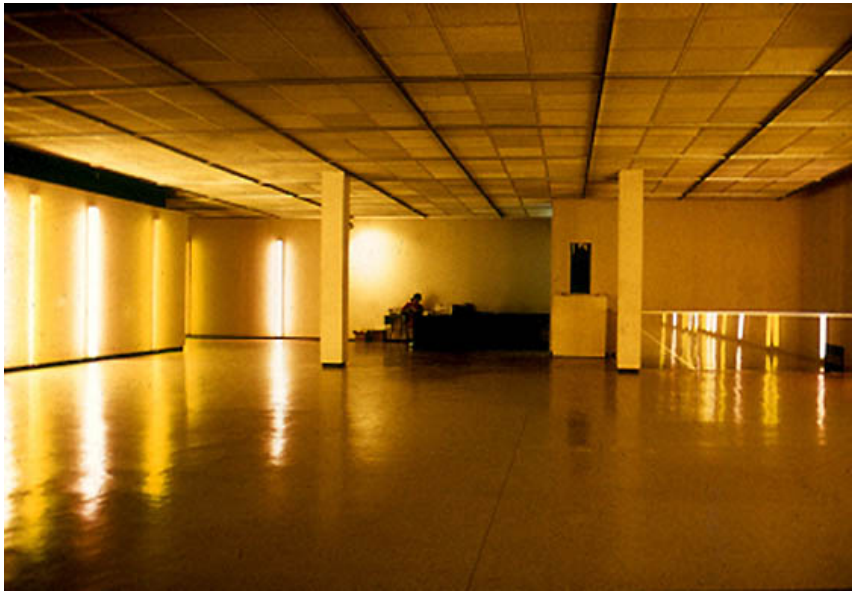
System Aesthetics: Early 20th Century Influences

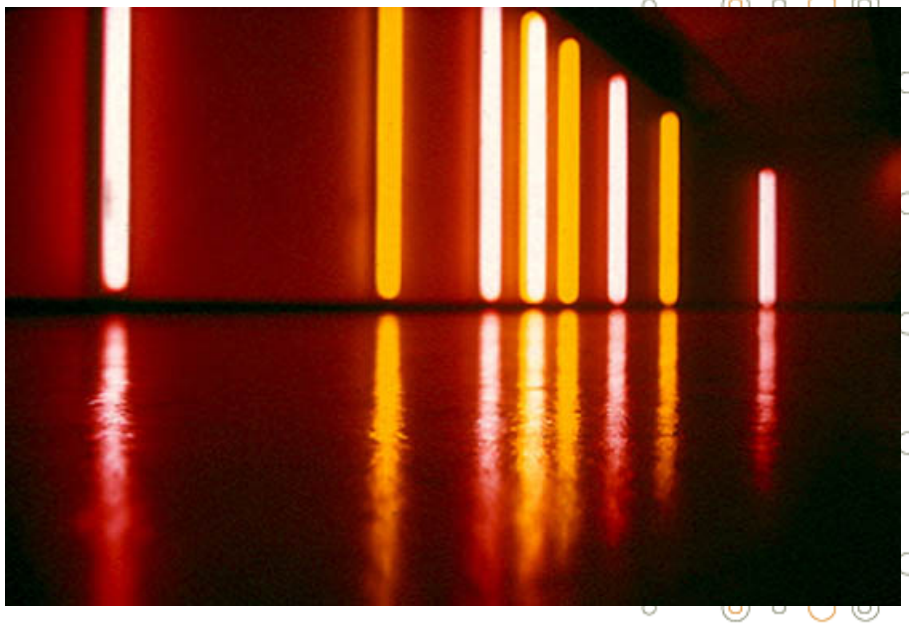
- Ludwig von Bertalanffy, 'General Systems Theory' (1928)
  - Challenged the idea that examination of parts would reveal function of the whole
  - All things should be seen as systems
  - "*A set of relationships in action*"
  - *open* vs. *closed* systems
- Norbert Wiener, 'Cybernetics: or Control and Communication in the Animal and the Machine' (1948)
  - Feedback loops
  - Non-linear behaviors
  - Homeostasis
  - Self-contained / self regulatory systems
- Chaos, randomness, uncertainty in parts can only be understood through analyzing the total system



System Aesthetics

The components of a particular exhibition upon its termination are replaced in another situation. Perhaps put into non-art as part of a different whole in a different future. Individual units possess no intrinsic significance beyond their concrete utility. It is difficult either to project into them extraneous qualities, a spurious insight, or for them to be appropriated for fulfillment or personal inner needs. The lights are untransformed. There are no symbolic transcendental redeeming or monitary added values present. (Dan Flavin, 1967)





Dan Flavin, *Pink and Gold* (1967)

