

The Machines that Conquered the World

Some thoughts on the relationship between science, society and art

BY MARK BARTLETT

Earlier this year, Susan Schwartzberg assembled *Tracing Time: Explorations of Space, Time and Motion*, an exhibition at the San Francisco Exploratorium that represented a true alternative cultural voice: its collaborative programming suggested new museological directions for the evaluation of science/art issues—or any topic at all. With its dense compilation of film, photography, video, videodisc, zoetropes and text, it presented a raw gestalt of the rampant technologies that have determined twentieth century consciousness; it was swept into a complex matrix of widely modernist cultural practices—the economics of factory labor, photographic and filmic visualization, scientific methods of analysis, gender and class discriminations—all contributors to the

turn-of-the-century technological forces that reinvented American society and created the scientifically managed industrial mass organism which now subsumes every individual to its needs.

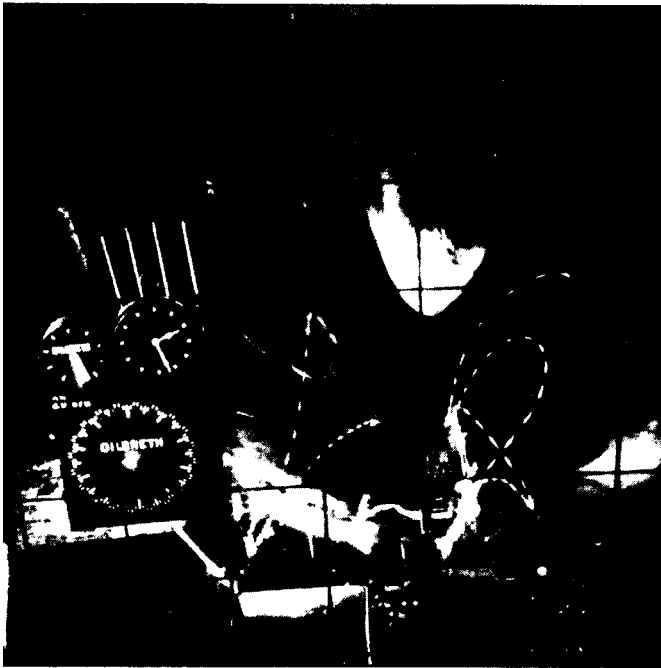
Tracing Time takes a place among many recent reevaluations of early modernism which examine influences on the fledgling mechanical age of Eadweard Muybridge, Etienne Marey, Frank and Lillian Gilbreth and Fredrick Taylor. These mappings of film and photographic genealogies indicate that the current century has been technologically and scientifically invented by both still and moving images that replicate not only the appearance of “reality” but, more significantly, *hidden* operations that cause reality to appear efficient or inefficient and therefore subject to study.

If the machine was the predominant scientific model for how nature functions, then it was through these analytic imaging procedures that animal and human motion was revealed in obedience to mechanistic principles, which in turn made possible the coupling of humans and machines in increasingly efficient synthesis. Images of the Gilbreths’ “one best way” to perform an act provided a quantified space-time standard against which “true” efficiency could be judged. *Tracing Time* addressed critically these aspects of science-influenced culture.

Here, “tracing time” means a tracing of history—a scientific, literal, quantified tracing of the efficiency of body movements, and an aesthetic tracing of artistic production. This conflation of history, science and aesthetics has created images that fascinate even as they dis-

turb. They fascinate because the hidden geometry of human movement unexpectedly reveals an unfolding in time, through a field of predictable numbers, a spatial array of human movement that requires us to step back and from a new distance reinterpret who we are. Because we are no longer who we thought we were, we find our identity challenged, with nothing to replace it.

