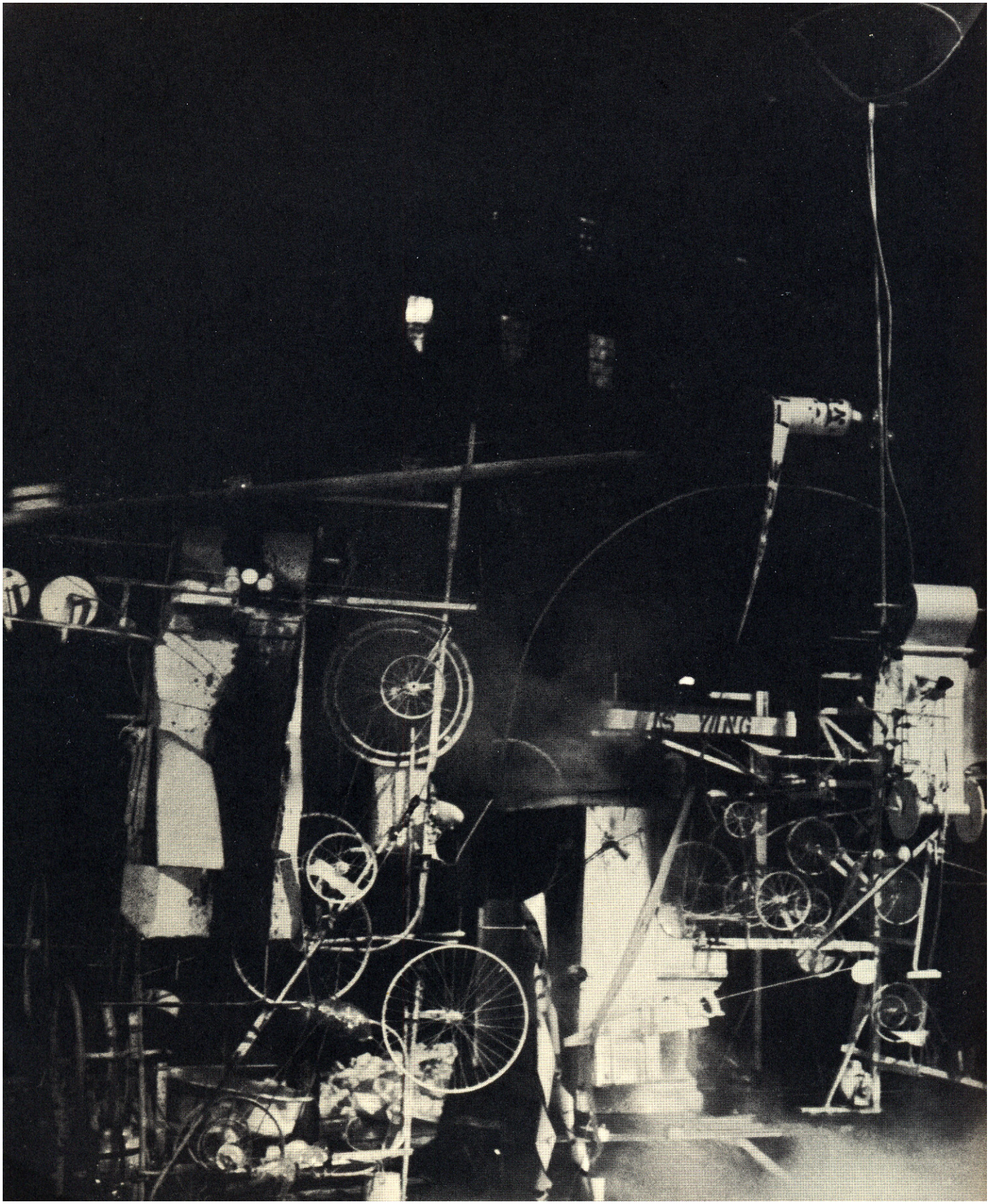

The Museum of Modern Art
"The Machine"
OFF DUTY



K. G. Pontus Hultén

The machine

as seen at the end of the mechanical age

The Museum of Modern Art, New York

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art


reconstruction


invention


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camera


reconstruction


E.A.T.

