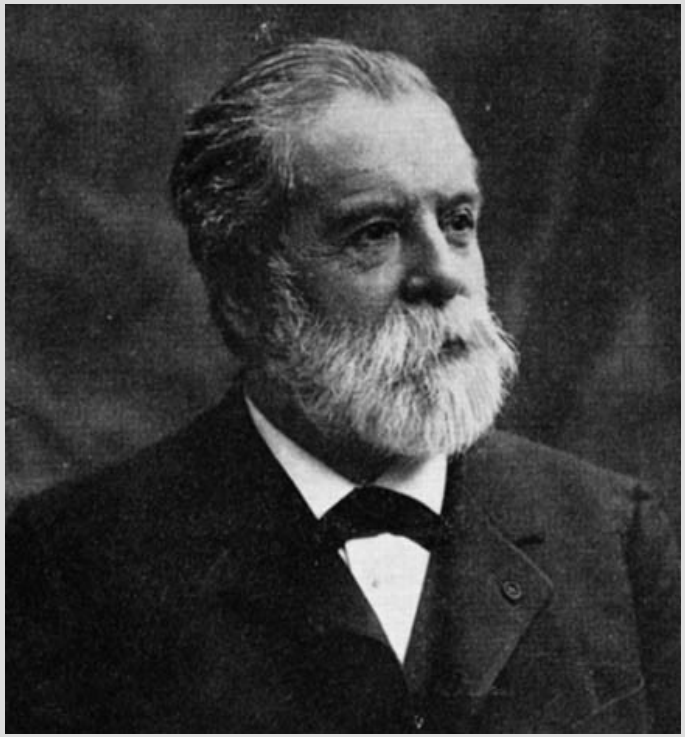
Optical Computational Processes MAT

- Étienne_Jules Marey
-
- Golan Levin

Étienne-Jules Marey

- (March 5, 1830 – May 21, 1904) was a French scientist and chronophotographer, born in Beaune, France.



- from 1849/1850 studies of medicine at the Faculty of Medicine in Paris; intern at the Hôspital Cochin; 1857 doctoral dissertation on the circulation of the blood; establishment of the first private laboratory in Paris for the study of experimental physiology in his lodging on Rue Cuvier; 1868 chair of natural history of organized bodies at the Collège de France in succession to Pierre Flourens; studies of animal locomotion by photographic depiction; 1881 construction of a physiological station for the photographic study of animal motion outdoors; 1895 president of the Académie des Sciences.

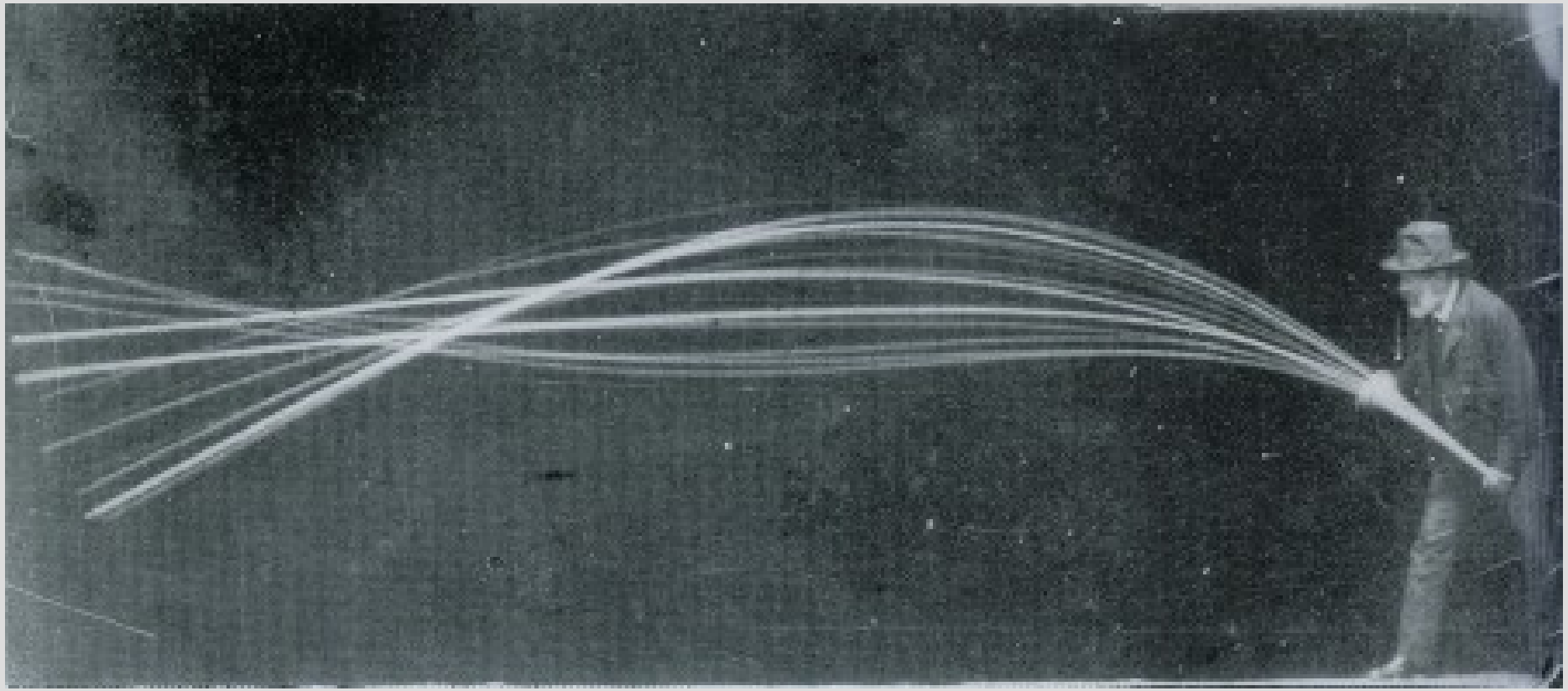
Selected works

- **1863. Physiologie médicale de la circulation du sang**: Basée sur l'étude graphique des mouvements du coeur et du pouls artériel avec application aux maladies de l'appareil circulatoire. Paris: Delahaye

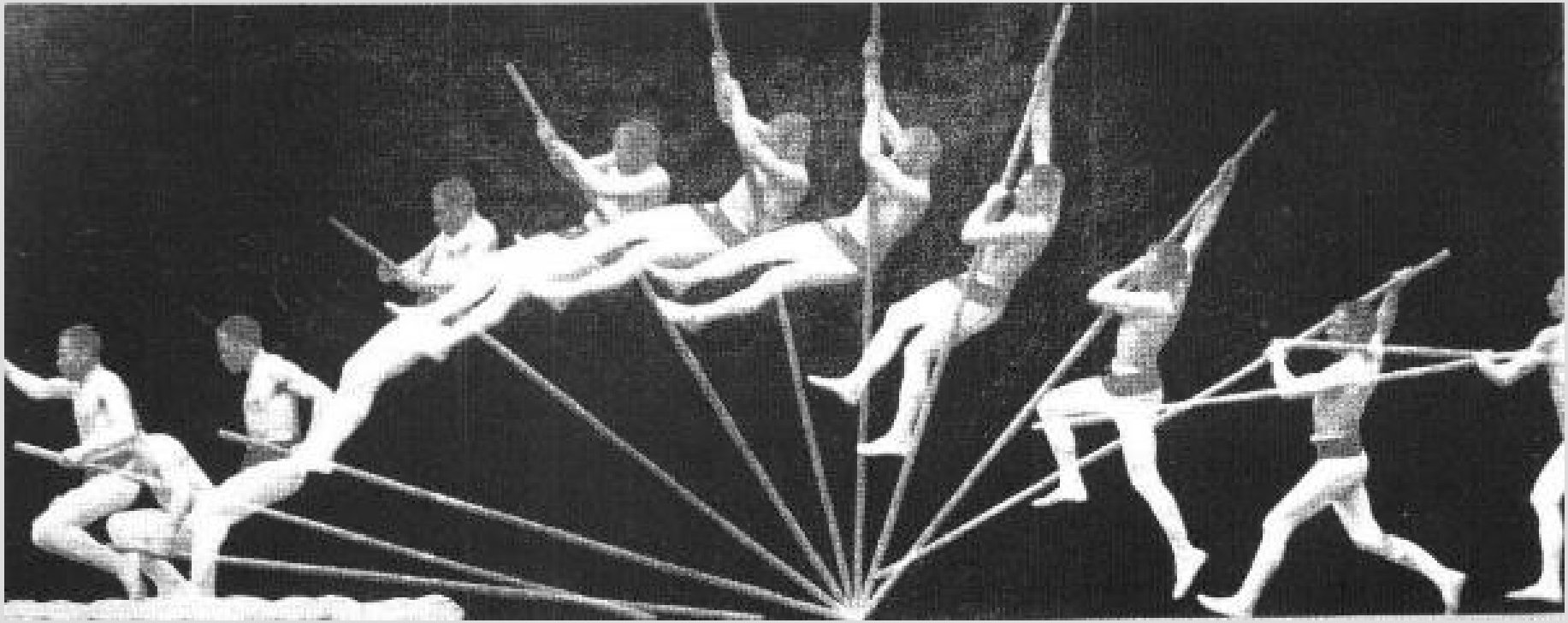
- **1868. Du mouvement dans les fonctions de la vie**: Leçons faites au Collège de France. Paris: Baillière
-
- **1873. La Machine animale:** Locomotion terrestre et aérienne. Paris: Germer Baillière

- **1878. La méthode graphique dans les sciences expérimentales et principalement en physiologie et en médecine**. Paris: G. Masson

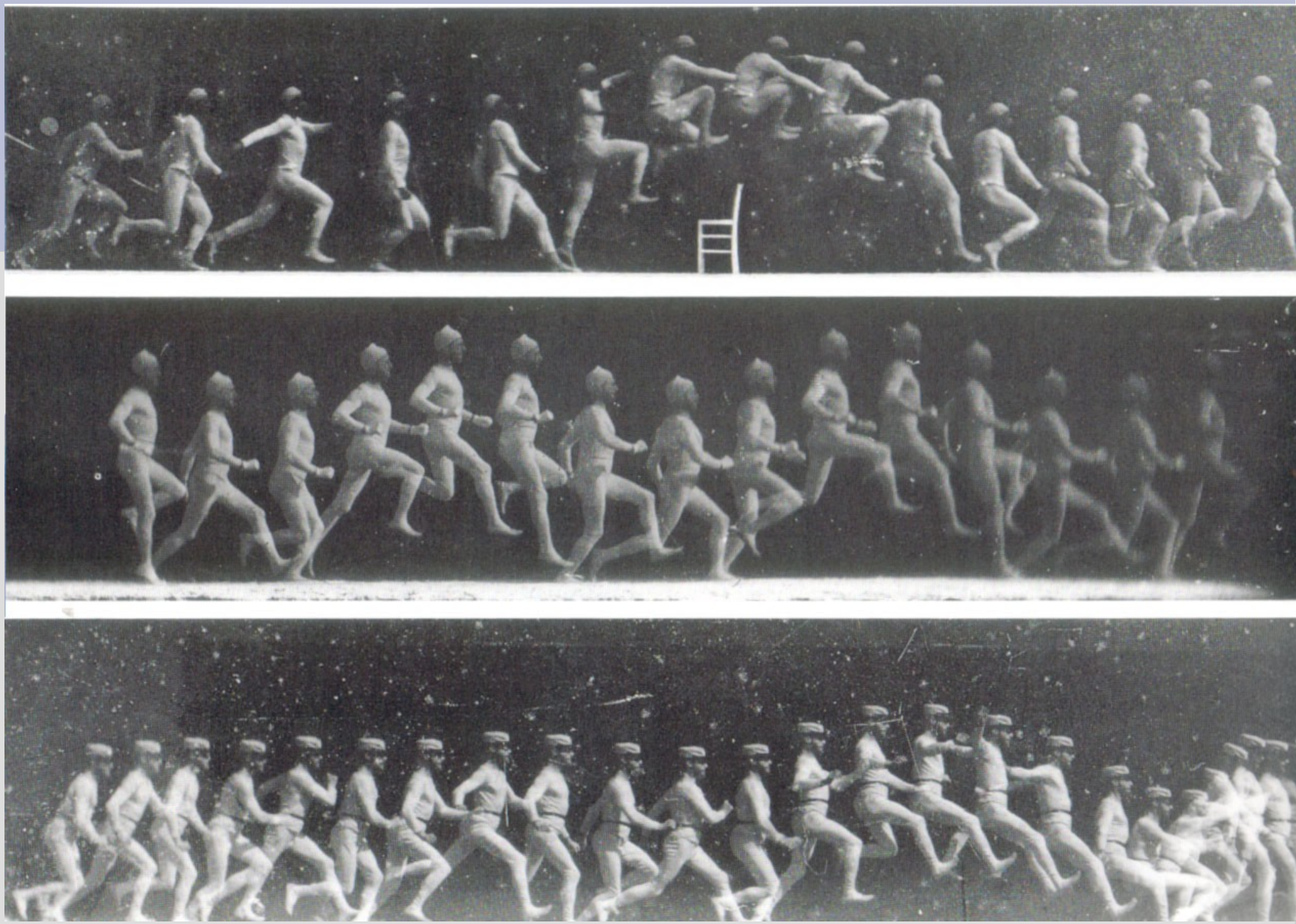
- **1894.** Le mouvement. Paris: G. Masson