Software -- Information Technology: Its New Meaning for Art

Hans Haacke, *Visitor's Profile*

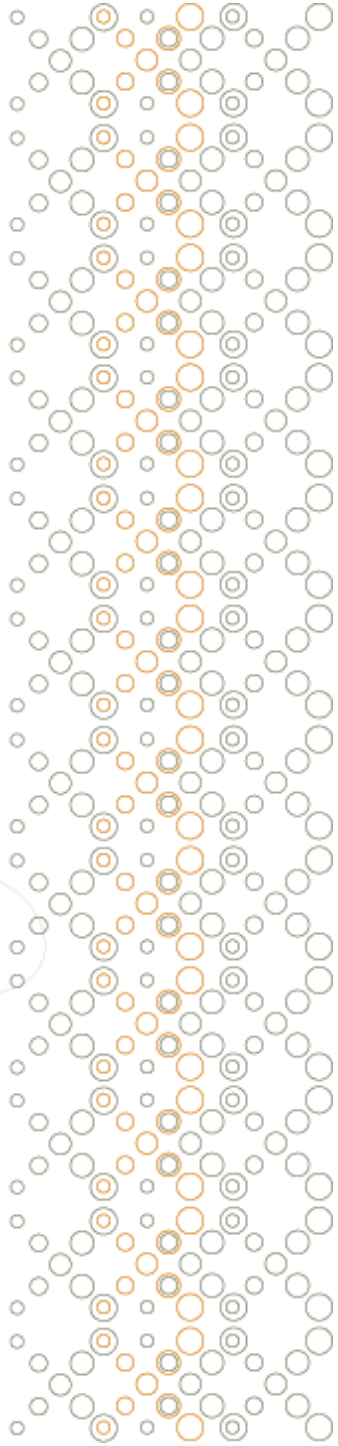
Software -- Information Technology: Its New Meaning for Art

- *"Should the use of marijuana be legalized, lightly or severely punished?"*

- *"Assuming you were Indochinese, would you sympathize with the present Saigon regime?"*

The processing speed of the computer makes it possible that at any given time the statistical evaluation of all answers is up to date and available. The constantly changing data is projected onto a large screen, so that it is accessible to a great number of people. Based on their own information a statistical profile of the exhibition's visitors emerges...

Hans Haacke, 1970



Software -- Information Technology: Its New Meaning for Art

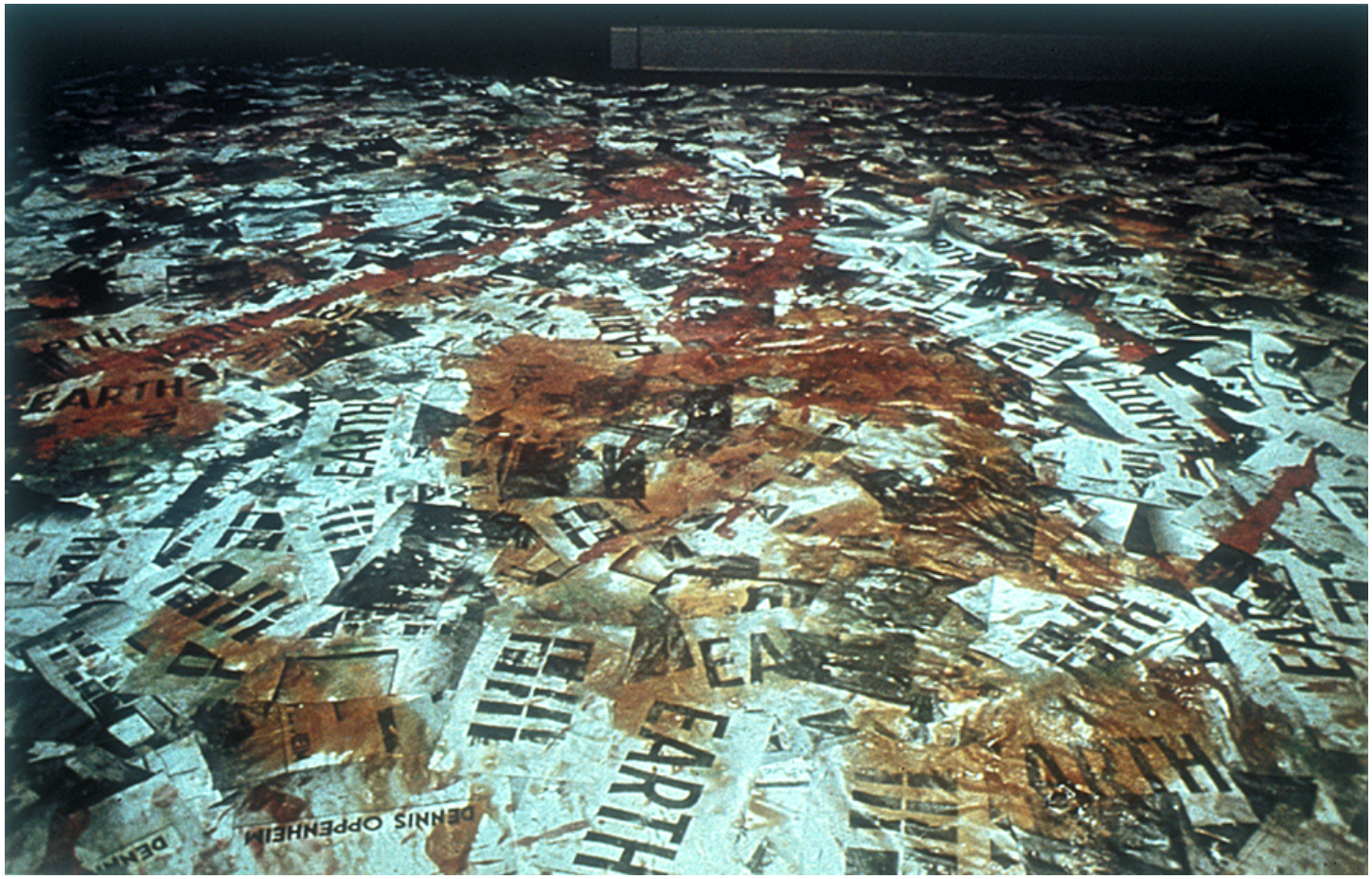
Vito Acconci, *Following Piece* (1969)