THE NEW YORK TIMES, SUNDAY, NOVEMBER 12, 1967

EXPERIMENTS IN ART AND TECHNOLOGY ANNOUNCES A COMPETITION FOR ENGINEERS AND ARTISTS AND REQUESTS SUBMISSION OF WORKS OF ART MADE IN COLLABORATION TO BE SELECTED FOR AN EXHIBITION AT THE MUSEUM OF MODERN ART, NEW YORK CITY

The Museum of Modern Art, New York, has asked Experiments in Art and Technology to collaborate on a section dedicated to new technology in art as an extension of a major exhibition entitled THE MACHINE, to be held in the fall of 1968 and directed by K. G. P. Hulten, Director of Moderna Museet, Stockholm. The main body of the exhibition will be an historical survey of works of art commenting on the machine and the mechanical world.

Works to be considered for inclusion in the exhibition should be submitted by June 1, 1968 to Experiments in Art and Technology.

Experiments in Art and Technology is established to develop an effective collaboration between engineer and artist. The raison d'etre of Experiments in Art and Technology is the possibility of a work which is not the preconception of either the engineer or the artist but which is the result of the exploration of the human interaction between them. To encourage this aim in the works to be considered for the exhibition, Experiments in Art and Technology announces a competition for the best contribution by an engineer to a work of art produced in collaboration with an artist. The project may be initiated by either an artist or an engineer.

Experiments in Art and Technology will grant a first-place award of $3,000 and two second-place awards of $1,000 each to the engineer for his technical contribution to the collaboration. The jury will consist of scientists and engineers from the technical community who are not necessarily familiar with contemporary art. The jury will not be informed about the names of the collaborating enigneers. The awards will be for the most inventive use of new technology as it evolves through the collaboration of artist and engineer.

Final selection of the works to be shown at the Museum of Modern Art will be made by Mr. Hulten in consultation with the Jury.

Experiments in Art and Technology will help interested engineers and artists to establish contact. Engineers or artists who find the competition and the exhibition of interest should contact Experiments in Art and Technology at 9 East 16th Street, New York, New York, 10003. The Exhibition is international.

Art and Technology

Technology now totally dominates every step of everyday life. The artist's creativity is only slowly reestablishing its prestige, after having been almost wholly eclipsed by science and technology during the nineteenth century. During that time, artists lost the tradition of an understanding of materials and their capacities. Art and science, emotion and reason, became divorced and developed independently.

To confront the men who are shaping the new technology with the sense of individual responsibility and freedom that reigns in art is an important task. What must be abolished is the determinist notion that technology develops independent of the people who work with it. Since technology is nothing but a tool, it is neutral. Those who work with it must learn from artists to take full responsibility for what they do.

The international organization Experiments in Art and Technology (E.A.T.) was founded to try to establish a better working relationship among artists, engineers, and industry. In line with that purpose, E.A.T. agreed to arrange a competition in connection with the exhibition "The Machine as Seen at the End of the Mechanical Age." In response to the announcement of this competition, reproduced on the preceding page, approximately two hundred works, using a wide variety of means, were submitted from nine countries.