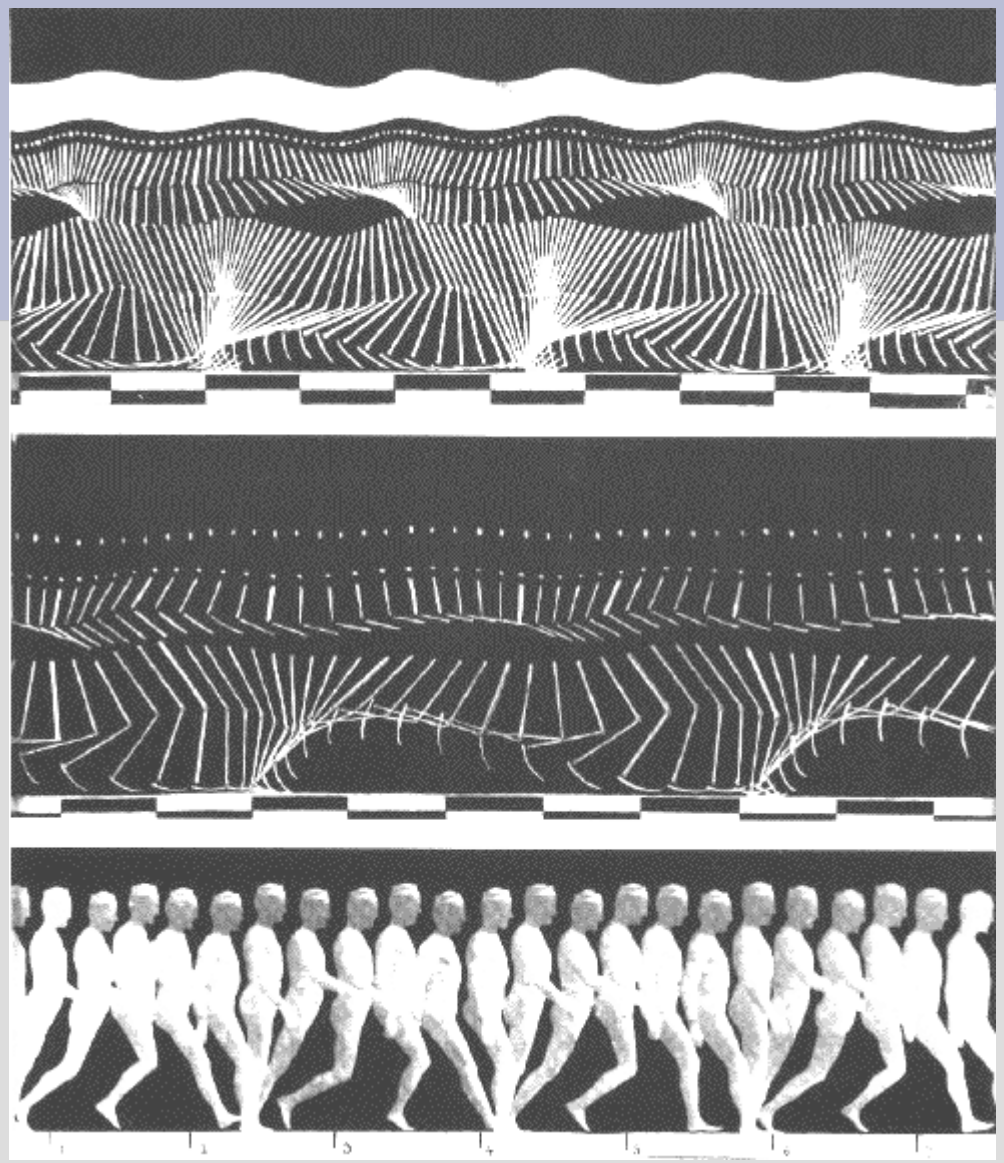
- Multiple exposure



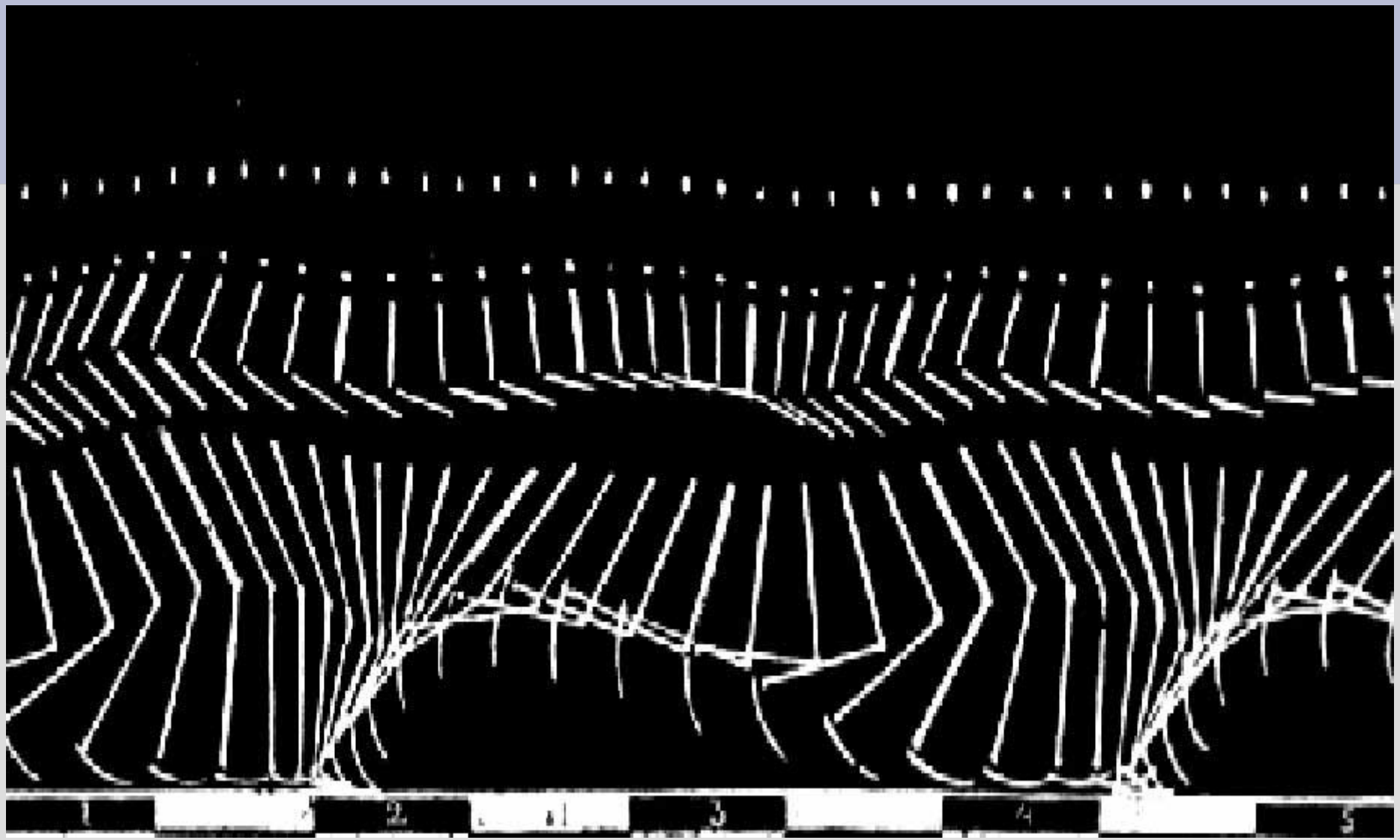
- Chronophotographey - Atlets



- Human movement



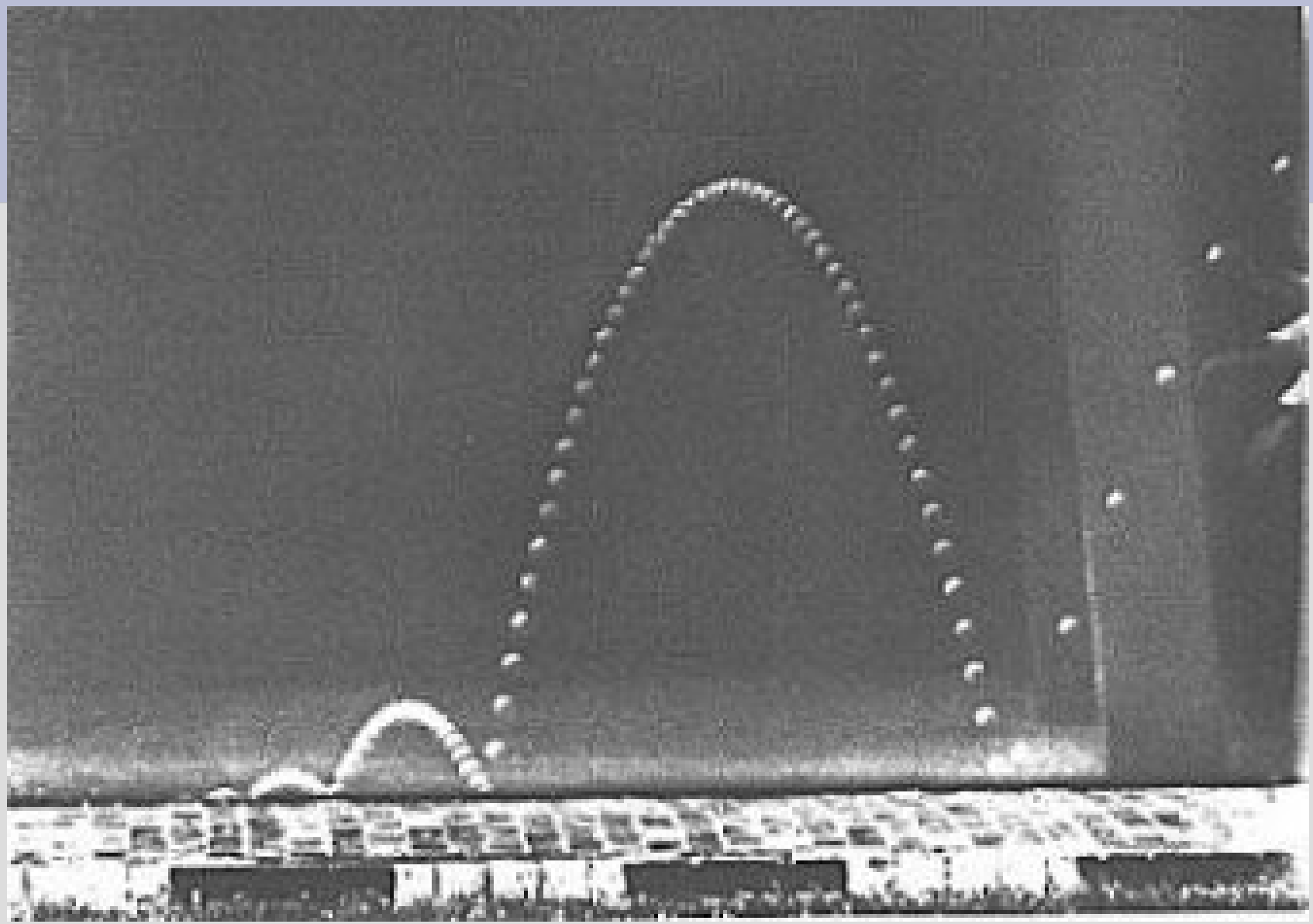
- Multiple exposure techniques



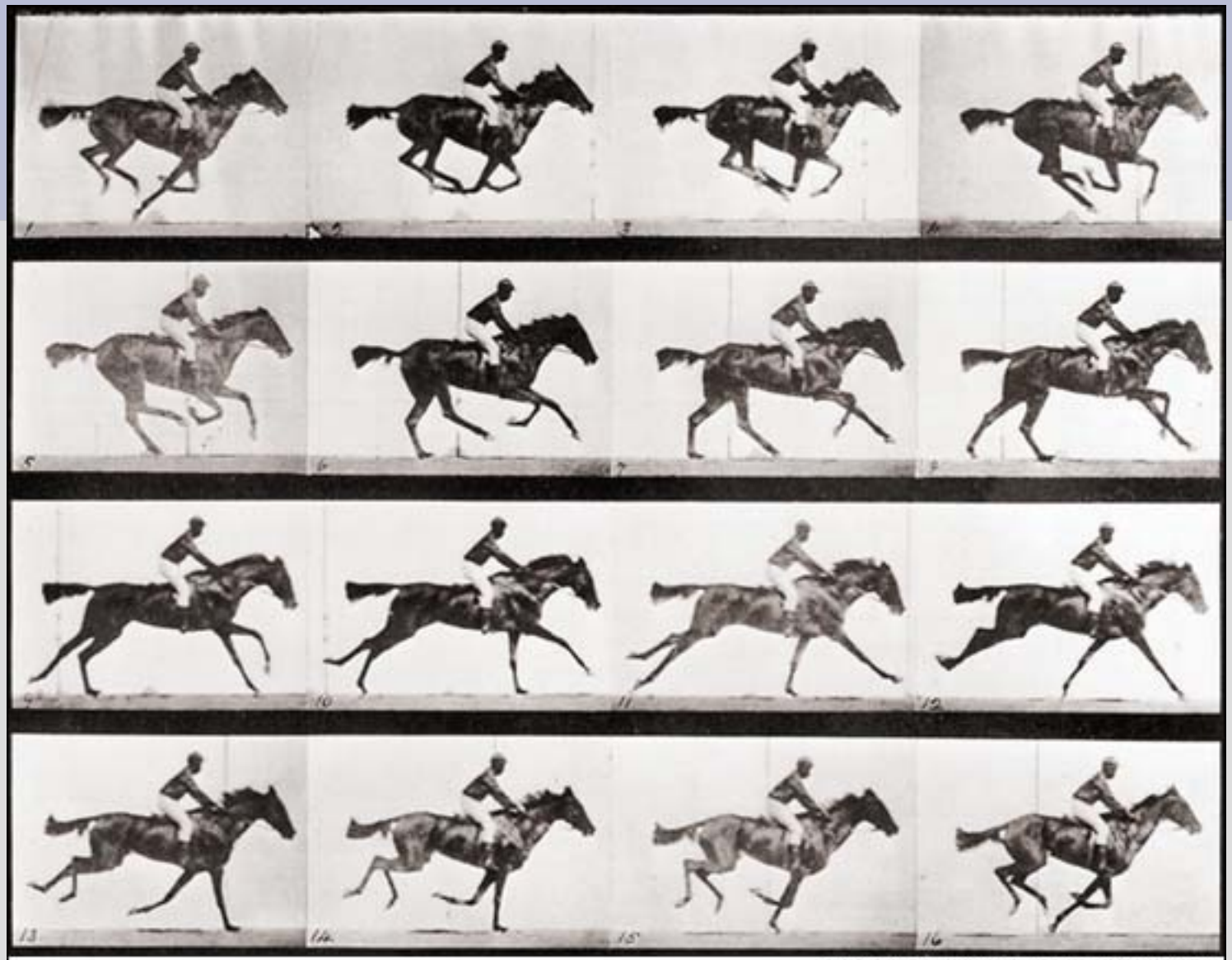
- Making visible the invisible?