Software -- Information Technology: Its New Meaning for Art

All activities which have no connection with object or material mass are the result of software. Images themselves are hardware. Information about these images is software... In many cases an object is of much less value than the software concerning the object. The object is the end of a system. The software is an open continuing system. The experience of seeing something first hand is no longer of value in a software controlled society, as anything seen through the media carries just as much energy as first hand experience. We do not question whether the things that happen on radio or television have actually occurred. The fact that we can confront them mentally through electronics is sufficient for us to know that they exist... In the same way, most of the art that is produced today ends up as information about art.

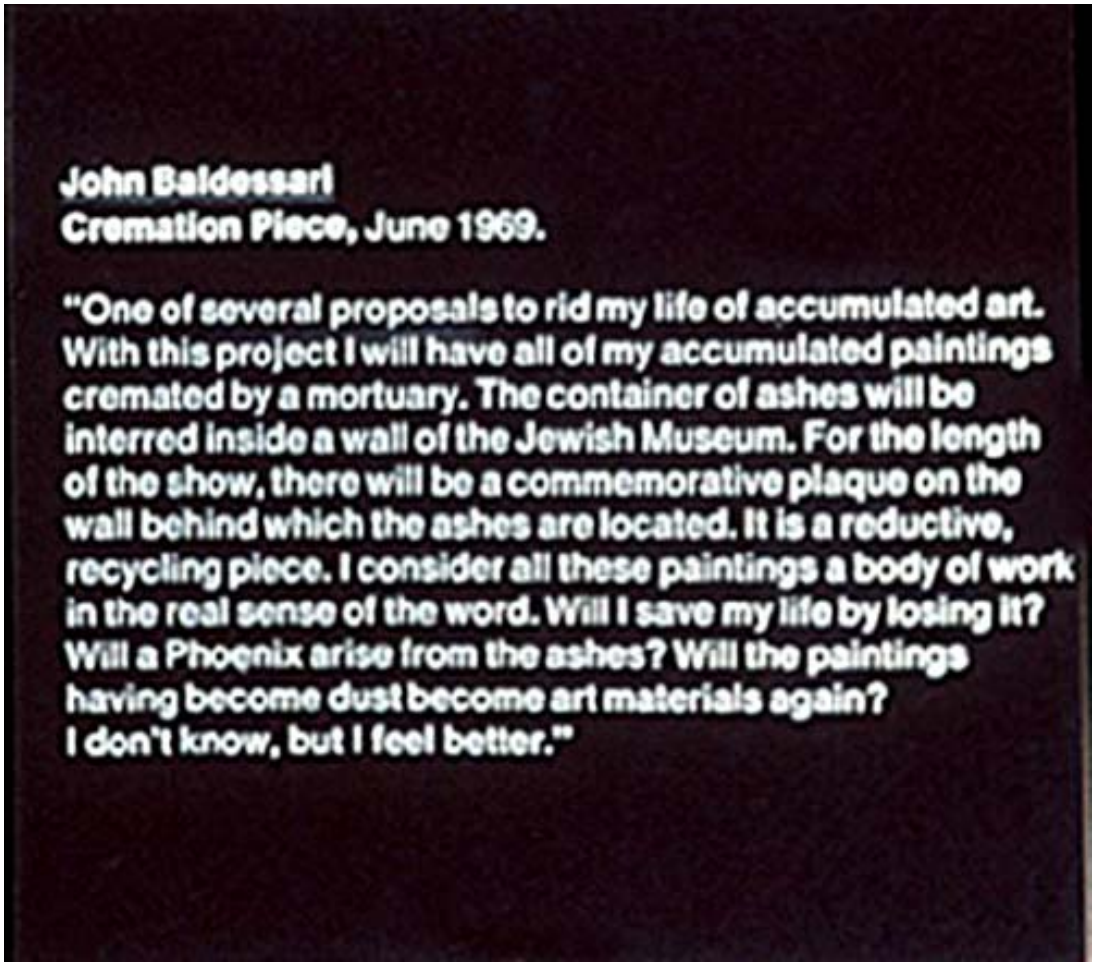
Les Levine, 1969

Software -- Information Technology: Its New Meaning for Art



Les Levine, System Burn-off X Residual Software (1969)

Software -- Information Technology: Its New Meaning for Art



John Baldessari, *Cremation Piece* (1969)