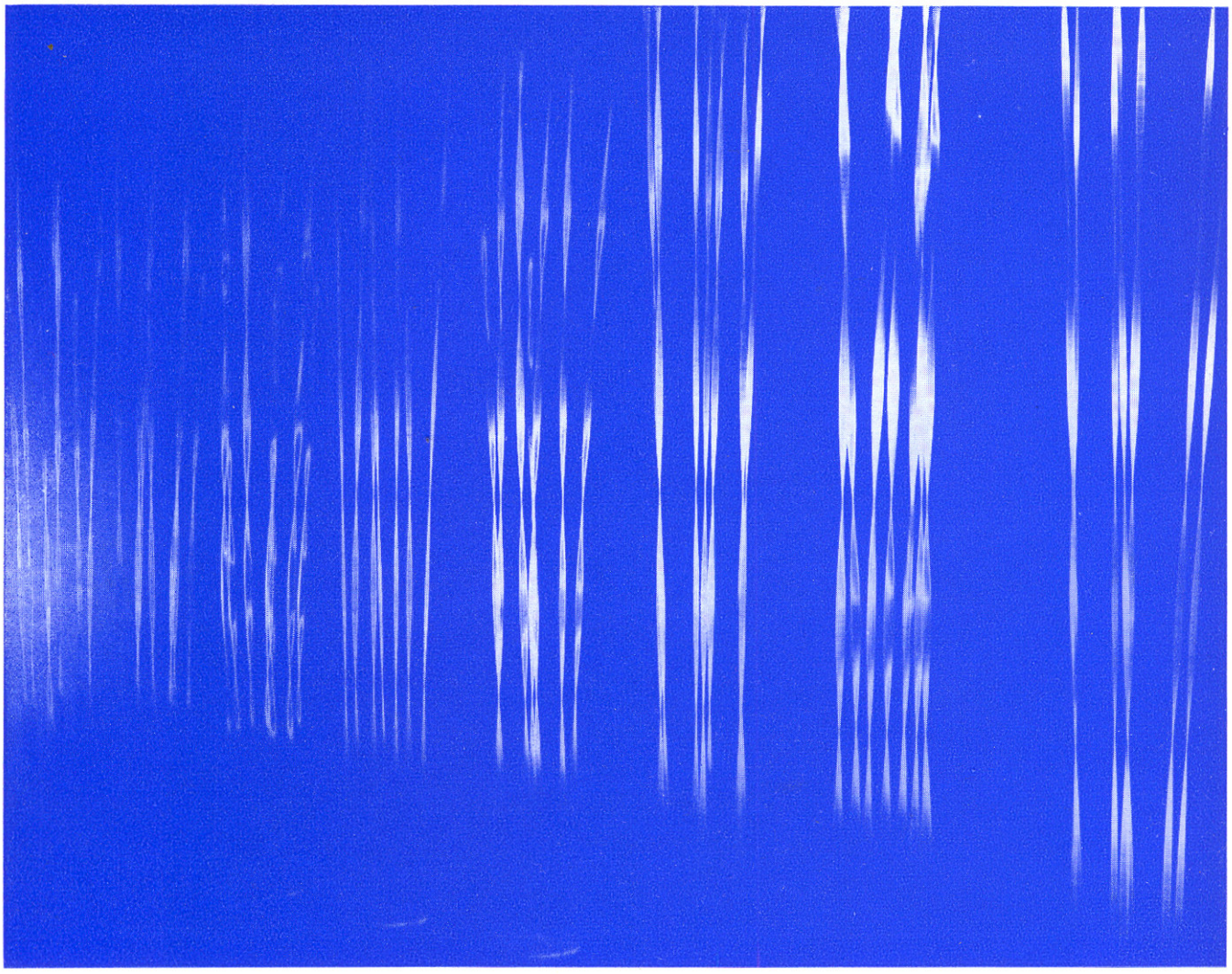
The jurors were: James M. Brownlow, International Business Machines Research Laboratories; Michael D. Golder, Plastic Research and Development Center, Celanese Plastics Company; Cyril M. Harris, Professor of Electrical Engineering and Architecture, Columbia University; John W. Pan, Bell Telephone Laboratories; and William G. Rosen, Special Assistant to the Director, National Science Foundation, and Executive Secretary of the Committee on Academic Sciences and Engineering of the Federal Council for Science and Technology.