- Similar techniques are used today

- Duchamp's Nude Descending the Stairs

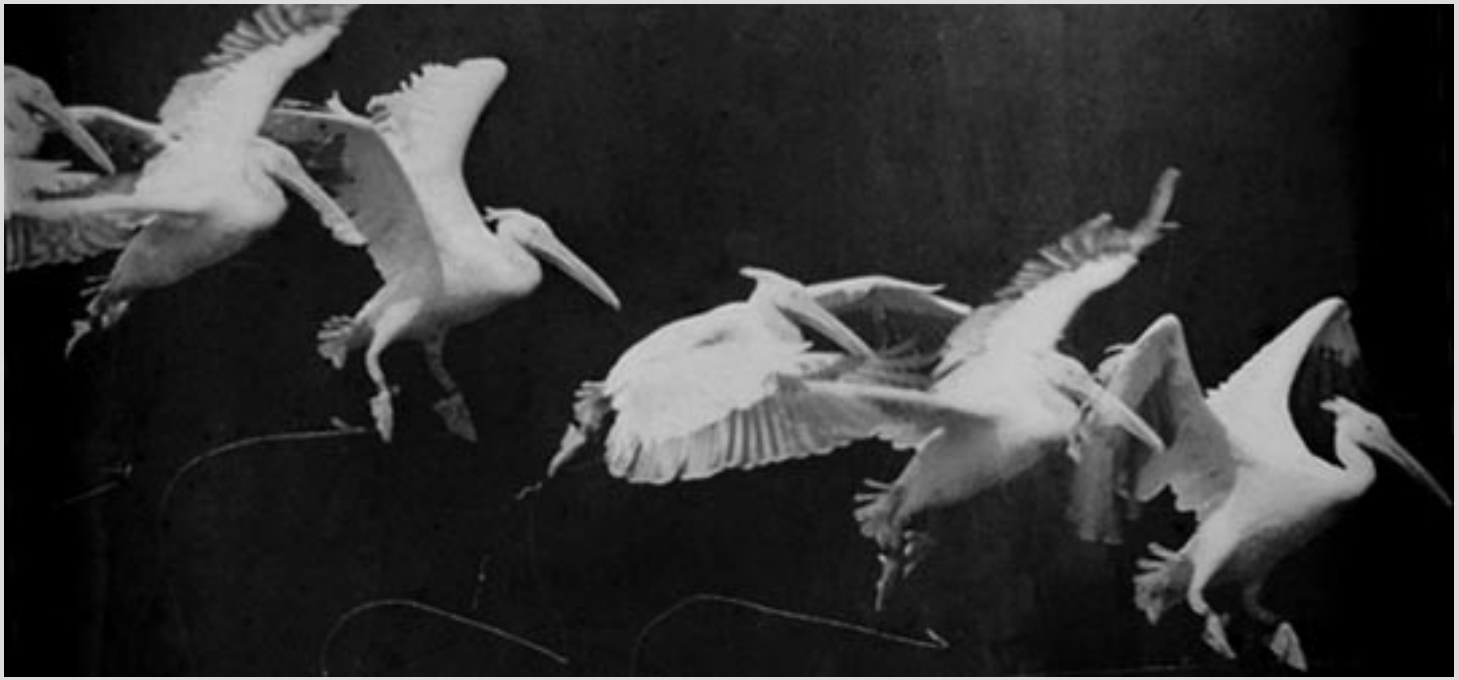


- Gravity, trajectory and solid objects

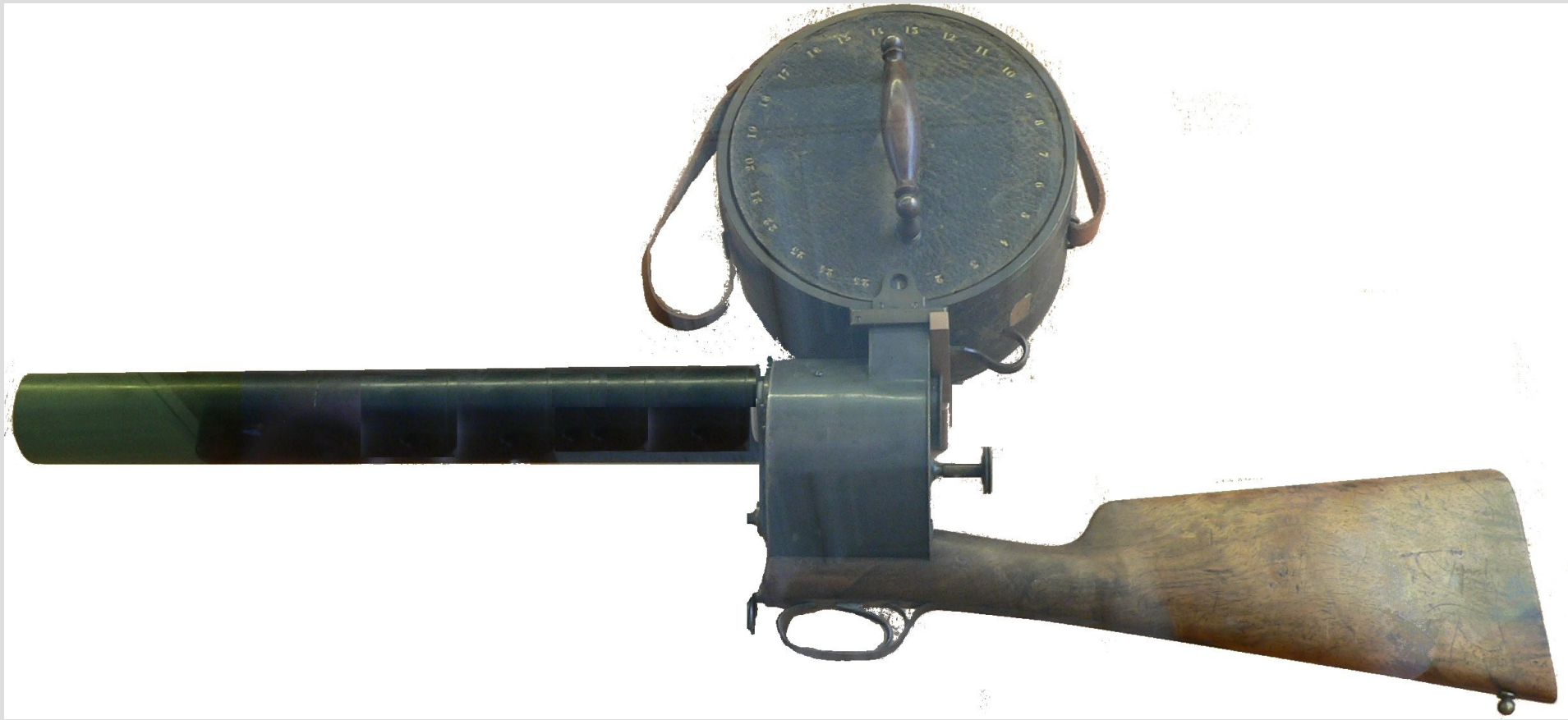


Photographs by Eadweard Muybridge

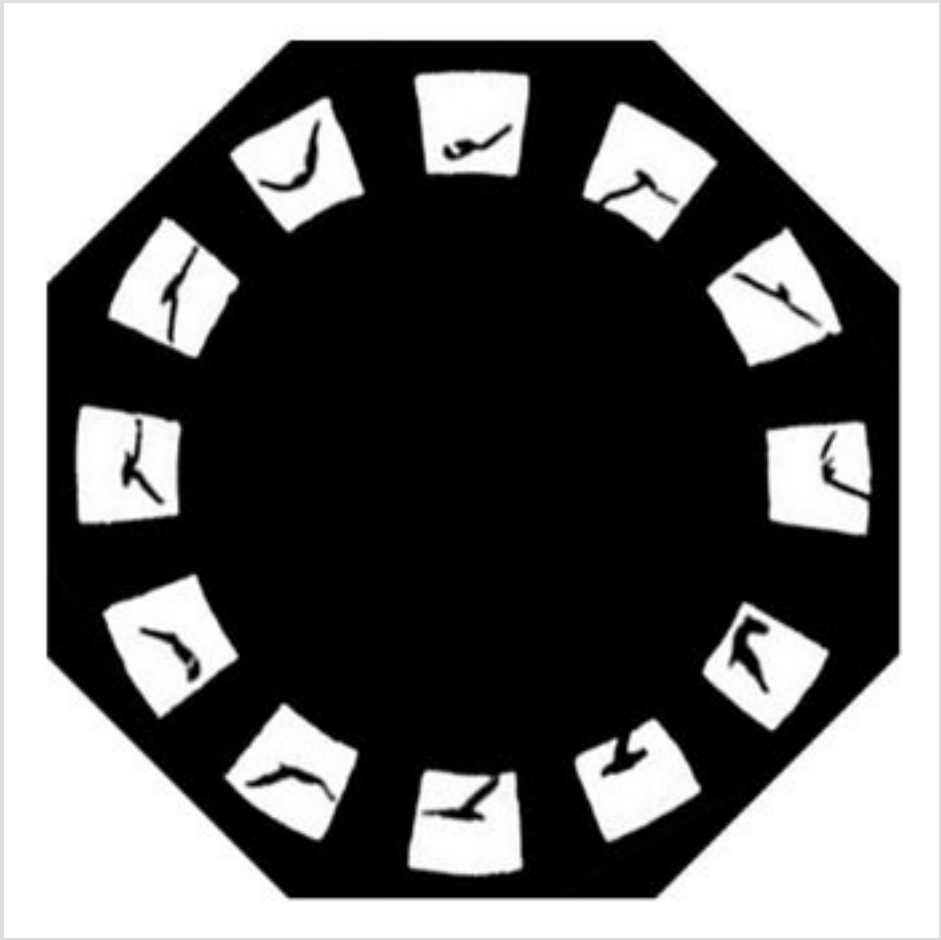
birds



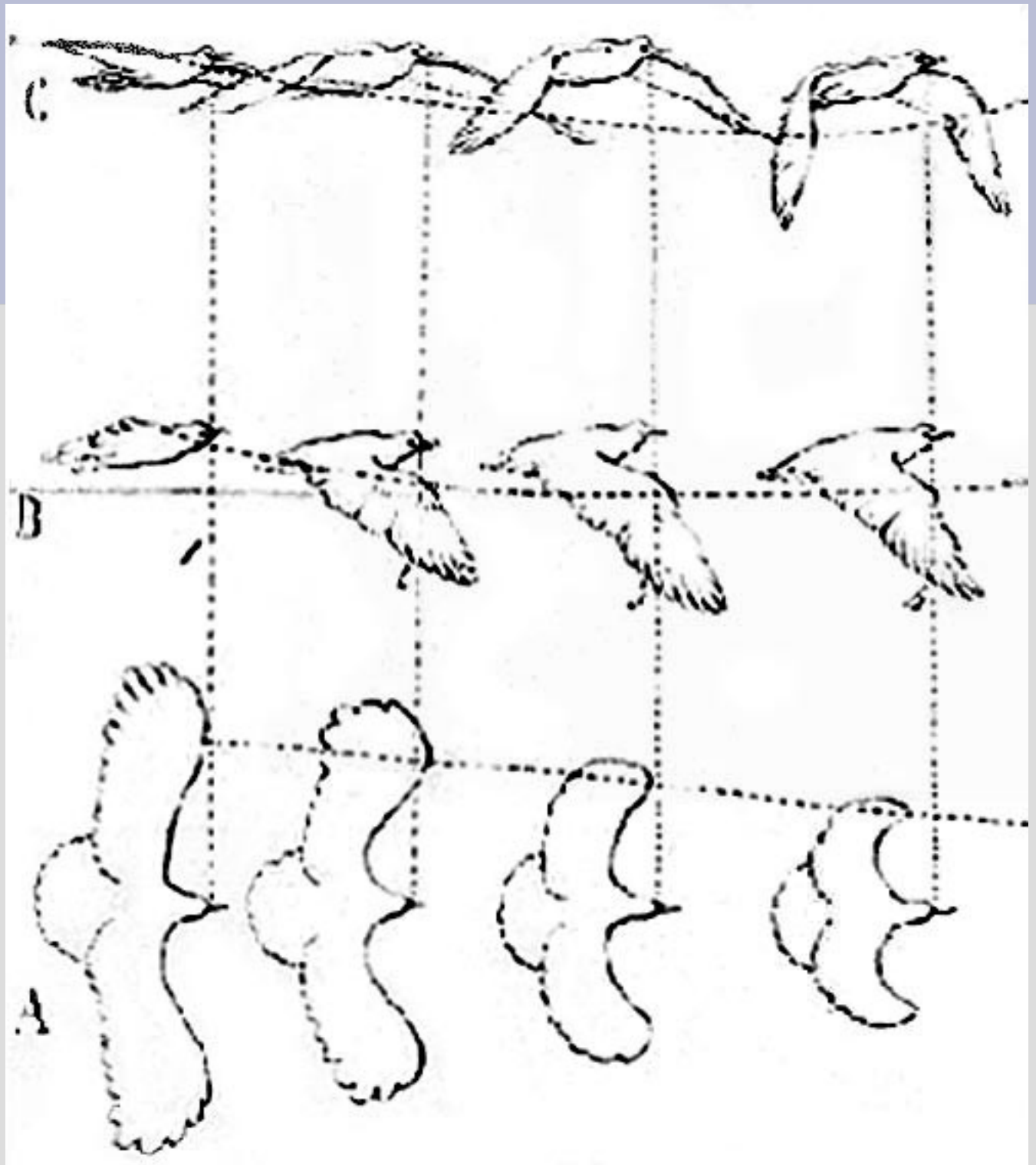
- His most famous works at that time



- Photographic Rifle



- Zoo trope


C
B
A

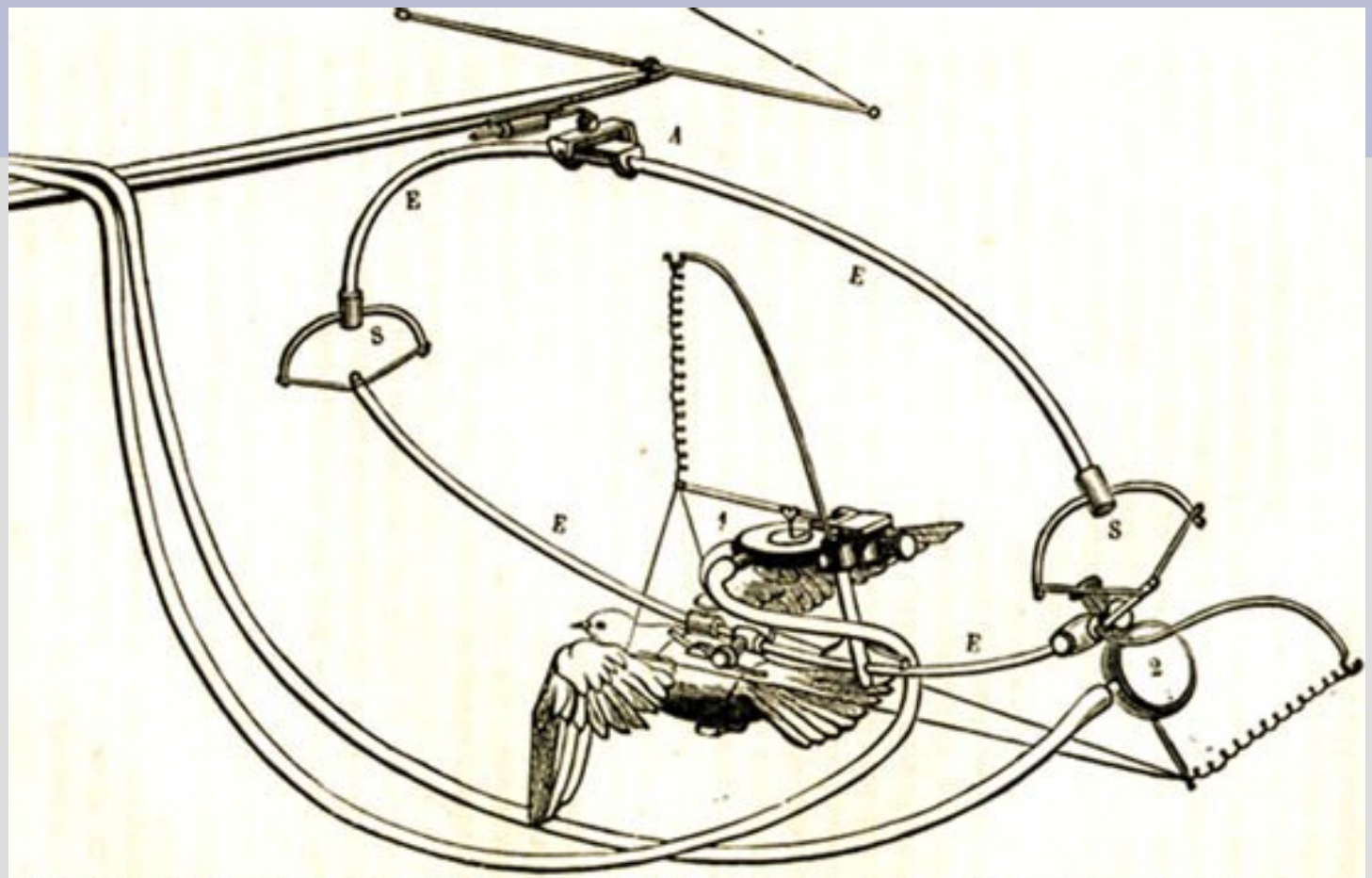
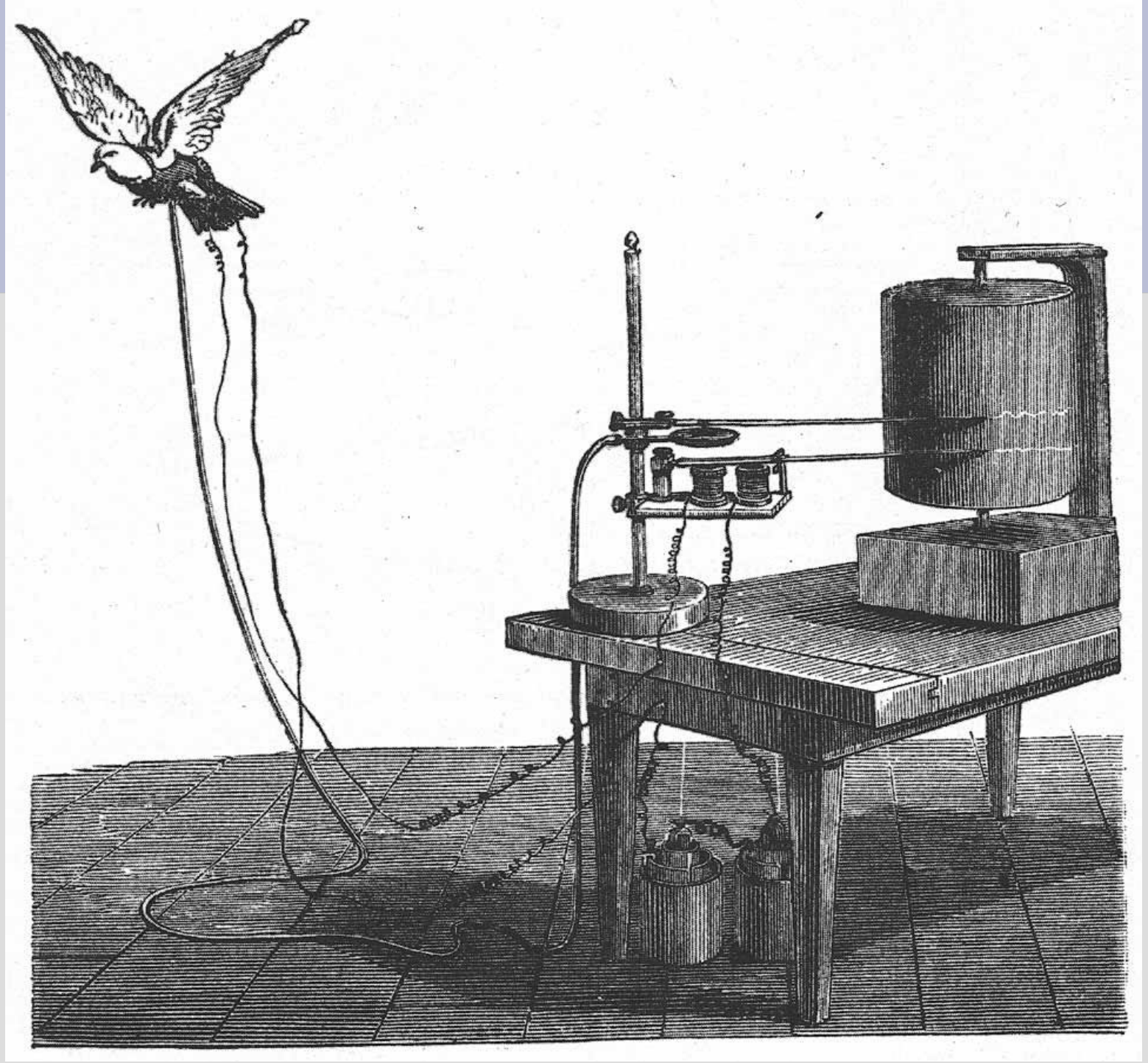