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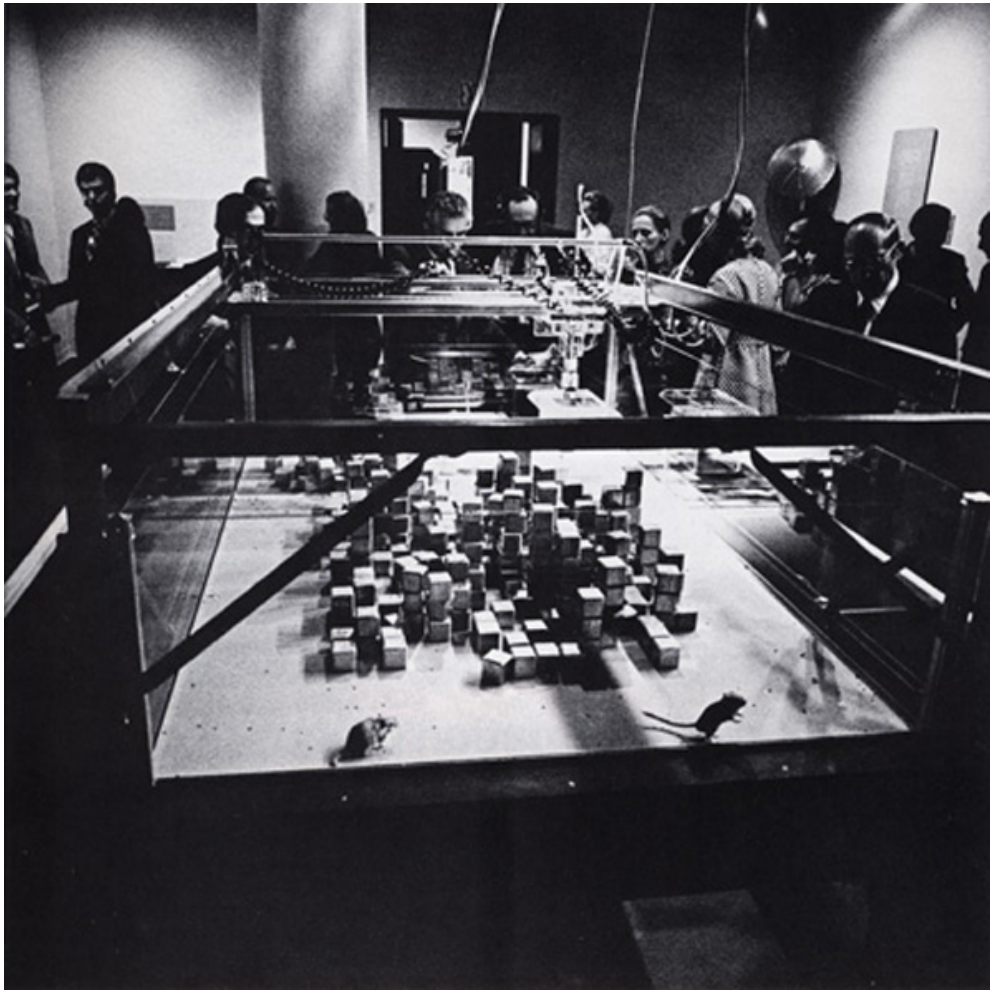
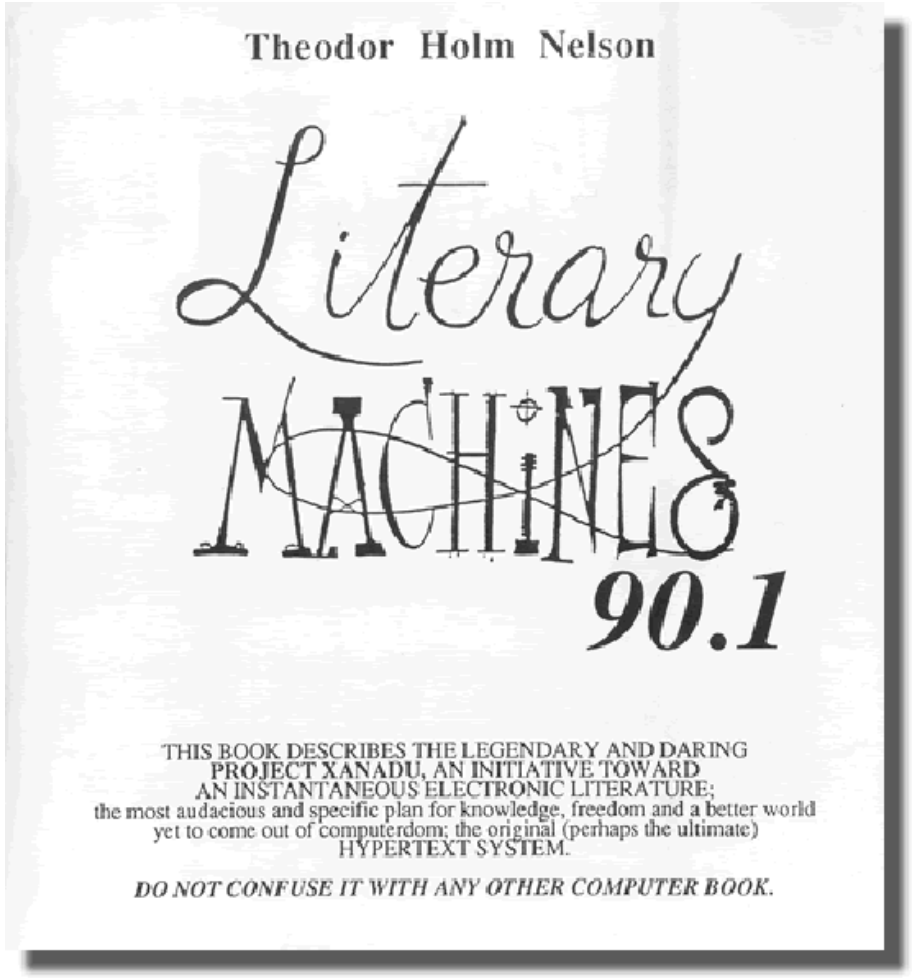