In making the awards for the most inventive use of new technology as it evolves through the collaboration of the artist and engineer, the jurors were asked to base their judgments on these criteria: First, how inventive and imaginative is the use of technology? Second, to what extent have the engineer and the artist collaborated successfully?

The prizes mentioned in the announcement were awarded to the following engineers for their technical contributions: Ralph Martel, first prize; Frank T. Turner, Niels O. Young, second prizes. In announcing their decision, the jurors issued the following statement:

In each of the winning entries a spectrum of technology was used with great impact on the art forms. Evident is the realization that neither the artist nor the engineer alone could have achieved the results. Interaction must have preceded innovation. Going beyond a demonstration of technical prowess or an intricate orchestration of art and technology, the engineer and artist together have created more than a well-executed realization of fantasy. The unexpected and extraordinary, which one experiences on viewing these pieces, result from inventiveness and imagination, stimulated not by the brute force of technical complexity but by probing into the workings of natural laws.

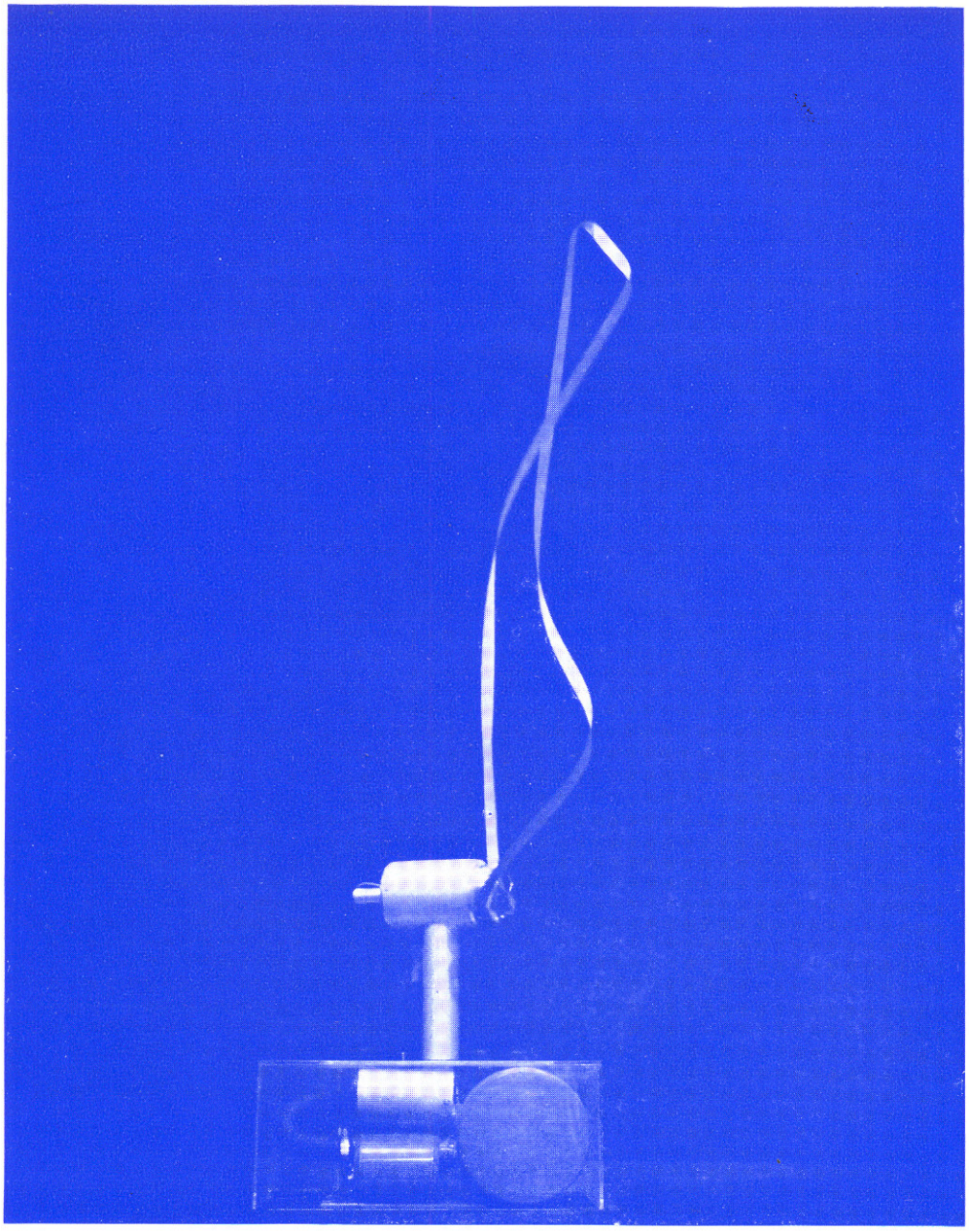
In advance of the jury's deliberation, the director of the exhibition had already made a preliminary selection of nine works from the competition; they are documented on the following pages. Some very interesting environmental works, including entire rooms, unfortunately had to be excluded from consideration because of their size and the limited space available. When the jurors' decision was announced, it was remarkable that their awards should have gone to three of the nine works already selected.



