



*GHOSTS IN THE MACHINE*

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# *THE BODY IS A MACHINE*

From a contemporary perspective, the distance between our machines and our selves has never been closer. It is an obvious and unavoidable fact that the expansive reach of new technology has had a profound effect on individual experience and social relationships. As much as our current wired state is the result of a constant stream of research and innovation, it can also be seen as the product of centuries' worth of dreams and nightmares—all envisioning the ways in which machines can replace, enhance, or communicate with our bodies and minds. While developing technology continues to fascinate many contemporary artists, others mine the history and mythology of machines, and the ways in which they have altered our world. If some of our productive and communicative functions have been or are in the process of being replaced by previously unimagined devices, then it stands to reason that these devices also start to become a part of our historical narratives. All of the artists in "Ghosts in the Machine" explore and, in many cases, advance the genealogy of human and machine interaction. The following is in no way a complete chronology of how this symbiotic relationship has developed, but instead assembles some notable protagonists (human and machine) that have led us to our current historical moment.

The impulse to create a mechanical being that can mimic the actions and functions of humans long predates the modern period. There are accounts of robotic humans or animals programmed to perform a variety of functions in the myths of a number of different ancient cultures. In *The Writer* (2007), Philippe Parreno films one of the most famous automatons of the early modern period—a life-size mechanical child, who has lost little of his haunting personality. Originally built in the eighteenth century by Pierre Jaquet-Droz, the small figure was part of a trio built to replicate specific actions (writing, drawing, and playing music) and presented in public performances across Europe. In the film, the automated boy turns his gears into action, lifts his stylus, and slowly and deliberately spells out an enigmatic phrase programmed by Parreno: "What do you believe your eyes or my words?" Jaquet-Droz's creations were a source of fascination for the French Surrealists whose subsequent technique of automatic drawing enacted their own desire for a mechanical life, functioning as a receiver of signals rather than a conscious creator. "This man-machine [that] has infinite consciousness or no consciousness,"<sup>1</sup> as Parreno says of Jaquet-Droz's writer, continues to capture our imagination—not only because of the complexity of its internal mechanisms and the uncanny quality of its actions, but also because it suggests the kind of universal thinking-machine eventually realized in the form of the computer.

In the early twentieth century, a German doctor named Fritz Kahn produced a number of brilliant and startling visualizations that detailed the way in which bodily functions were equivalent to forms of industrial, mechanical, and electronic activity. Kahn did not propose to replace human functions with technology; instead, he sought to point out the complex machinery that was already at work inside us all. In one of his many illustrated pamphlets he wrote: "The true miracle lies in the fact that the human body is not only the most high-performance and robust machine, but also the finest and most complicated of all machines."<sup>2</sup> His most famous drawing, *Der Mensch als Industriepalast* [Man as Industrial Palace] (1926), imagines the human body populated by a team of scientists, engineers, and laborers, operating a network of chemical plants, plumbing systems, and research labs. Kahn uses these technological systems as explanations for

the otherwise mysterious operations of our bodies. During the interwar period, in which Kahn was working, nascent technology became the greatest threat to the fragile human body. By employing industrial metaphors for the body, Kahn made this technology both immediately understandable and strangely comforting.

The concept of the body as a machine was advanced both theoretically and practically in the work and writings of British mathematician Alan Turing. Turing's work during the 1930s and '40s laid the groundwork for the development of the computer (by postwar scientists, mathematicians, and engineers) and its increasing ability to replicate human actions and thoughts. "Some Illustrations on the Life of Alan Turing" (2008) is a series of thirty collages by the Danish artist Henrik Olesen documenting the life of the influential mathematician from childhood until his suicide at the age of forty-one. In 1936, he proposed the concept of the Turing Machine, which Olesen describes as "a virtual system, capable of simulating the behavior of any other machine, even, and including itself." Olesen's series addresses both Turing's immense contribution to digital technology and the more tragic side of his story. After being identified as a homosexual, Turing was arrested and forced to undergo a variety of treatments in order to allegedly cure what were believed to be deviant and uncontrollable impulses. These treatments, which included Reichian Orgone therapy\* and the administration of female hormones, were an attack on the legitimacy and autonomy of Turing's body and likely contributed to his depression and eventual suicide. Beyond the realm of theoretical mathematics, the Turing Machine offered the possibility of replacing one's body with a machine—fulfilling any desire for emotional detachment, extended life, and physical as well as intellectual reinvention.