Architecture Machine Group, *Seek* (1970)

Software -- Information Technology: Its New Meaning for Art

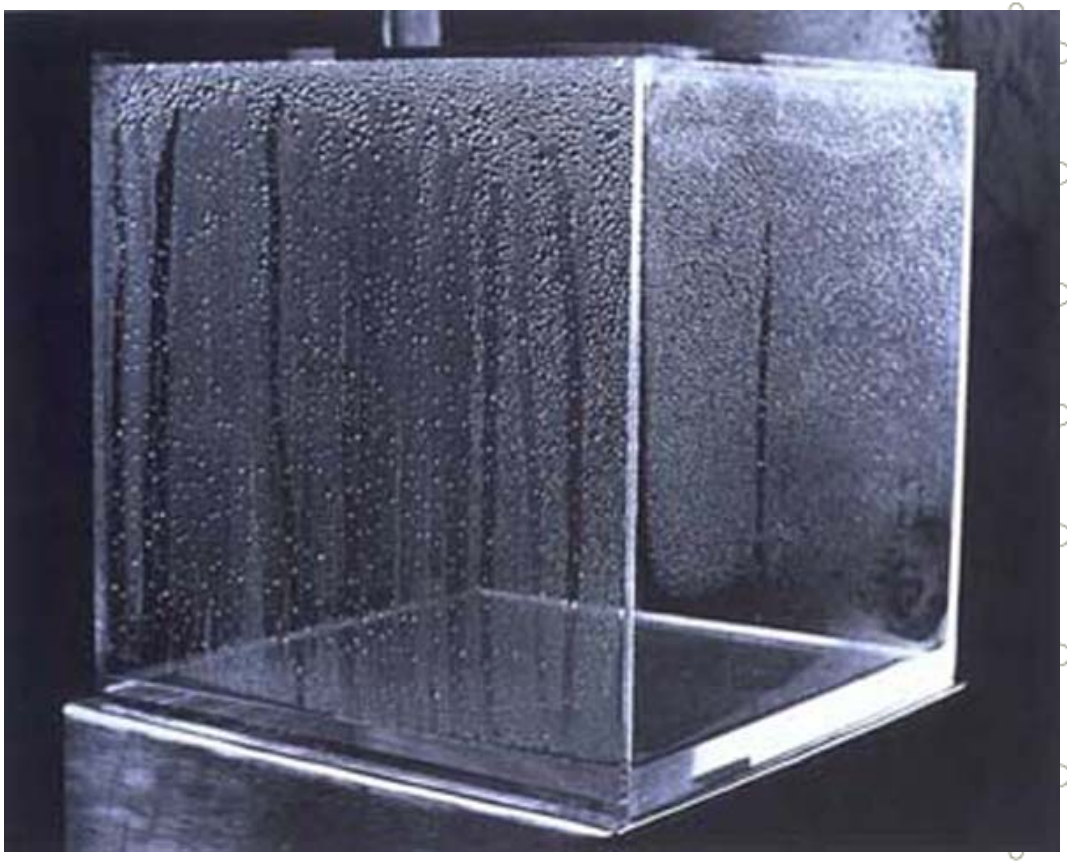


Ned Woodman & Theodore Nelson, *Labyrinth* (1970)

Burnham: *Systems Esthetics* (1974)

- Transition from an "object-oriented to a systems oriented culture"
- Systems Art has three essential characteristics:
  - I. Systems Art uses an *open* system