Wen-Ying Tsai. American, born China, 1928 (artist and engineer)
Frank T. Turner. American, born 1911 (engineer)
Cybernetic Sculpture. 1968
Multiple stainless steel units, each 9′4″ high × 20″ diameter at base; oscillator, stroboscopic lights, electronic equipment

This sculpture is based on the principle of the harmonic motion in a "standing wave" produced by a vibrating rod — the same idea that Gabo explored earlier (see page 106). Here, several units are grouped together. Their visual effect when in motion is continually modulated by high-frequency stroboscopic lights. The lights react to sound, such as that of a voice or the clapping of hands. The sense of contact with the sculpture that the viewer obtains is due to the subtlety of the work's reaction; the response of the trembling rods seems a direct translation of his voice.

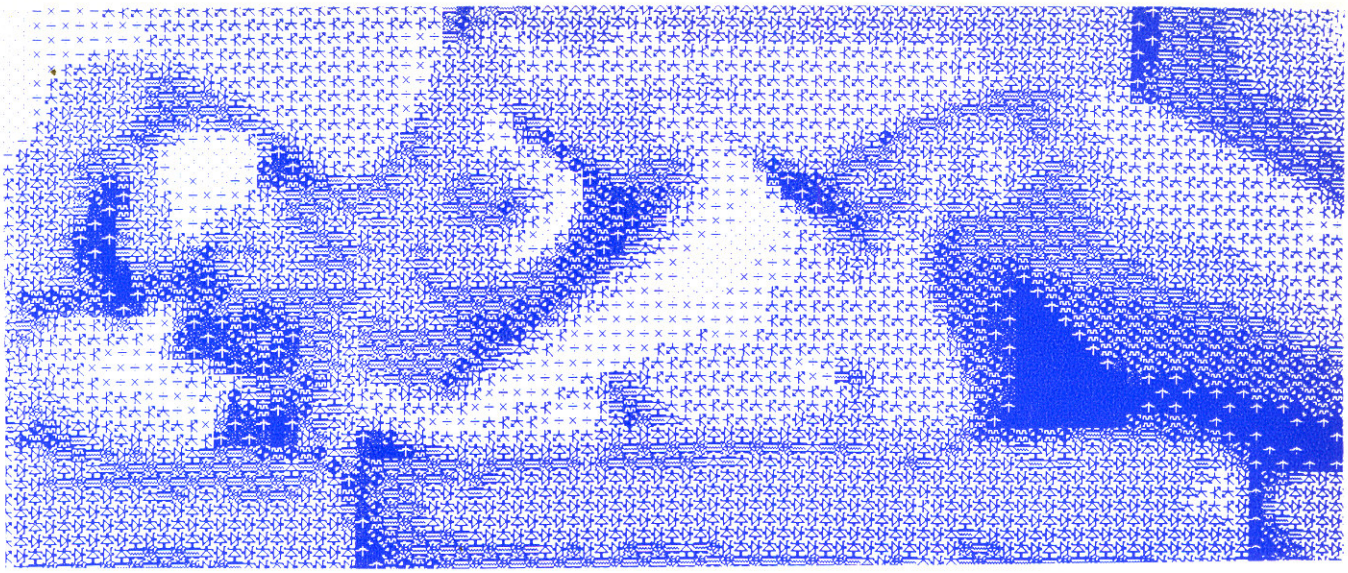
The technical solution that produces this illusionistic feat is at once so discreet and so efficient that it strikes us as perfect.