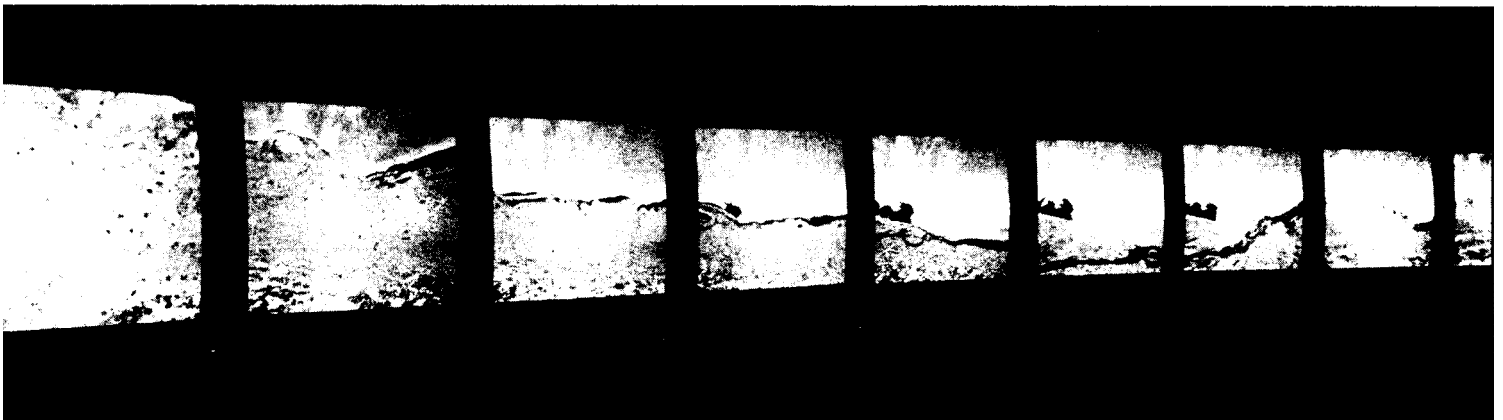
Into this subjective vacuum came film and photography, which redesigned the very essence of public and private subjectivity consonant with the needs of the new economic regime. At the turn of the century, the effect would have been far stronger because the culture still was naive to the ramifications of this momentous historical break. The mechanical view of history comes to fruition in this time lapse of subjectivity.



Frank Gilbreth, *Untitled (Buttons)*, ca. 1917.



Frank Gilbreth, *Boxing Detonating Fuses*, ca. 1915.



Andrej Zdravic, *Water Waves*. (Photo: S. Schwartzberg.)

The camera was used to visualize mechanistic characteristics of motion that lay beyond the limits of the human sensorium. Afterwards, what had been taken as a naturalist reality was shattered. The photo and film documents of the early inventors are not

merely images; they are models of knowledge that remove the *object* of study from the equation of relevancy. To know is to reveal the curves, says Marey, that are the "language of phenomena themselves." A hierarchy is established. The mind, with its rational

methods of analysis, is vested with a higher status, and the model of knowledge provided by the scientific managers thus becomes a colonizing one. The entire realm of motion becomes a continent to exploit, a form of capitalist enterprise that seeks the maximization of profits through efficiency understood as a race against the clock. In this sense, American capitalism is relentlessly capable of assimilating and appropriating whatever cultural differences are thrown into its assembly line maw; utter homogeneity is the indelible trace of this scientific rationalism, carried virus-like in the movement of history, which configures culture by eliminating whatever refused to conform.