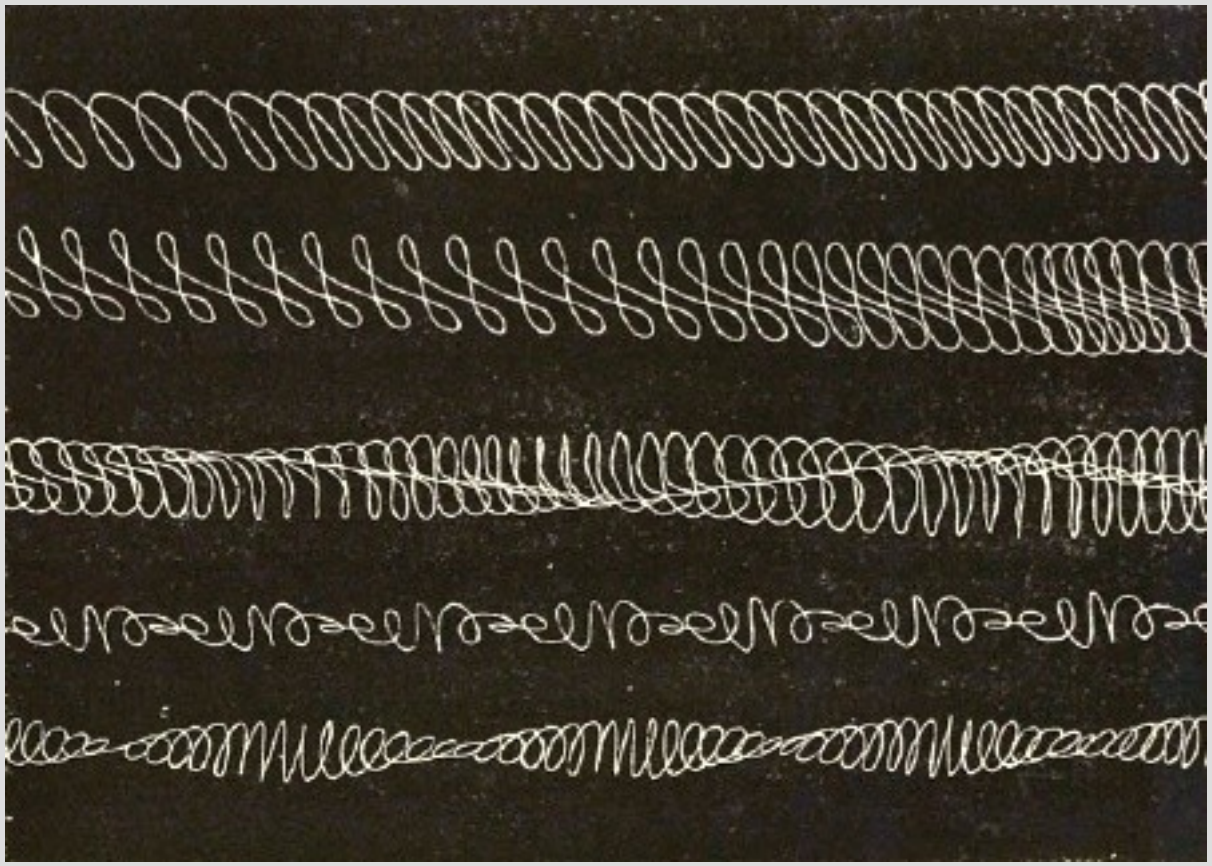


FIG. 104.—Suspension of the bird in the instrument. E E E E, an ellipse of metal capable of oscillating freely in every direction, by means of the double suspension A. S S, india-rubber supports allowing the lower part of the ellipse to oscillate in the vertical direction. The suspensory apparatus is fixed on the back of the pigeon. The lever-drum (1) receives the movements executed by the wing in a vertical direction. The lever-drum (2) receives those of the horizontal movements.

