THE MACHINE AS SEEN AT THE END OF THE MECHANICAL AGE by K.G. Pontus Hultén, an exploration of artists' changing attitudes toward technology as demonstrated in their works, has just been published by The Museum of Modern Art and is being distributed to the trade by New York Graphic Society Ltd. The book has been issued in conjunction with the Museum's exhibition of the same title, directed by Mr. Hultén and on view in New York through February 9.

The title of the book reflects a crisis within technology itself, at a time when machines that imitate man's muscles are being supplanted by electronic and chemical devices that imitate the processes of the brain and nervous system. At "the end of the mechanical age" Mr. Hultén has chosen and commented in detail on over 200 objects from Leonardo da Vinci's drawings for flying machines to recent constructions produced collaboratively by artists and engineers. He has also included two kinds of functional mechanisms, the car and the camera-- the former because it is perhaps the most typical 20th-century machine and most affects our daily lives, the latter because it is a picture-making, mechano-chemical device that has provided the basis for much of our current way of seeing the world.

"The story of how artists of this century have looked upon and interpreted the machine is highly dramatic," Mr. Hultén notes. "Their attitudes have ranged from deepest pessimism and despair to devotion and even idolatry... such extreme positions have been taken by artists who are among the most significant of our time."

In his introduction, Mr. Hultén briefly surveys the interaction of art and technology, science and society, from antiquity to the present. He points out that although we tend nowadays to regard machines primarily as useful tools, they have frequently been looked upon as toys or marvels. They have stimulated man's fantasy as well as his practical sense and have often served as metaphors or symbols. Attitudes toward machines, particularly since the Industrial Revolution and the beginning of the mechanical age, have ranged from the optimism of those who looked
to them to bring about a steady progress toward utopia to the fears of those who believed they would lead only to doom and destruction.

Until relatively recently, artists took a rather superficial view of the machine and ignored the social problems of industrialization. In the 20th-century, however, rapid advances in technology have so drastically affected individuals and society that artists have been forced to pay serious attention to the machine.

A fundamentally optimistic outlook is reflected in the Futurists' enthusiasm for speeding automobiles, the hopes of Vladimir Tatlin and the Russian Constructivists for a new "machine art" that would serve a dynamic, revolutionary society, Tatlin's followers in Germany including the teachers at the Bauhaus who largely based their program on an adaptation of Tatlin's ideas, and the "machine aesthetics" of Léger and the Purists, who admired the pure, strong forms of mechanically produced objects and exalted the engineer's role in society. A more ironic view was that of Duchamp and Picabia, who explored the theme of machine eroticism, and of those Dadaists who mocked rational machines with their own irrationality. Outright fear and distrust of machines characterized the Surrealists who based their art on a faith in the forces of nature and on the power of the unconscious rather than the rational mind.

Confidence in man's rationality and his ability to build a better world through technology was even more severely shaken by the second World War and the atom bomb. Since the mid 1950s, however, numerous artists have tried to establish better relations with machines and set more humanistic goals for technology. Recently an increasing number of artists have been working in collaboration with engineers and have used lasers, computers, TV screens, and stroboscopic lights to achieve new means of expression. The concluding section of the book includes a number of these works, among them nine constructions selected by Mr. Hultén from an international competition organized at the Museum's request by Experiments in Art and Technology (E.A.T.). Many of these recent experiments challenge preconceptions about the nature of works of art, as did kinetic works produced earlier in the century, such as Duchamp's Rotary Glass Plate and Gabo's Standing Wave - the first two motorized constructions by artists, both dating from 1920.
Appropriate to the book's subject matter, *The Machine as Seen at the End of the Mechanical Age* is rivet-bound in tin can steel, with a "pop" rendering of the Museum's facade printed in color and embossed on the tin. This new departure in book production techniques was designed in Sweden by Anders Österlin for Stig Arbman AB, Malmö, and the cover was made by a beer-can manufacturer, PLM AB Platmanufaktur.

K.G. Pontus Hultén has been associated with Moderna Museet, Stockholm, since 1957 and has been its Director since 1962. The many exhibitions he has directed include a kinetic art show in 1961, one of the earliest "pop" art exhibitions to be shown in Europe, and one-man shows of Raoul Hausmann, Andy Warhol, Claes Oldenburg, and Vladimir Tatlin. His familiarity with his subject and personal acquaintance with many of the artists represented in *The Machine* is evident not only in his own comments but also in his numerous quotations from the artists' writings, which complement the attitudes implied by their works. He has also included an essay by the engineer Billy Klüver, now Director of E.A.T., who collaborated with Jean Tinguely on *Homage to New York*, an elaborate self-destroying machine which committed suicide in the Sculpture Garden of The Museum of Modern Art in 1960. Written a day or so after the event, this 5,000-word account, published here for the first time in English, does much to illuminate the new rapport between those artists and engineers who are now using the machine freely and poetically to open up new possibilities for creative expression.

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Review copies, photographs and additional information available from Elizabeth Shaw, Director, Department of Public Information, The Museum of Modern Art, 11 West 53 St., New York, N.Y. 10019. 212-535-3200.