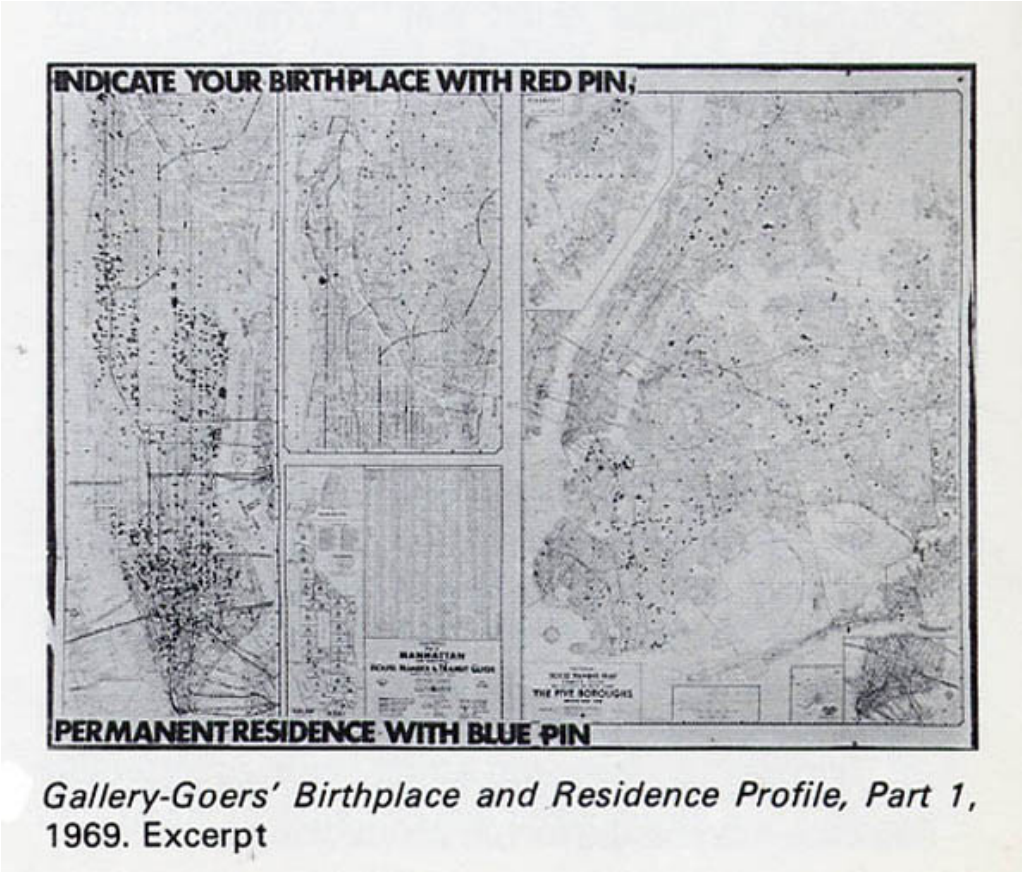
• the role of the artist in the system aesthetic is as an agent, *'considering goals, boundaries, structure, input, output, and related activity inside and outside the system'*



Hans Haacke, *Condensation Cube* (1963-5)

Burnham: *Systems Esthetics* (1974)

- II. Denial of Visual Experience
  - " in a systems context invisibility, or invisible parts share equal importance with things seen."



Gallery-Goers' Birthplace and Residence Profile, Part 1, 1969. Excerpt

Hans Haacke, *Residence Profile* (1969)

9 *News*, 1969/70

Hans Haacke, *News* (1969-70)

Burnham: *Systems Esthetics* (1974)

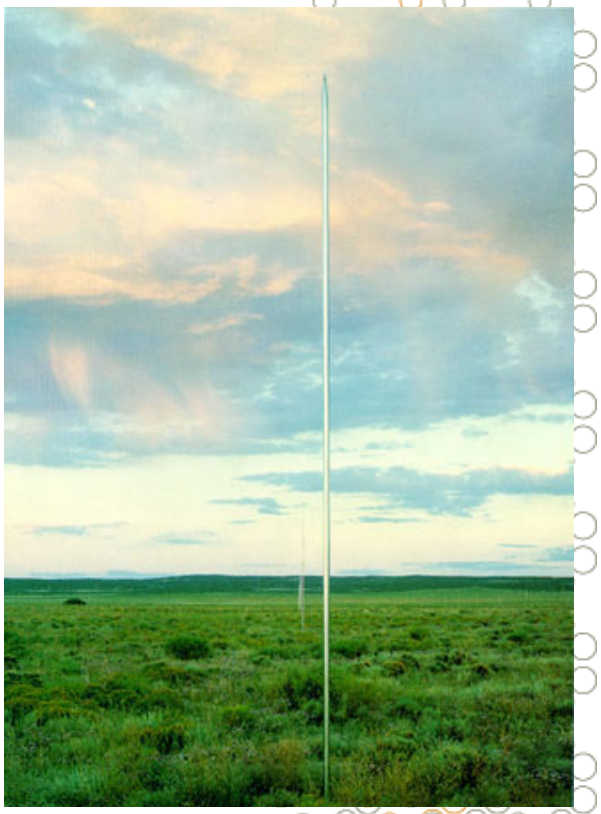
- III. Systems Art has a tangible material quality: i.e. it is an 'experience'

… systems-oriented art… will deal less with artifacts contrived from their formal value, and increasingly with men enmeshed with and within purposeful responsive systems. Such a change should gradually diminish the distinction between biological and non-biological systems, i.e. man and the system as similarly functioning but organizationally separate entities. The outcome will neither be the fragile cybernetic organisms now built nor the cumbersome electronic environments just coming into being. Rather, the system itself will be made intelligent and sensitive to the human invading its territorial and sensorial domain.