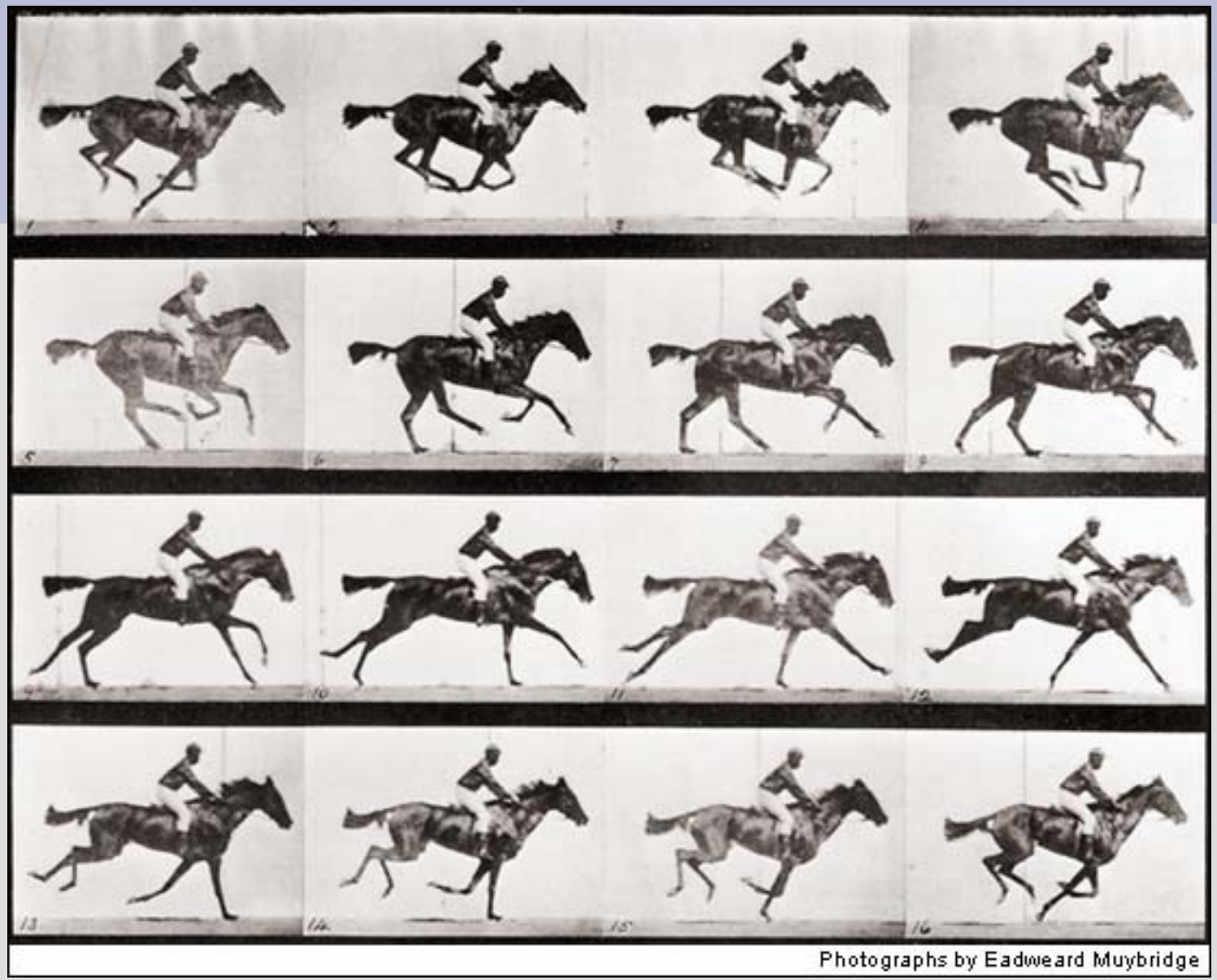
- Many strange and innovative deceives



- Write / Draw the movement

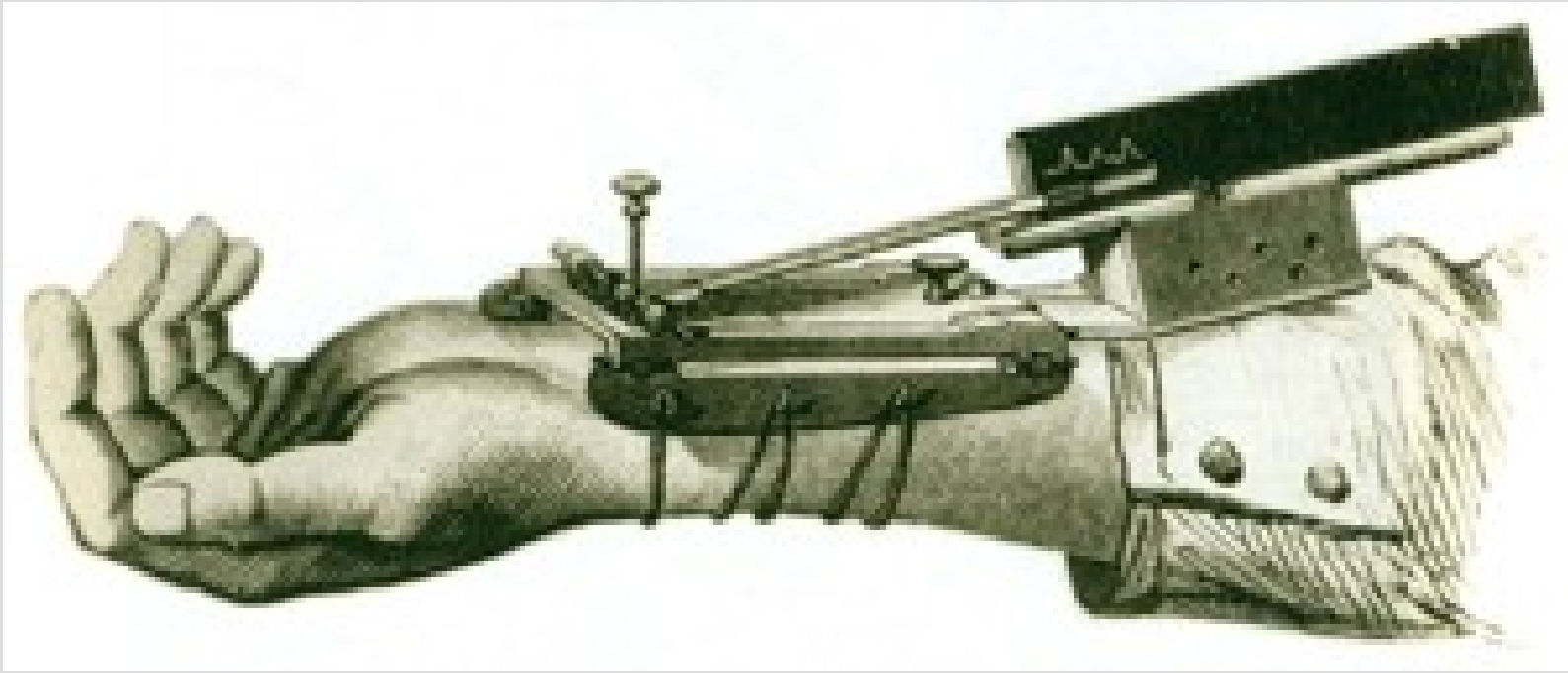


- Graphical results of birds in motion



- Influence in Palo Alto - Muybridge

- Human Motion



- Device to measure the pulse – Sensor pioneer

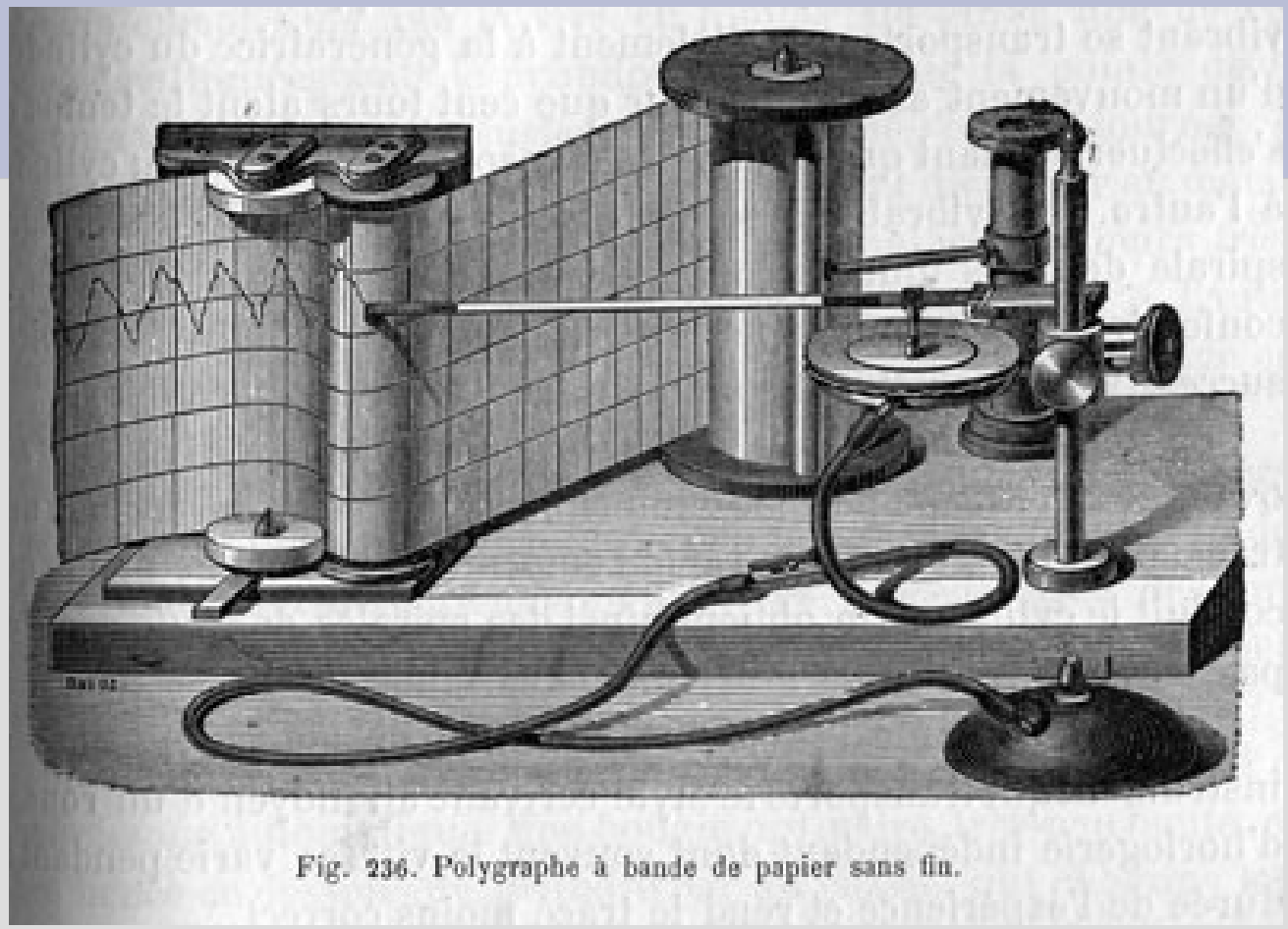
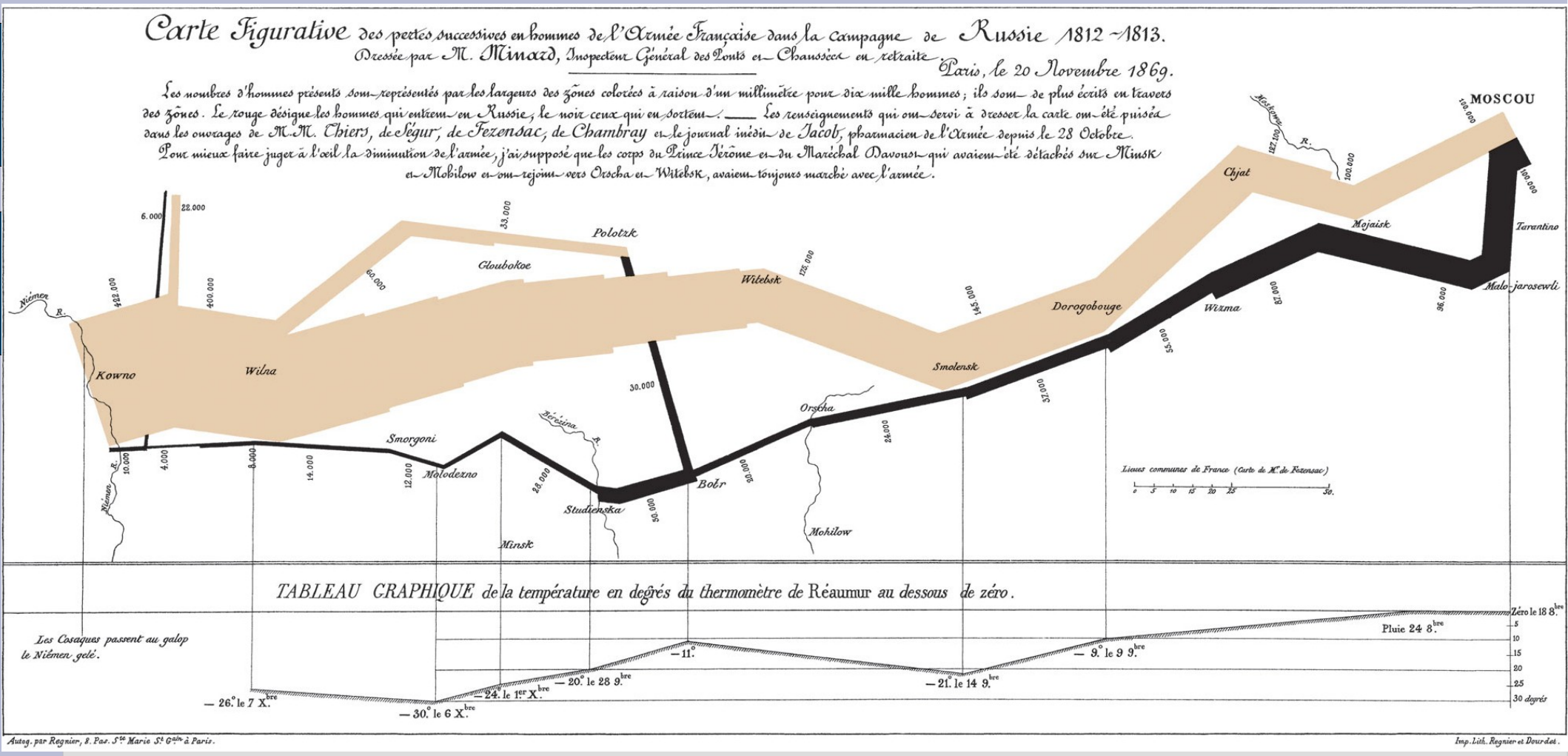


Fig. 236. Polygraphe à bande de papier sans fin.

