

THE CINEMATIC REVOLUTION OF SCIENCE:

ÉTIENNE-JULES MAREY'S VISION OF MOTION AND MODERNITY

Research by Iris Shu

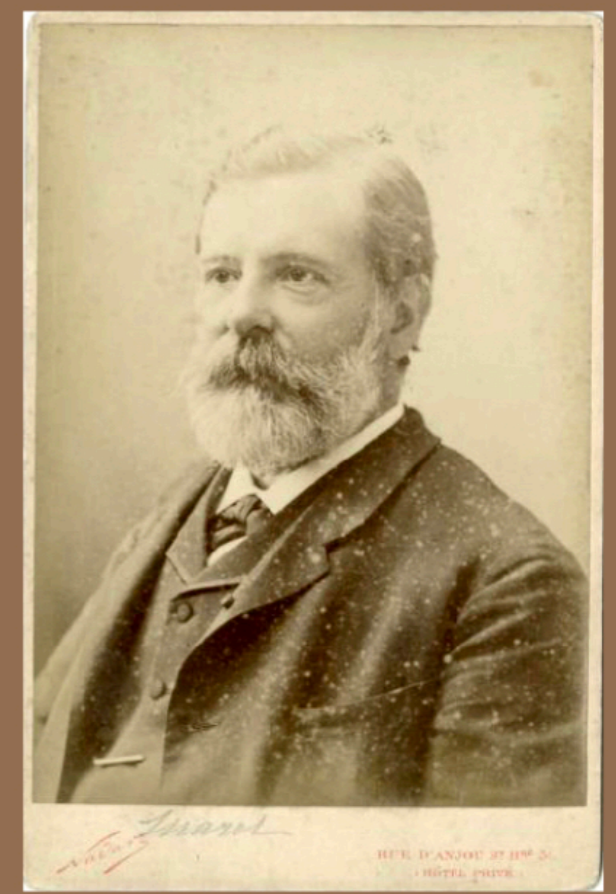
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ABSTRACT My research details the genesis of cinematography from its roots in photography and chronophotography, spreading from France across Europe in the late 19th century. I trace how its alignment with scientific frameworks allowed its adoption to shape laboratory practices and understandings of the living world.

Focusing on the work of the physiologist Étienne-Jules Marey who pioneered film in the sciences, I argue that the dissociation of abstract motion from the body relied on his use of chronophotography. With his predecessors' use of cinematography, from the reanimated body appeared an imagined, but lucid corporeal ideal of human movement that subsequently informed the management of the modern body.