Robert Smithson, *Spiral Jetty* (1972)

Art as Experience

- Site-specific art
  - An exchange between a work and its locale
  - Embedded realities
- Where is the site of experience for mechatronic art?
  - “Art is a state of encounter” (Bourriaud)
  - Online/Offline
  - Physical/Virtual
  - Imagined/Embodied

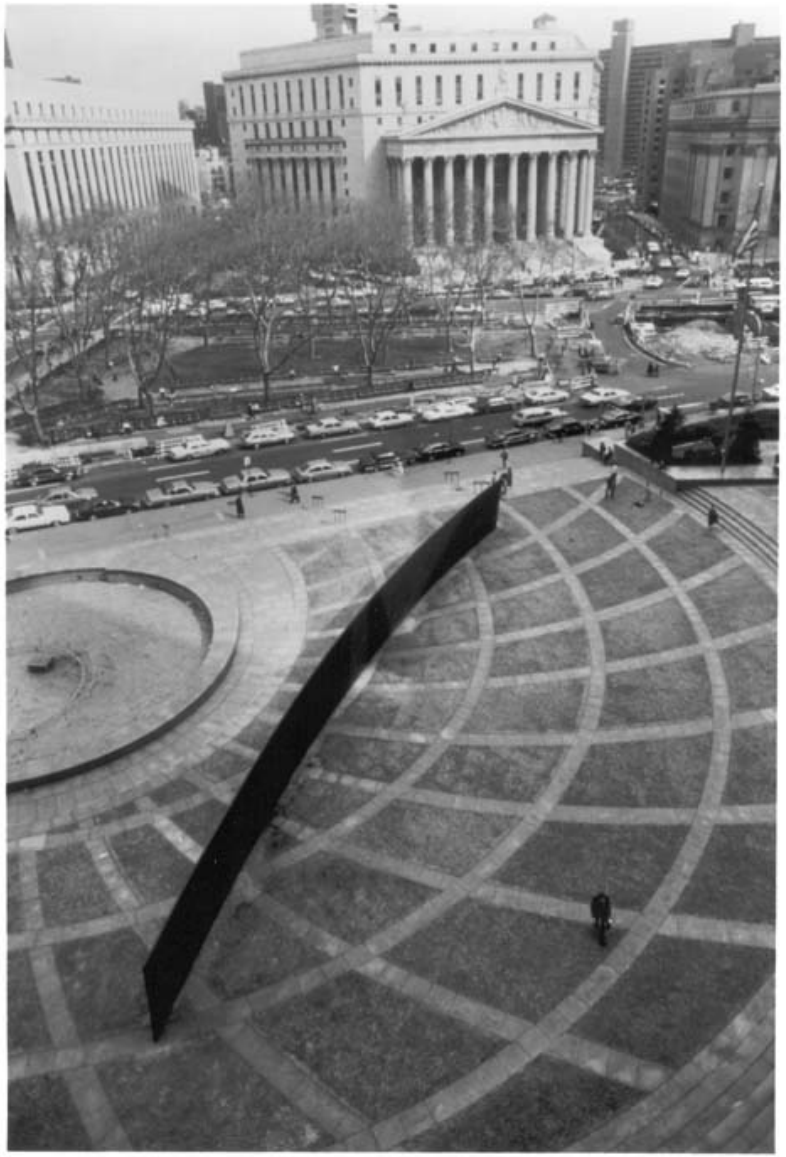


Site-Specific Art

- What does site-specific art mean today?
  - Proof that people do not understand its historical context.
  - A renewed interest in anti-idealist/anti-commercial practices
  - That there is more to be done with site-specificity
- Early examples
  - Hans Haacke, *Condensation Cube* (1963)
  - Robert Smithson, *Partially Buried Woodshed* (1970)
  - Walter de Maria, *Lightning Field* (1977)
- Common Features
  - Work is determined by the site
  - What is unique about the site?

Physical Specificity

- The *position* of the work
  - "To move the work is to destroy the work" (Richard Serra, 1984)
  - "The works become part of the site and restructure both conceptually and perceptually the organization of the site" (Serra, 1989)
  - Anti-modernist
- Site features
  - Inherent properties
  - Length/depth/height/texture/smell/ materials
  - Lighting/scale/patterns
  - Formal relationship between work and site
- Art Now
  - The work is indisputably present, not in its own autonomous space
  - Spatial/temporal relationship with people's everyday lives