In the late 1960s, the artist Channa Horwitz began creating a conceptually rigorous body of work that provides another kind of blueprint for mechanizing the human body. In 1968, Horwitz began her "Sonakinatography" works, a series of meticulously detailed ink drawings on graph paper. Although the variegated appearance of the drawings offers a satisfying optical pattern, the repetitive marks within them are actually a complex system of notations which consist of a sequence of eight colors that represent durations of time while the graph-like patterns indicate forms of motion. The end results are works that can be viewed as scores to be read or, better still, programs to be enacted in a variety of media. In 2012, a group of eight men and women performed *Poem/Opera, The Divided Person*, an interpretation of Horwitz's *Sonakinatography Composition III*, in New York City's High Line park. Dressed in black, the performers each recited a sequence of descriptive adjectives plotted across a twenty-five-foot-long scroll. Through its precise rhythm and dispassionate phrasing, the nearly hour-long performance resembled a vintage piece of software being executed by a linked network of human computers. As in much of Horwitz's work, the infinite ways in which her drawings can be transformed and expressed bridge the gap between organic bodies and mechanical expressions.

Another drawing by Horwitz documents her proposal for the "Art and Technology" program at the Los Angeles County Museum of Art in 1968. Curator Maurice Tuchman sought to pair artists, writers, and musicians with corporations in a variety of fields, granting creative individuals access to advanced scientific research and industrial facilities in order to produce innovative new works of art. Horwitz proposed an optical and kinetic sculpture using forces of magnetism or



air currents and, although never realized, the drawing remains a fascinating document that reveals how the accessibility of technology was causing artists to reconsider the possible forms their work might take.

Although the initiative was eventually criticized for its proximity to the environmentally and socially destructive forces of big business, “Art and Technology” did produce a number of successfully realized projects, many of which are receiving renewed attention today in a similar climate of technological innovation. In general, the late 1960s were a signal moment for the collaboration between artists and advanced technology. A number of initiatives sought to provide artists with the technological advantages that industries as varied as aerospace and film production were able to offer. Experiments in Art and Technology (E.A.T.) was a short-lived but highly influential organization founded by Bell Telephone Laboratories engineer Billy Klüver with artist friends including Robert Rauschenberg and Robert Whitman. Along with art historian Julie Martin, Klüver sought to pair up artists with his engineer colleagues to provide them with engineering expertise to solve complicated technical problems in creating works and to imagine new forms of artistic production.

The most high-profile project organized by the group was “9 Evenings,” a series of performances in New York’s Park Avenue Armory in 1969, programmed with optical, aural, and kinetic elements. These performances, conceived by major figures like John Cage, Yvonne Rainer, and Robert Rauschenberg, attempted to use the available technological resources to create a range of effects with varying success. The technical issues that hampered some of the performances led to the program being labeled a critical failure at the time, although the legend of “9 Evenings” has only grown since then.

In addition to photographic and filmic documentation of the performances, several diagrammatic drawings by consulting engineer Herb Schneider have also been preserved. These diagrams provide the underlying technical language of each performance. In their intricacy as well as their readable functionality, they provide a link to the kind of communicative interaction that can exist between the human and the technological in this type of artistic collaboration. Beyond the artistic merits of each of the “9 Evenings” performances, Schneider’s diagrams are evidence of an attempt by the artists and engineers involved to create a shared language that man and machine could speak.

The filmmaker and sculptor Robert Breer was a key contributor to the Pepsi-Cola Pavilion at the International Exposition of Osaka in 1970. A participant in a number of early kinetic art exhibitions in the 1950s and ’60s, Breer produced a series of human-sized abstract sculptures, which moved almost imperceptibly across the plaza outside of the Pavilion. Perhaps inspired by Breer’s interest in Zen Buddhism, there was a calm, reflective quality to the manner in which the objects reflected and transformed their environment. However, they were more than just objects for contemplation by the viewer—they were objects with personality, presence, and active participants in the visitor’s experience. As Breer describes them:

The floats were autonomous and aleatoric; they were independent of external control. I didn’t want them to have animal intelligence but to behave independently. A new idea, still within the art world, I hoped. Of course, they did relate to my past fascination with automobiles and planes.<sup>3</sup>

This fascination was developed from an early age. Breer’s father, Carl, was an engineer and automobile designer known

for the iconic 1936 Chrysler Airflow. The sleek lines and smooth surfaces of the Airflow are echoed in the precise forms of Breer’s own self-propelled minimal objects.