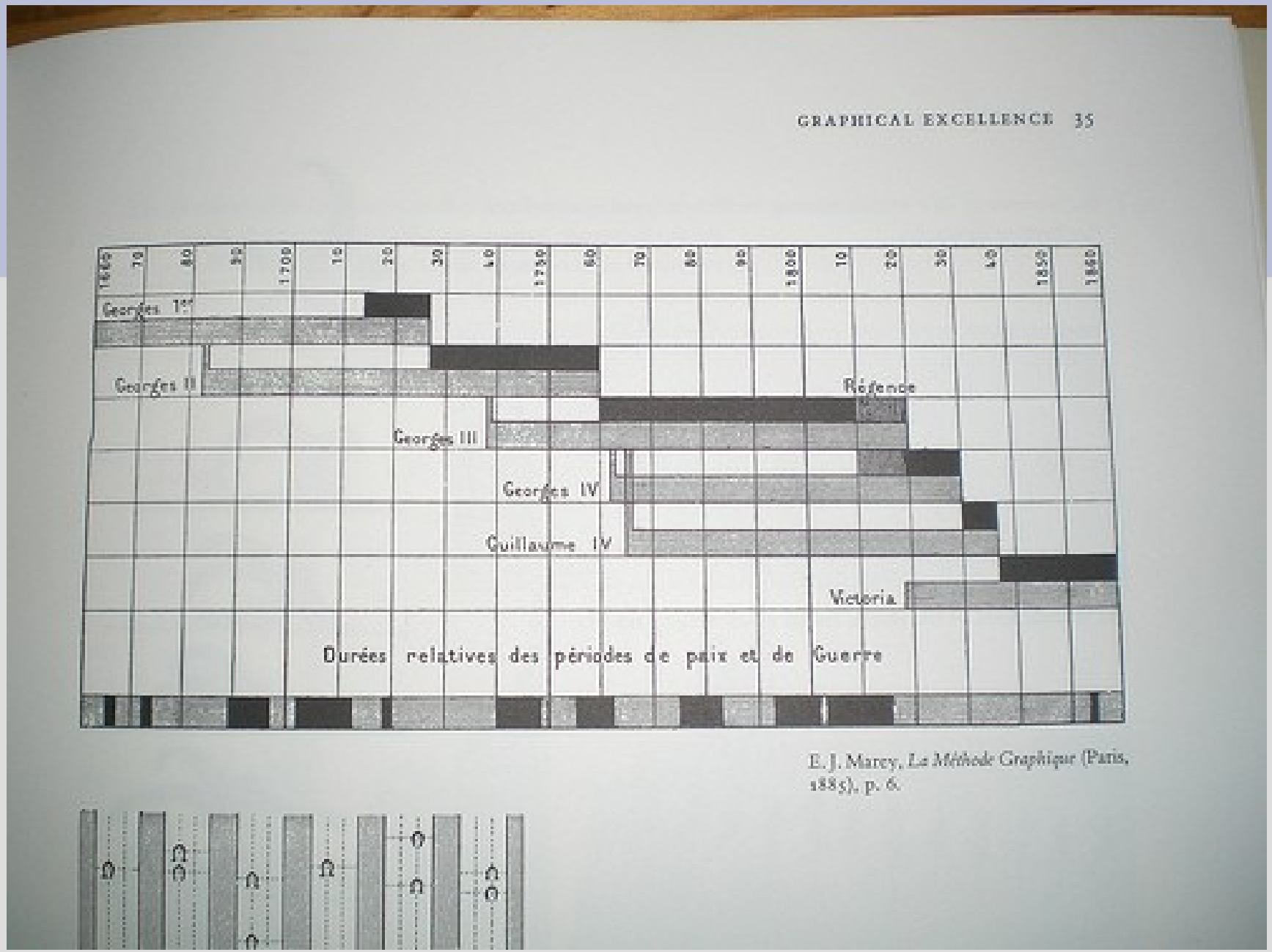
- Polygraphe – used for seismic measurements

- Smoke machines

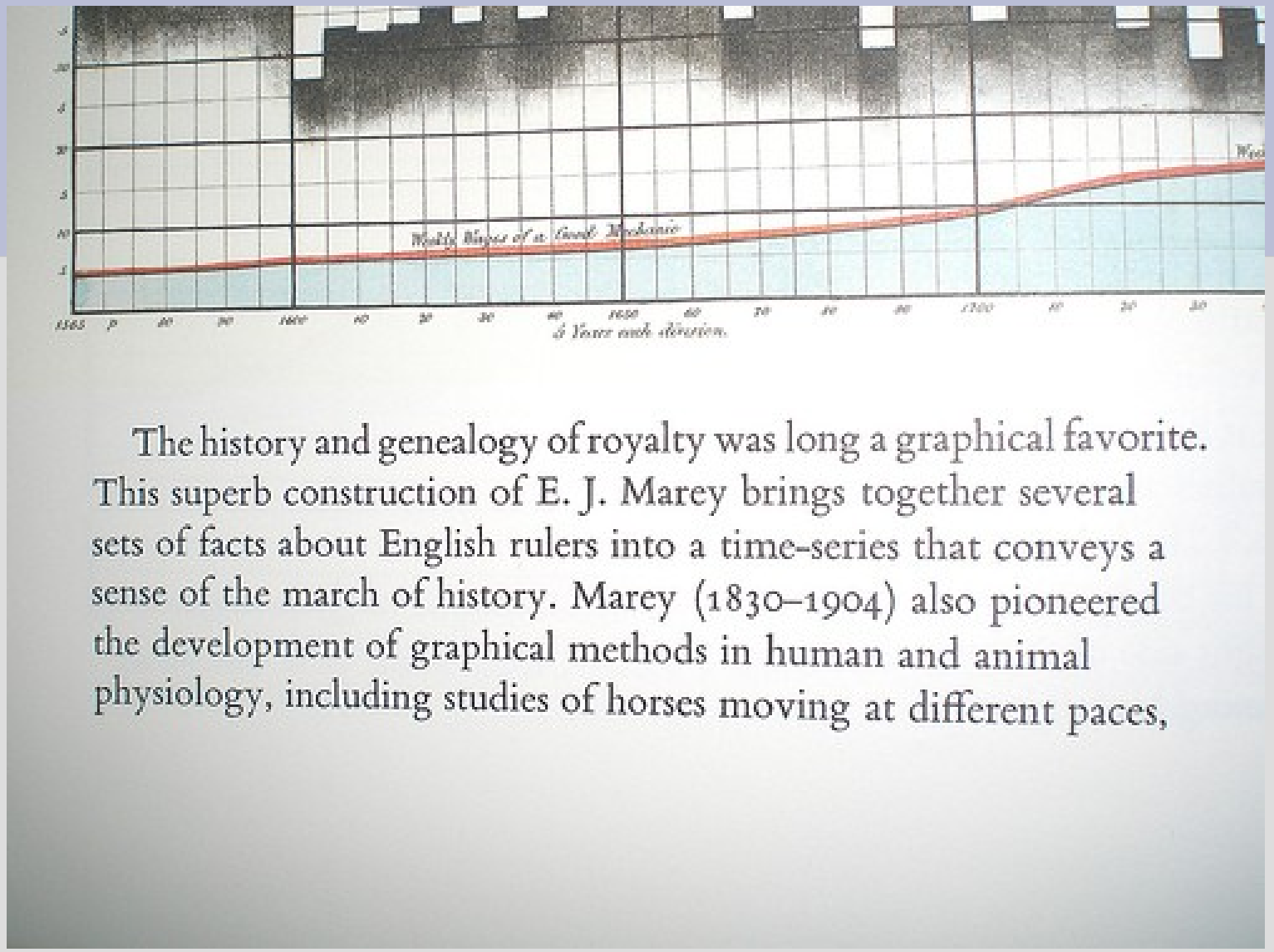
- Air in movement



- Studies Minard's work

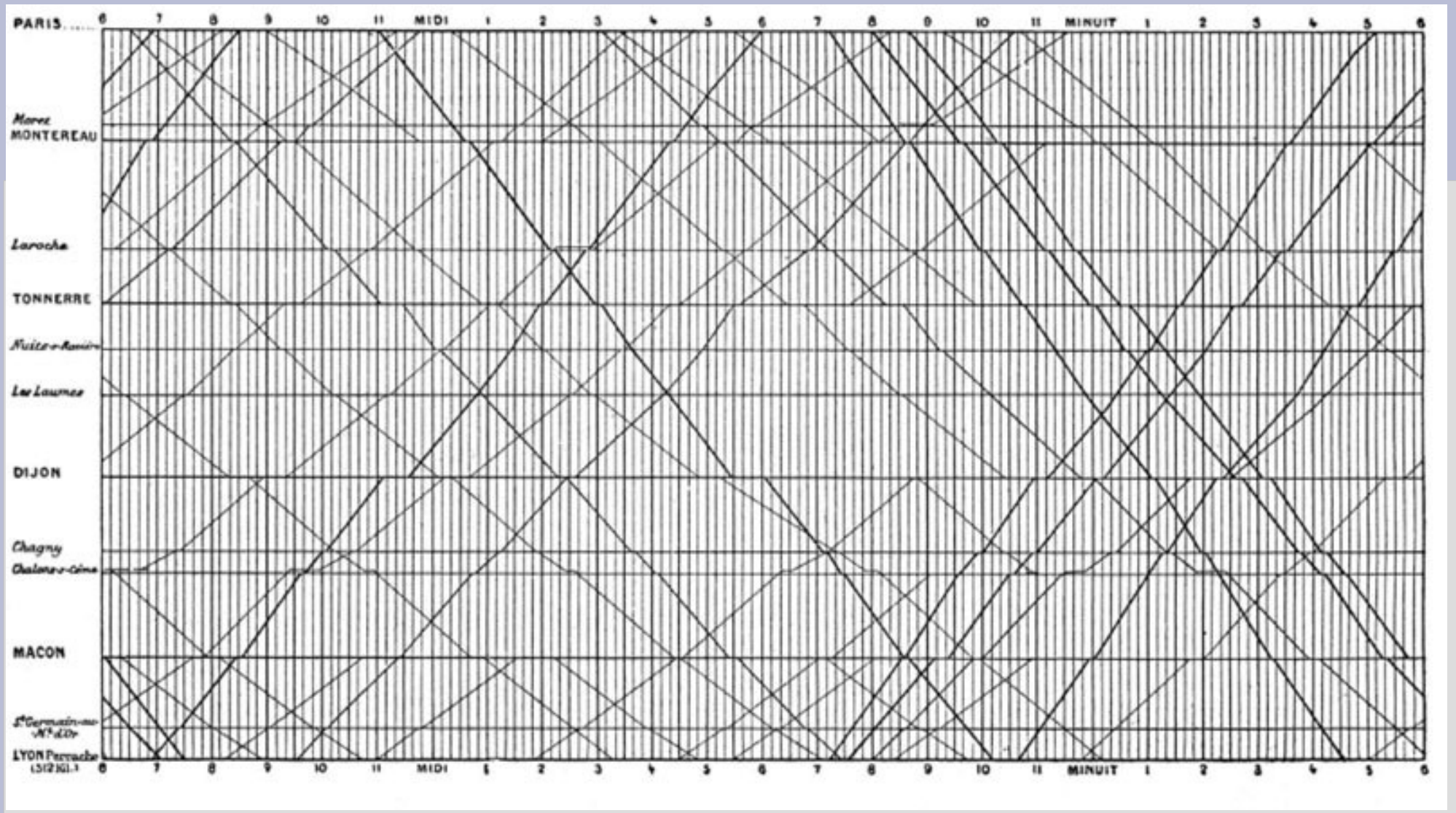


- Time lines – time spaces



The history and genealogy of royalty was long a graphical favorite. This superb construction of E. J. Marey brings together several sets of facts about English rulers into a time-series that conveys a sense of the march of history. Marey (1830–1904) also pioneered the development of graphical methods in human and animal physiology, including studies of horses moving at different paces,

- Time series.



- Time X – Space Y

- Cholera Studies

FIG. 4. — Mortalité diminuée à Paris dans les quartiers qui recevaient l'eau de puits de Grenelle.

Golan Levin

- Golan Levin's work combines equal measures of the whimsical, the provocative, and the sublime in a wide variety of online, installation and performance media. He is known for the conception and creation of Dialtones: A Telesymphony [2001], a concert whose sounds are wholly performed through the carefully choreographed dialing and ringing of the audience's own mobile phones, and for interactive information visualizations like The Secret Lives of Numbers [2002] and The Dumpster [2006], which offer novel perspectives onto millions of online communications.

golan

- Previously, Levin was granted an Award of Distinction in the Prix Ars Electronica for his Audiovisual Environment Suite [2000] interactive software and its accompanying audiovisual performance, Scribble [2000]. Other projects from recent years include Re:MARK [2002], Messa di Voce [2003], and The Manual Input Sessions [2004], developed in collaboration with Zachary Lieberman, and Scrapple [2005] and Ursonography [2005]; these performance and installation works use augmented-reality technologies to create multi-person, real-time visualizations of their participants' speech and gestures.

Levin

- Levin is now in the preliminary research phase of a new body of work, which centers about interactive robotics, machine vision, and the theme of gaze as a primary new mode for human-machine communication. Presently Levin is Associate Professor of Electronic Time-Based Art at Carnegie Mellon University; his work is represented by the bitforms gallery, New York City.

Opto-Isolator

- Opto-Isolator inverts the condition of spectatorship by exploring the questions: "What if artworks could know how we were looking at them? And, given this knowledge, how might they respond to us?" The sculpture presents a solitary mechatronic blinking eye, at human scale, which responds to the gaze of visitors with a variety of psychosocial eye-contact behaviors that are at once familiar and unnerving. Among other forms of feedback, Opto-Isolator looks its viewer directly in the eye; appears to intently study its viewer's face; looks away coyly if it is stared at for too long; and blinks precisely one second after its visitor blinks.