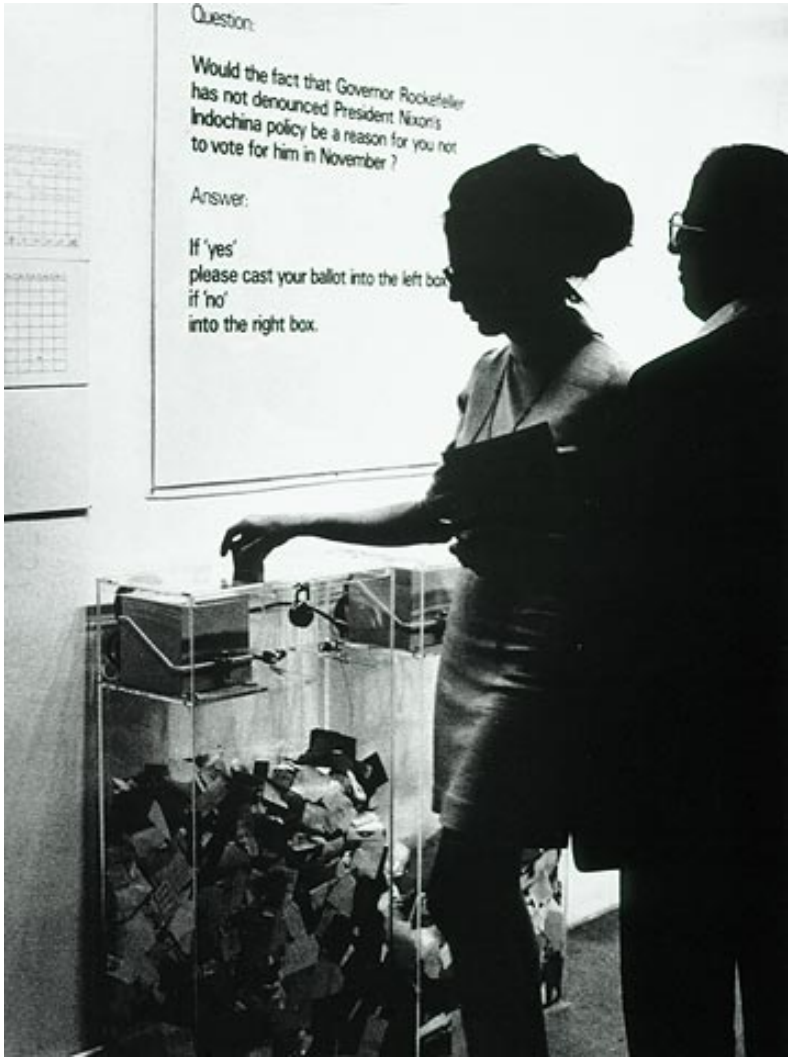
Richard Serra, *Tilted Arc* (1981)

Institutional Specificity

- *To control a museum means precisely to control the representations of a community and its highest values and truths.* (Carol Duncan, 1998)
- The context in which art is presented
  - 'Neutral' white cube gallery space
  - Lighting, temperature, wall dimensions
  - Commercial/economic systems
  - Presentational paradigms
  - Politics of space/place
- De-coding/Re-coding
  - Work that subverts the function and politics of the institution
  - Work that reveals the underlying system of the institution
  - Such work privileges process over physical objects
  - Temporary and ephemeral
  - Sculpture in reverse: a challenge to modernist sensibilities

Mel Bochner, *Measurement Room* (1969)

Institutional Specificity



Hans Haacke, *MOMA-Poll* (1970)

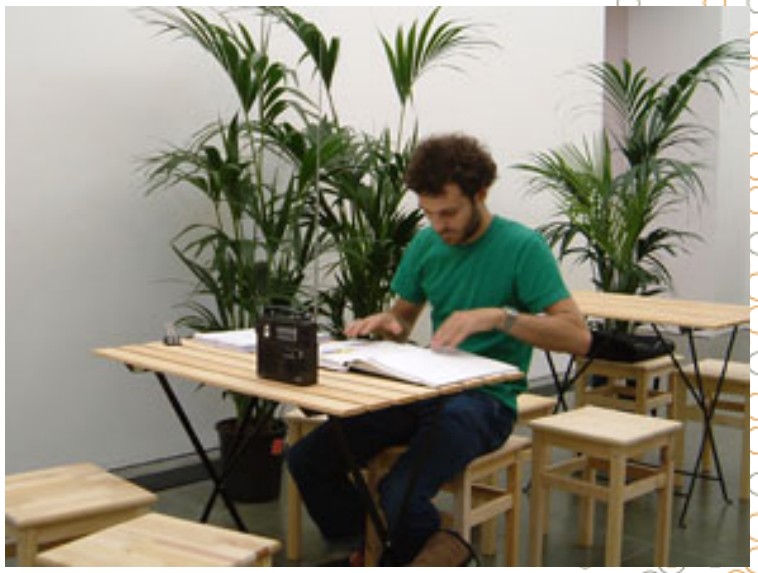
Michael Asher, Santa Monica Museum of Art, 2008

Daniel Buren, *Within and Beyond the Frame* (1973)

Discursive Specificity

- Alternative Spaces
  - City streets, Schools, Prisons, Hospitals, Churches
  - TV/Radio
  - Internet
- Relational Aesthetics
  - A discursive site: what is the socio-cultural impact of putting something in a specific place?
  - Work + site = content
  - “Art is a dot on a line” (Bourriaud)
  - Intertextuality
  - Role of the audience
  - Art penetrates life
- Emergence of a new space
  - Site-specific art involves the meeting of two systems to create a third.
  - The computer is an excellent ‘glue’ for these systems…
  - This is your first assignment.

Simon Starling, *Shedboatshed* (2005)



Rirkrit Tiravanija, Serpentine Gallery, 2005