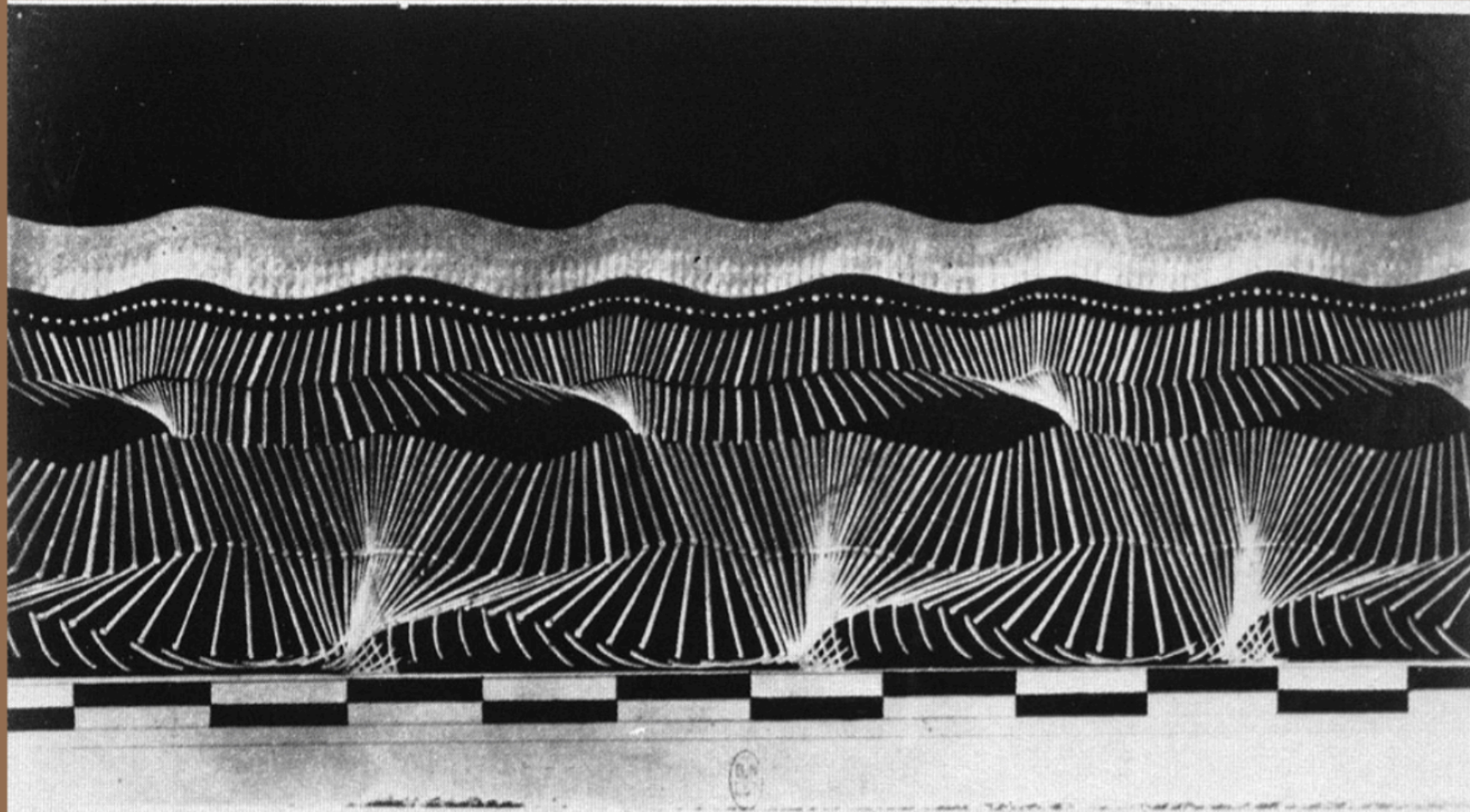


Étienne-Jules Marey around 1880, by Félix Nadar.

Though the acceptance of cinematography in the sciences was predicated upon prior adoption of photography, the turn to the motion picture was not a given. The appropriation of film within a scientific field depended on its acceptance by disciplinary experts, who increasingly pursued scientific “objectivity” through technology.

In fin-de-siècle Europe, when synthesis of movement became central in understanding modern life, the transition to scientific cinematography revolved around shifting conceptions of space and time. If the reorientation of the time-space continuum was at the center of the genesis of modernity, and movement was the very product of time and space, and at the center of life—then the body became the site of these emerging crises of modernity.

The work of the physiologist Étienne-Jules Marey symbolized the crux at which cultural and social modernity coalesced across Europe. Through his meticulous study of the human body through film, Marey's studies of human motion in France laid the groundwork for scientists over the continent to examine the development of the laws of energy in the human body, thereby redefining cultural conceptions of space and time. This became the science of work.



Joinville Soldier Walking. *Geometric choronophotograph*, by Étienne-Jules Marey and Georges Demeny

Marey conducted research at the Parisian Physiological Station, an open-air laboratory dedicated to the study of motion, in the early 1900s. Marey's principal aim to quantifiably, universally reduce fatigue, coupled with the physicality of his research at the Physiological Station, forced the body to be docile and manageable. This permitted Marey to strip his subjects of markers of identification, rendering them universal and prototypical, such as in his famous *Joinville Soldier Walking*.

Cinematography connected the science of work and its tangible realization in the body. In the years after Marey worked with chronophotography, he and his successors animated them by showing them in rapid succession—what we now know as film—to create the illusion of real movement. Viewers looked to them to learn perfected human behavior. Under the unwavering gaze of the camera, men learned to march to the march of the man.

CONCLUSION In discussions of film today, the implications of the moving image in the laboratory are rarely brought to mind, despite the profound effects it has made on understanding the format, scientific practices, even time and space itself. But both science and film tackle questions of objectivity, motion, humanity, and reconstituting reality. Understanding the intertwined histories of these disciplines might allow us to discover that insight from scholarship on one side only serves to enliven the other, and that the boundary between them is not one that we must unreservedly sustain.

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