Opto-Isolator

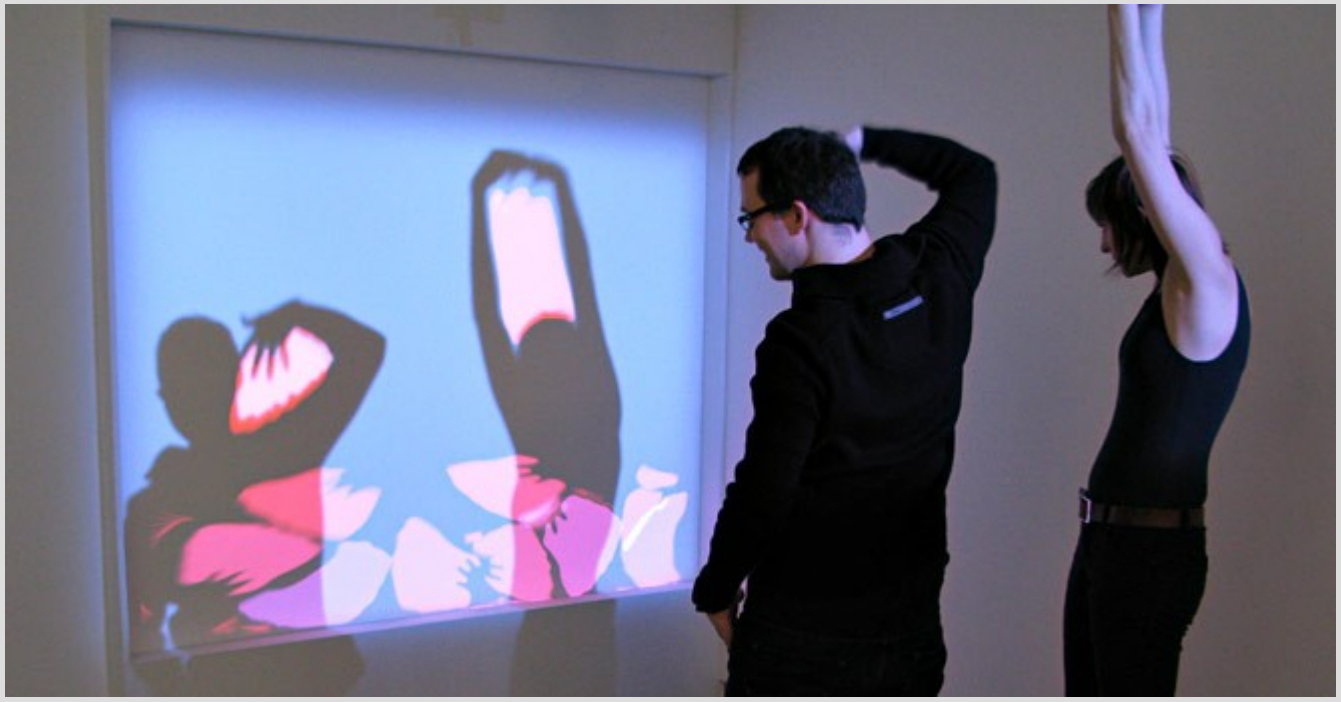
- **2007** | Golan Levin with Greg Baltus / Standard Robot Company.

Interstitial Fragment Processor

- A synaesthetic realization of the latent mass within negative spaces, the Interstitial Fragment Processor collects and drops the contoured shapes formed within and between the bodies of its participants. Elastic red and blue animated objects plummet toward the gallery floor, producing audiovisual improvisations on vertical descent and collision.

Interstitial Fragment Processor

- **2007** | Golan Levin

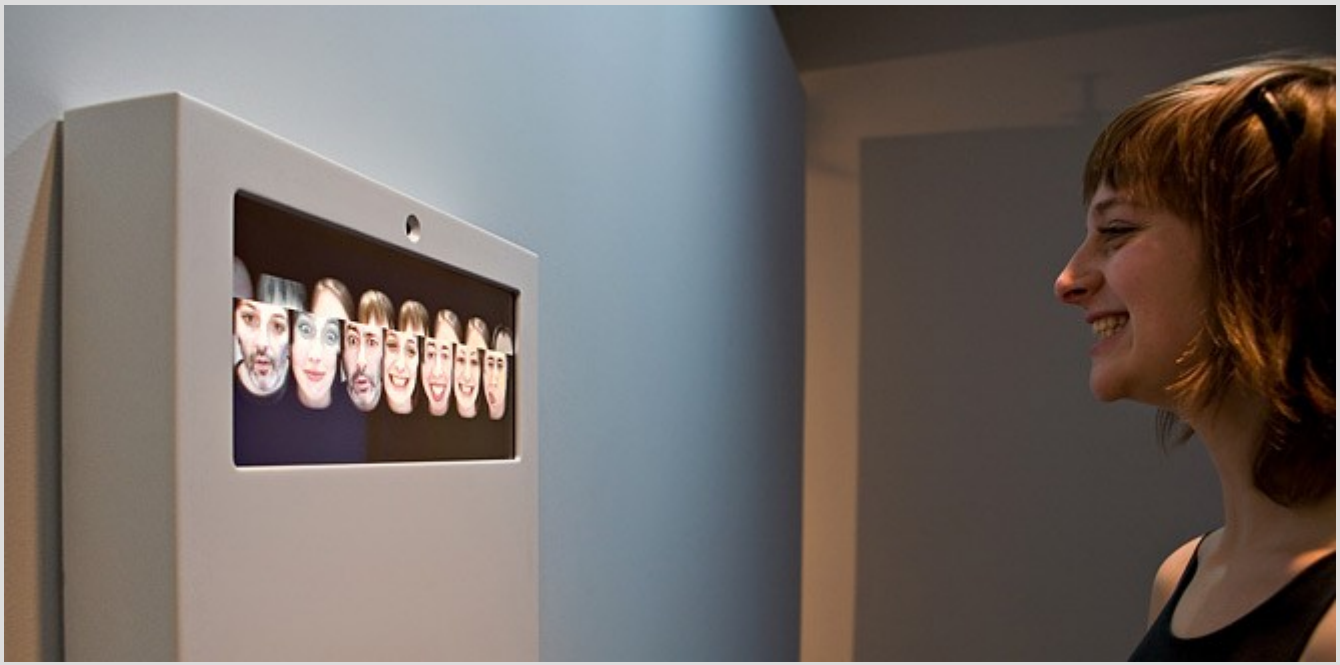


Reface [Portrait Sequencer]

- Reface [Portrait Sequencer] (2007: Golan Levin and Zachary Lieberman) is a surreal video mash-up that composes endless combinations of its visitors' faces. Based on the Victorian "Exquisite Corpse" parlor game, the Reface installation records and dynamically remixes brief video slices of its viewers' mouths, eyes and brows.
-
- Reface uses face-tracking techniques to allow automatic alignment and segmentation of its participants' faces. As a result, visitors to the project can move around freely in front of the display without worrying about lining up their face for the system's camera. The video clips recorded by the project are "edited" by the participants' own eye blinks. Blinking also triggers the display to advance to the next set of face combinations

Reface [Portrait Sequencer]

- **2007** | Tmema (Golan Levin & Zachary Lieberman)

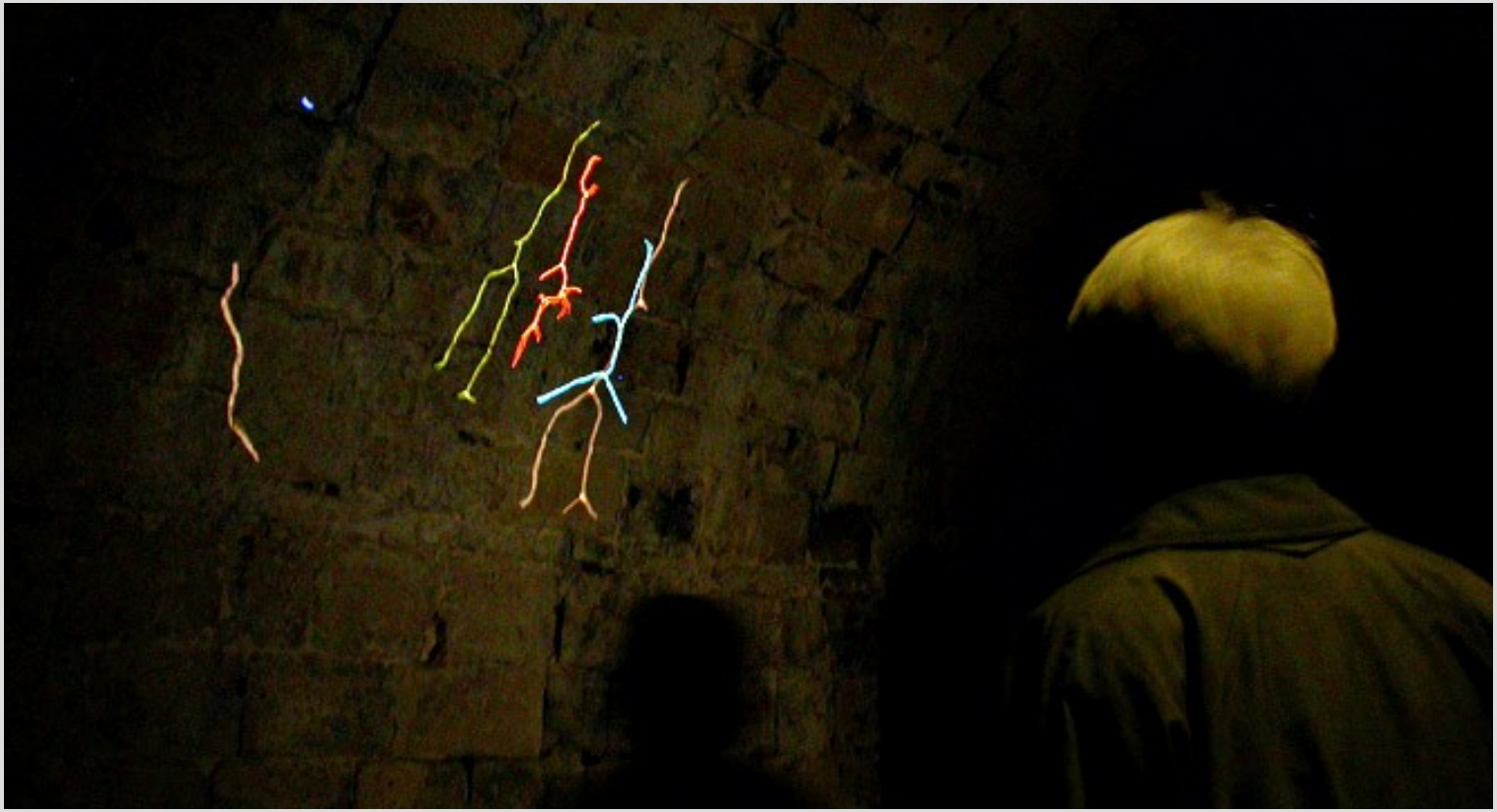


Ghost Pole Propagator

- Ghost Pole Propagator (2007: Golan Levin) is an interactive installation originally developed for projection in the 13th century Belsay Hall Castle, in Newcastle, England as part of the Picture House exhibition. The exhibition catalogue states: "Levin's new interactive installation presents a phantom transcription of visitors to the Belsay Castle, recording and replaying highly abstracted 'skeletons' of the artwork's own observers. Projected on the walls of the castle's medieval kitchen, the quiet and otherworldly animations suggest the bustle of past ghosts, or ancient petroglyphs.”

Ghost Pole Propagator

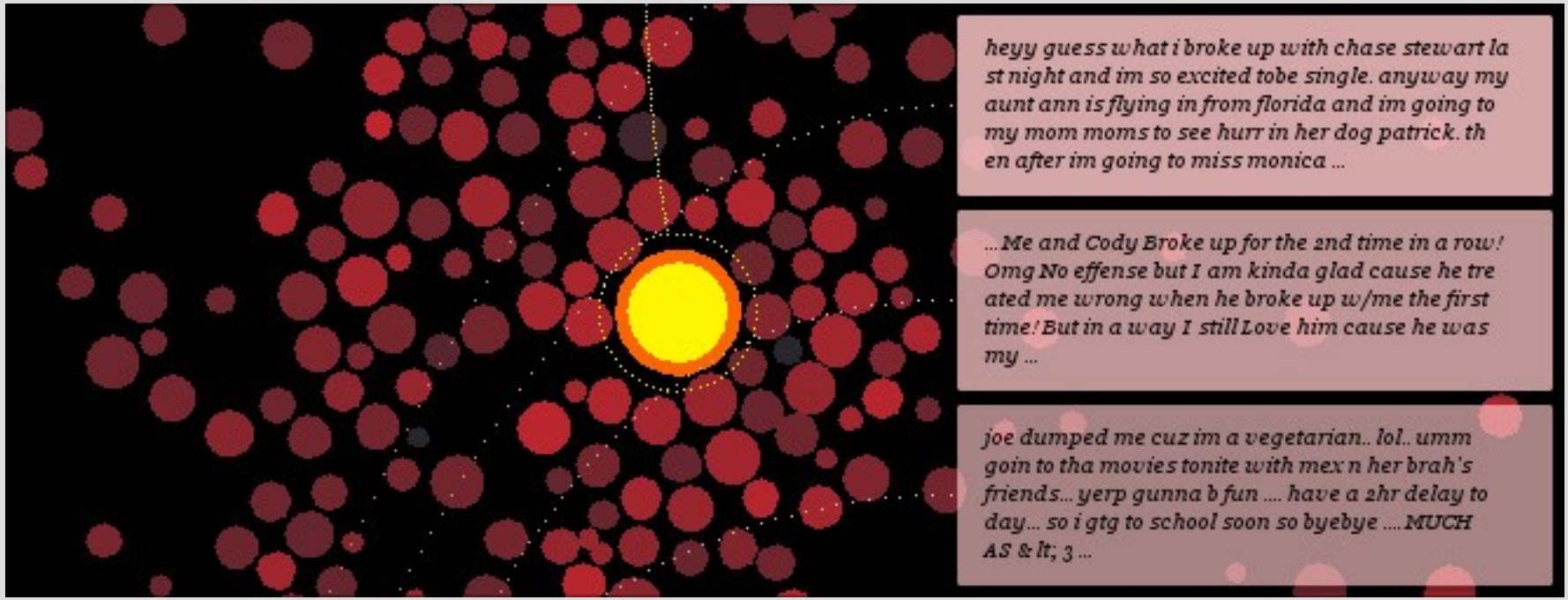
- 2007 | Golan Levin



The Dumpster

The Dumpster

- **2006** | Golan Levin with Kamal Nigam and Jonathan Feinberg



Ursonography

- Ursonography is a new audiovisual interpretation of Kurt Schwitters' Ursonate, a masterpiece of 20th Century concrete poetry in which speech is reduced to its most abstract and musical elements. Dutch sound poet and virtuoso vocalist Jaap Blonk has performed the half-hour Ursonate more than a thousand times; in this presentation, Blonk's performance is augmented with a modest but elegant new form of expressive, real-time, "intelligent subtitles." With the help of computer-based speech recognition and score-following technologies, projected subtitles are tightly locked to the timing and timbre of Blonk's voice, and brought forth with a variety of dynamic typographic transformations that reveal new dimensions of the poem's structure.