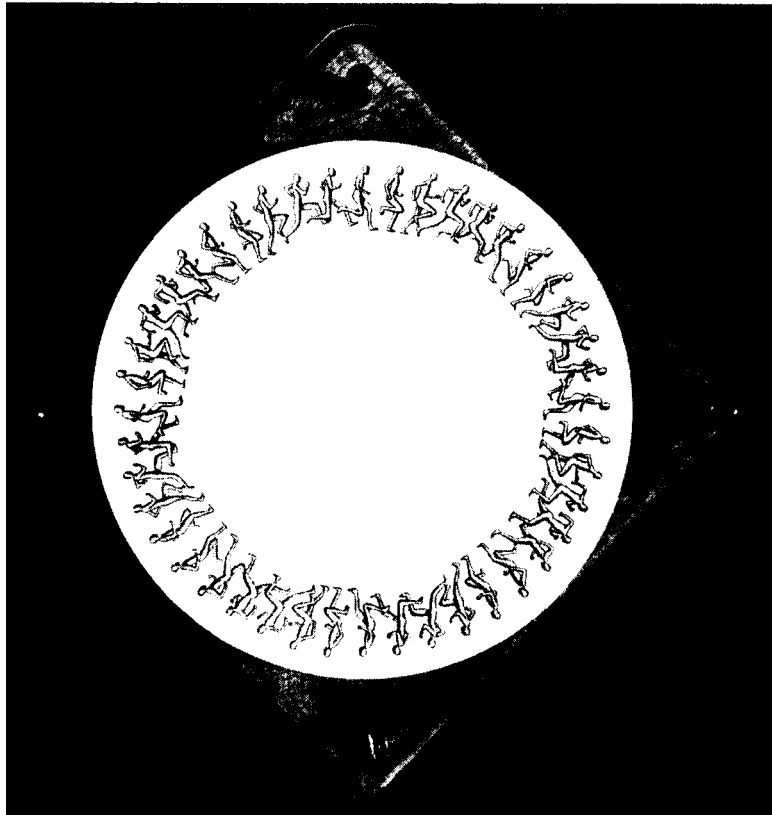
Schwartzberg, meanwhile, orchestrated a collaborative event that also was an installation in the art-genre sense of the term. Chaplin's *Modern Times* hung candelabra-like at the entrance, a parody of Taylorism that signaled the critical perspective of the show; below it, a photo-text installation by photographer Mike Mandel further surveyed the influence of scientific management in the debasement of American culture. The centerpiece here was a videodisc catalog of Muybridge's work, designed by James Sheldon, which allowed the viewer to reanimate selected images: the reinscription of these historic

stills in the latest interactive technomedium encapsulated the history of technologically generated imagery. Meanwhile, Chaplin's reversal of scientific management strategies repeatedly played itself out; the strapping of a man to a clock, an allusion to Da Vinci's geometrization of man, indicated that time had become the master of man.

The installation ended with work by Andrej Zdravic and Michael Rudnick. These were models of alternative aesthetic/analytic experience which reconstituted the physical object eliminated by scientific rationalism. *Water Waves*, Zdravic's video installation, which consisted of ten NEC monitors arranged horizontally, was a Baconian examination of and a Zen meditation on water waves. Rudnick's animated *Position for Life* consisted of a wire mesh cylinder divided into narrow horizontal bands that revolved around our heads as a strobe cast the shadow of a wire figure on the wall. The figure ascended a ladder, then a staircase, then a rope, in an attempt to rescue a figure trapped in a box at the highest level. The rope broke, however, and without saving the prisoner, the figure fell back to the lowest level, only to begin its ascent again.

In the former, we experience the return of the environment; in the latter, the return of the perceiver. Both reembedded the role of the observer into culture, into the wide panoply of human and environmental interrelationships. We were made simultaneously to confront both the phenomena themselves as aesthetic provocations, and the analysis of the elements that created them. The limits of knowledge and aesthetic experience predicated on the schism between reason and perception were deliberately challenged; aesthetic and rational understanding were given back to us joined. Indeed, it is urgent that we become aware of how our visual environment is structured, and therefore how it structures us and our ways of seeing.

Tracing Time offered a bittersweet message, for it required that we face the contradictory personal and social impacts of both science and art. Irony was fully embodied in the elegance with which such mechanistic barbarism was made manifest. But *Tracing Time* seemed to suggest first that irony may be the figure through which our cultural history unfolds, and, second, that postmodernism constitutes an aesthetic condition characterized precisely by a psychology of time lapse. The pause inherent in time lapse is a state of indeterminacy, and a state of contemplative receptivity. It is an expectant state of heightened perception and a state of acute unease. This synthesis of space and time condenses thought and emotion, image and language, into a reference frame we ourselves have not yet entered psychically.



Toshio Iwai, *Step Motion*. (Photo: S. Schwartzberg.)



Mike Mandel, *Brushing Teeth*, 1985.

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