Lucy Jackson Young. American, born 1930 (artist)
Niels O. Young. American, born 1930 (engineer)
Fakir in 3/4 Time. 1968
Base: aluminum, plastic, and motors, approximately 30″ high by 25″ wide×16″ deep; fountain effect: textile cord or tape, adjusting from 4 to 40′ above base

The creators of this mechanical fountain point out that it is the first machine to do the Indian rope trick. The basic principle by which a loop of otherwise limp cord could be coaxed into apparent rigidity and made to stand up was discovered only a couple of years ago. It is the same principle as that of the lariat, in which the motion of a loop of cord along its own length causes it to become rigid. In *Fakir in 3/4 Time,* the cord, instead of being swung at the end of a tether, is gobbled in and spewed out again by means of an electric motor and sheave, at the rate of 100 miles per hour. Because of its speed, the stream of cord resists deflection until it reaches the end of its loop, when it has to turn about and return to the machine. The head operates by means of a vacuum capstan.

Fakir in 3/4 Time has the elegance of a very simple solution. The choreography of this mechanical fountain is manually adjustable, but theoretically it could be programmed in a way similar to *Arm* (opposite).



Leon D. Harmon
American, born 1922 (artist)
Kenneth C. Knowlton
American, born 1931 (engineer)
Studies in Perception, I. 1968
Computer-processed photographic print, 30×60″

Computer graphics were created for utilitarian purposes. Among the uses are to study the field of view seen from the pilot's seat in an airplane, or to analyze a flat image in order to manipulate graphic data. The characteristics of the computer at the moment are strikingly shown in "computer art."

The computer can act as an intelligent being: process information, obey intricate rules, manipulate symbols, and even learn by experience. But since it is not capable of initiating concepts, it cannot be truly creative; it has no access to imagination, intuition, and emotion.

The computer is only a tool which, at the moment, still seems far removed from those polemic preoccupations which concern art. However, even now seen with all the prejudices of tradition and time, one cannot deny that the computer demonstrates a radical extension in art media and techniques. The possibilities inherent in the computer as a creative tool will do little to change those idioms of art which rely primarily on the dialogue between the artist, his ideas, and the canvas. They will, however, increase the scope of art and contribute to its diversity. — Jasia Reichardt, 1968.[164]

Richard Fraenkel. American, born 1923 (artist)
Jeffrey Raskin. American, born 1945 (engineer)
Picture-Frame. 1968
Ink drawing on paper embossed frame, 12 1/4 × 14 1/2″

Studies in Perception, I was produced by scanning a photograph with a machine similar to a TV camera and converting the electrical signals into numerical representations on a tape. The computer analyzed the image into levels of brightness, but instead of using randomly sprinkled dots to produce values of light and dark, the dots were organized into small patterns, visible at close view but imperceptible at a greater distance.

Picture-Frame was made by computation analysis of the relief molding of an old picture frame; the resultant tape was then run through a pen-and-ink arrangement on a computer to carry the design into the picture area. As Fred Waldhauer of E.A.T. remarked, with reference to the frame being preliminary to the picture: "This is probably what the computer would do, if it could think."