Ursonography

- **2005** | Jaap Blonk and Golan Levin

- Kurt Schwitters
- Merzbau

Scrapple (Installation)

- Scrapple (2005: Golan Levin) is an audiovisual installation in which everyday objects placed on a table are interpreted as sound-producing marks in an “active score.” The Scrapple system scans a table surface as if it were a kind of music notation, producing music in real-time from any objects lying there. The installation makes use of a variety of playful forms; in particular, long flexible curves allow for the creation of variable melodies, while an assemblage of cloth shapes, small objects and wind-up toys yields ever-changing rhythms. Video projections on the Scrapple table transform the surface into a simple augmented reality, in which the objects placed by users are elaborated through luminous and explanatory graphics.

Scrapple (Installation)

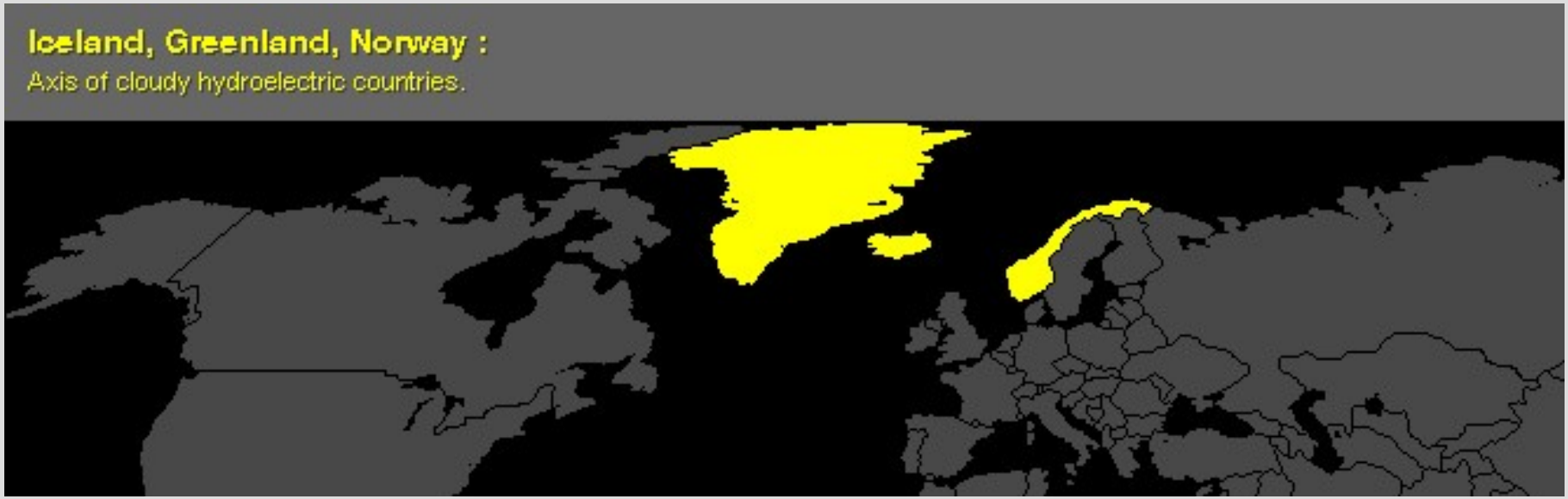
- **2005** | Golan Levin

Axis

- Axis (2002: Golan Levin) is a whimsical interactive data visualization, commissioned by the Whitney Museum for its Artport website. A dozen artists were invited by curator Christiane Paul to respond to a specific assignment in a programming language of their choice. The assignment was to 'connect and move three points in space,' which obviously could be interpreted in a literal or abstract way. The code itself was not to exceed 8 kilobytes, which equals a fairly short text document. My contribution, Axis, is an interactive applet driven by a simple database of arcane sociopolitical factoids. The project responds to Paul's challenge by allowing its users to connect three countries into a conceptual "Axis" defined by their common properties in this database.

Axis

- **2002** | Golan Levin

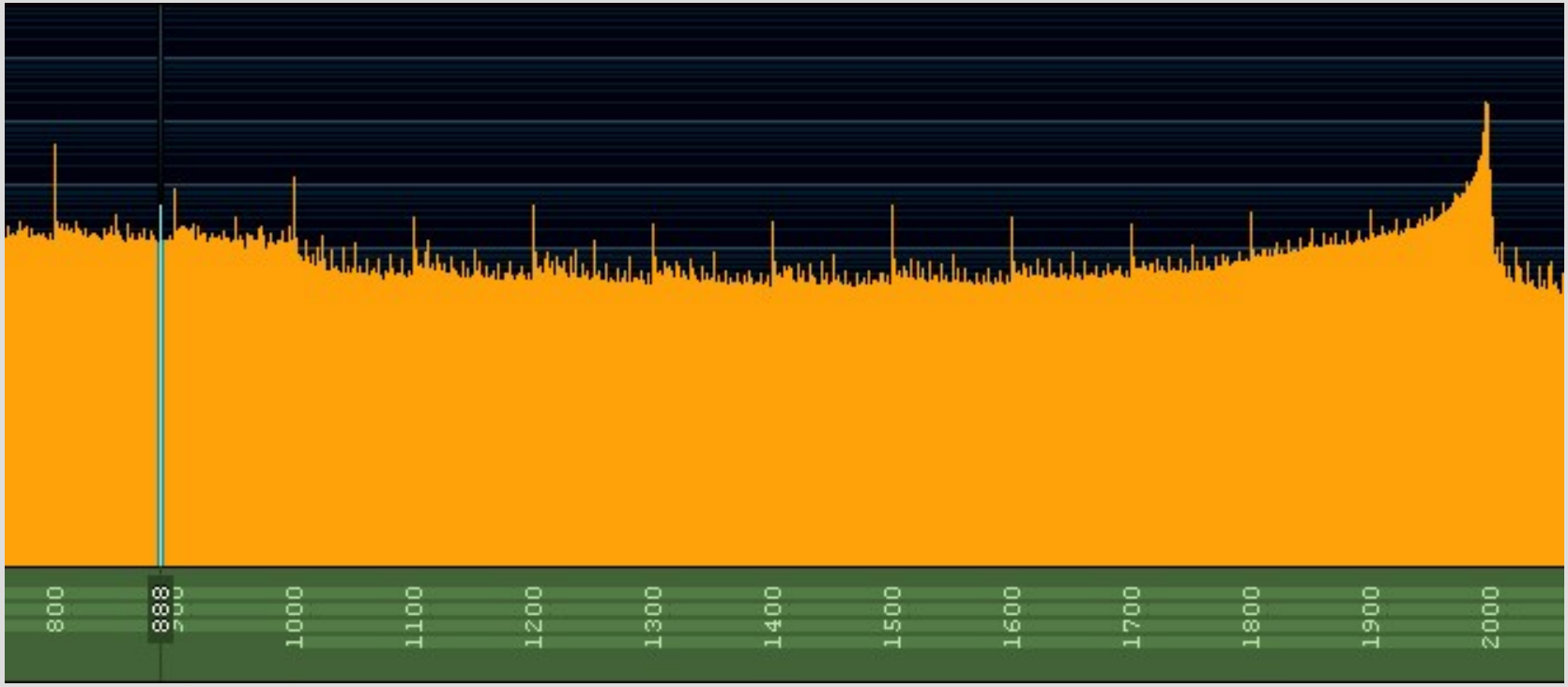


The Secret Lives of Numbers

- The Secret Lives of Numbers (2002: Golan Levin, Jonathan Feinberg, Shelly Wynecoop and Martin Wattenberg) is an interactive data visualization and online artwork, commissioned by Turbulence.org. An exhaustive empirical study was conducted to determine the relative popularity of every integer between zero and one million. The resulting information exhibits an extraordinary variety of patterns which reflect our culture, our minds, and our bodies—forming a numeric snapshot of the collective consciousness. In The Secret Lives of Numbers, these analyses are returned to the public in the form of an interactive visualization, whose aim is to provoke awareness of one's own numeric manifestations.

The Secret Lives of Numbers

- **2002** | Golan Levin, Jonathan Feinberg, Shelly Wynecoop and Martin Wattenberg

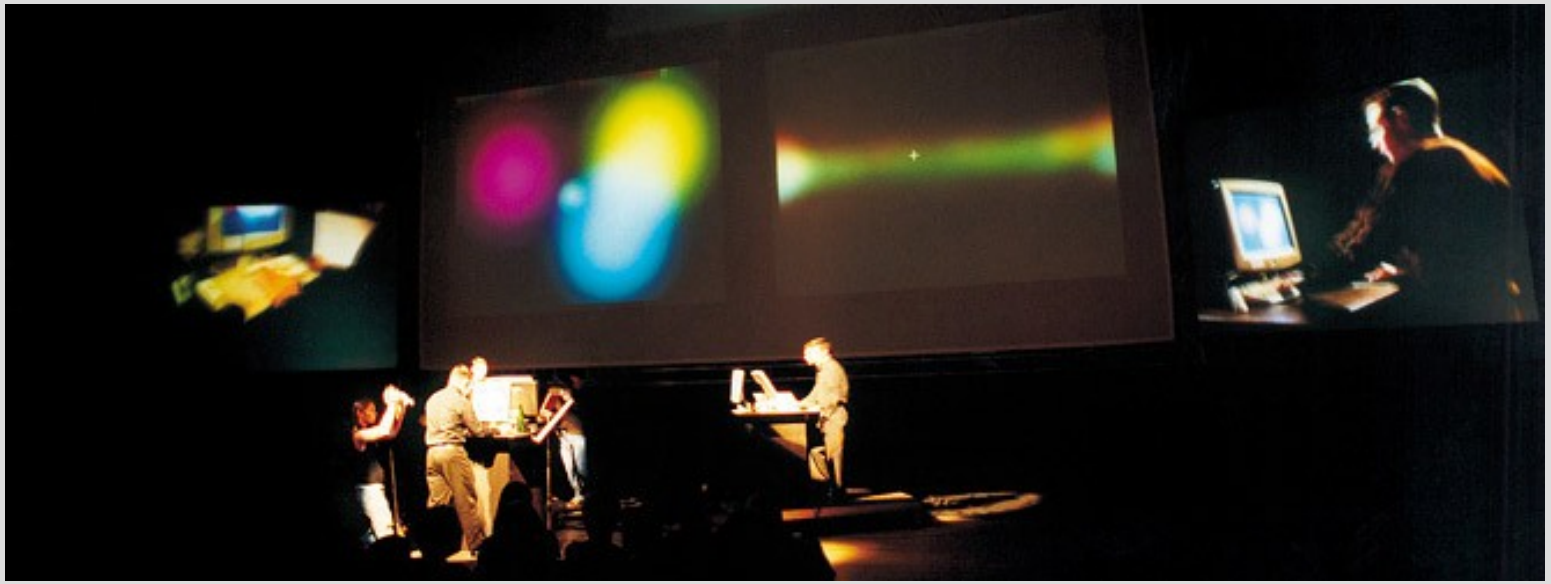


Scribble

- Scribble (2000: Golan Levin, Gregory Shakar and Scott Gibbons) is a live audiovisual concert originally commissioned in 2000 by the Ars Electronica Festival. Performed on custom software, Scribble revives and updates a decades-old tradition of kinetic light performance, featuring tightly-coupled sounds and dynamic abstract visuals which are at times carefully scored, and at other times loosely improvised.
-
- Scribble is performed on the Audiovisual Environment Suite (AVES), a set of seven interactive systems which allow people to create and perform abstract animation and sound, simultaneously, in real time

Scribble

- **2000** | Golan Levin, Gregory Shakar and Scott Gibbons



Open Frame Works

- http://www.openframeworks.cc/
- By Zach Liberman
- Like processing but with C and C++

OpenFrameWorks

- “OpenFrameWorks, is a new open source, cross platform, c++ library, which was designed by Zachary Lieberman (US) to make programming in c++ for students accessible and easy. In it, the developers wrap several different libraries like opengl for graphics, quicktime for movie playing and capturing, and free type for font rendering, into a convenient package in order to create a simple, intuitive framework for creating projects using c++. It is designed to work in freely available compilers, and will run under any of the current operating systems”.