A close friend of Breer’s, Claes Oldenburg, had also produced work for the “Art and Technology” program and would make a number of works in the late 1960s inspired by the design of the Chrysler Airflow. Oldenburg visited Carl Breer in Detroit to make what he considered “life drawings” of a particular model of the Airflow. Oldenburg discovered that “the car turned out to be too large to deal with in its entirety, so the project became a kind of anatomy of the insides, the motor, radiator, and other items.”<sup>4</sup> He included his *Airflow (Number 6)*, *Soft Engine* (1966) sculpture in the landmark exhibition “The Machine as Seen at the End of the Mechanical Age” at the Museum of Modern Art in 1969. The work had a visceral intensity that was impossible not to connect to the grotesque materiality of the human body. Also included in the exhibition was a drawing entitled *Airflow Profile (working drawing for a sculptural print)* (1966). If it was impossible for Oldenburg to render the streamlined design of the Airflow as a soft sculpture, he was able to capture its iconic form in a different medium. The final print, *Profile Airflow* (1969), was a molded polyurethane relief mounted over a lithograph of the original drawing. Instead of the designed object acting as an equivalent for the human body, here the body of the car becomes almost otherworldly with its perfectly molded form.

As teenagers growing up in postwar America, Breer and Oldenburg would have regarded the automobile as more than a functional device. Within American car culture, it was valorized as an object of liberation and, amongst aficionados, perfectly designed forms of the automobile became objects of intense physical desire (“auto-eroticism,”<sup>5</sup> as Oldenburg has said of the Airflow) or even a kind of religious worship. This fanatical appreciation is also expressed in the German painter Thomas Bayrle’s dizzying *Madonna Mercedes* (1989), in which Mary has a body collaged together from a repeated image of the classic German luxury car—suggesting that the path to salvation comes through journeying down the open road.

The British artist Mark Leckey follows both Oldenburg and Bayrle in fetishizing the hyper-designed products we use every day and capturing the lack of distinction between our own bodies and the increasingly autonomous and intelligent products we create. He has observed that “we’re no longer about making things, making objects, we have to see objects in terms of some other kind of relationship to ourselves, more as something that we share the world with.”<sup>6</sup> We are now no longer creating stand-ins or replacements for ourselves—we are creating machines with which we cohabit and interact socially. For Leckey, our refrigerator is our roommate, our computer is our therapist, and our television is our best friend. In his newest work, Leckey creates a sort of mechanistic self-portrait, reimagining himself as a drum machine. The work has echoes of Oldenburg’s *Ghost Drum Set* (1972), as well as the vocoder, a device developed to encrypt and decode human speech during World War II (closely related to devices designed by Turing) but which is perhaps best known for being repurposed as an electronic musical instrument. Similar to Turing, Leckey understands language and expression as a kind of programmable system capable of being encoded and decoded as rhythmic pulses of information. Leckey’s work makes it clear that in our current state we speak with and through our devices. They are part of our physical and emotional universes and, over time,

they become indistinguishable from actual humans in our memories and dreams.

For the contemporary individual, of course, social interactions that take place in the digital realm further complicate the relationship between organic and artificial bodies. Here, the distinctions between real and simulated, past and present, living and dead, are demonstrably blurred. The result is a liminal reality where hybrid states of being coexist and communicate fluidly, and where the images, thoughts, and memories of these states accumulate and overlap. Seth Price has been concerned with the types of bodies and spaces that can be built from the detritus of the digital age. Price's *Koln Waves/Blues* (2005/2008) is one of a number of works by the artist that manipulates a commercial video clip of rolling ocean waves. Transferred to 16mm film, the image becomes otherworldly and entirely artificial. Its commercial origins are erased and it becomes a spectacular non-space, similar to the appropriated sublime landscapes of lightning storms and nuclear explosions seen in the paintings of Jack Goldstein. It's hard not to imagine these types of spaces as documenting a netherworld of the digital realm—where the ghosts of machines wander apocalyptic landscapes, communicating with each other and with whatever programs preserve the individuals who built them.

1. Philippe Parreno, "The Writer," in *Philippe Parreno: Films 1987–2010*, ed. Karen Marta and Kathryn Rattee with Zoe Stillpass (London: Serpentine Gallery and Koenig Books, 2011), 162.

2. Fritz Kahn, "Man, The Most Complicated Machine," in *Berliner Illustrierte Zeitung*, 1926.

3. Michelle Kuo, "Everything Goes: An Interview with Robert Breer," in *Artforum*, November 2010, 218.

4. Claes Oldenburg, "Passages: Robert Breer," in *Artforum*, January 2012, 33.

5. Oyvind Fahlstrom and Ulf Linde, *Claes Oldenburg: Skulpturer och teckningar* (Stockholm: Moderna Museet, 1966).

6. Julia Peyton-Jones and Hans Ulrich Obrist, "Interview with Mark Leckey," in *Mark Leckey: See, We Assemble*, ed. Kathryn Rattee and Melissa Larner (London: Serpentine Gallery and Koenig Books, 2011), 37.

*\*This essay previously stated that Turing underwent Reichian Orgone therapy. The therapy that Turing underwent was known at the time as "organo-hormone" therapy and was not connected to "Orgone therapy." We apologize for this error.*