

Big Data Analytics Virtual Summer School

A Brief Introduction to Data Visualization



Dr. Scott Davidoff, Human Interfaces Manager, NASA Jet Propulsion Lab

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Why does data visualization matter?



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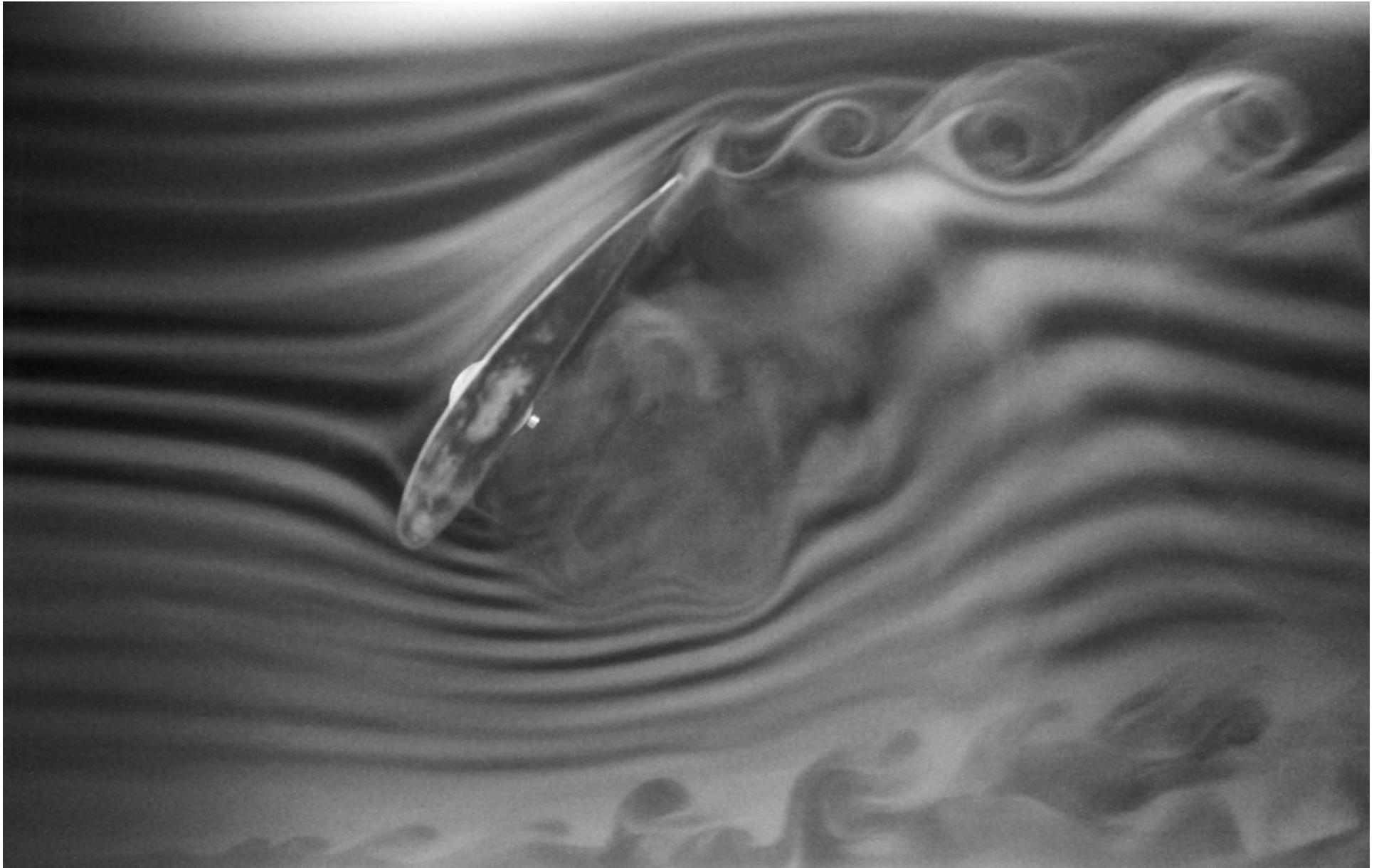
Our ability to capture data exceeds our ability to make meaning of it



What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention, and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.

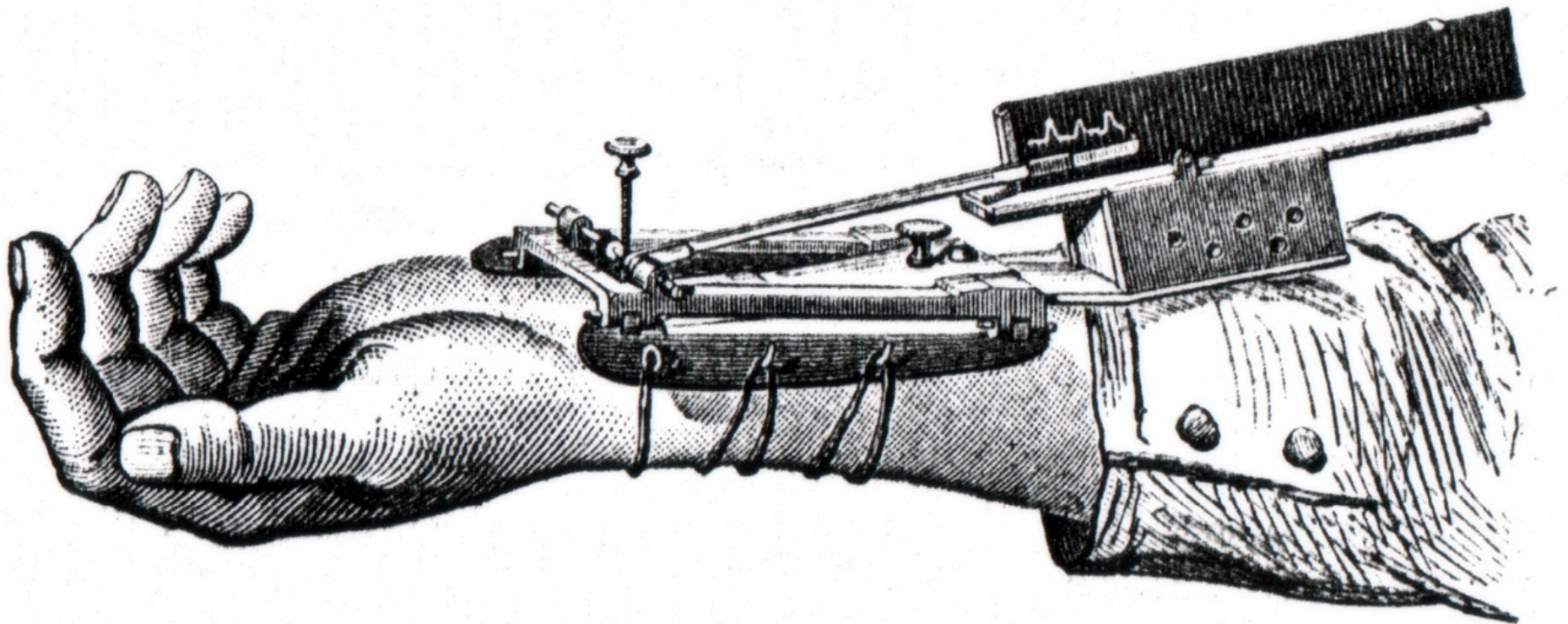
Herb Simon
Scientific American, 1995



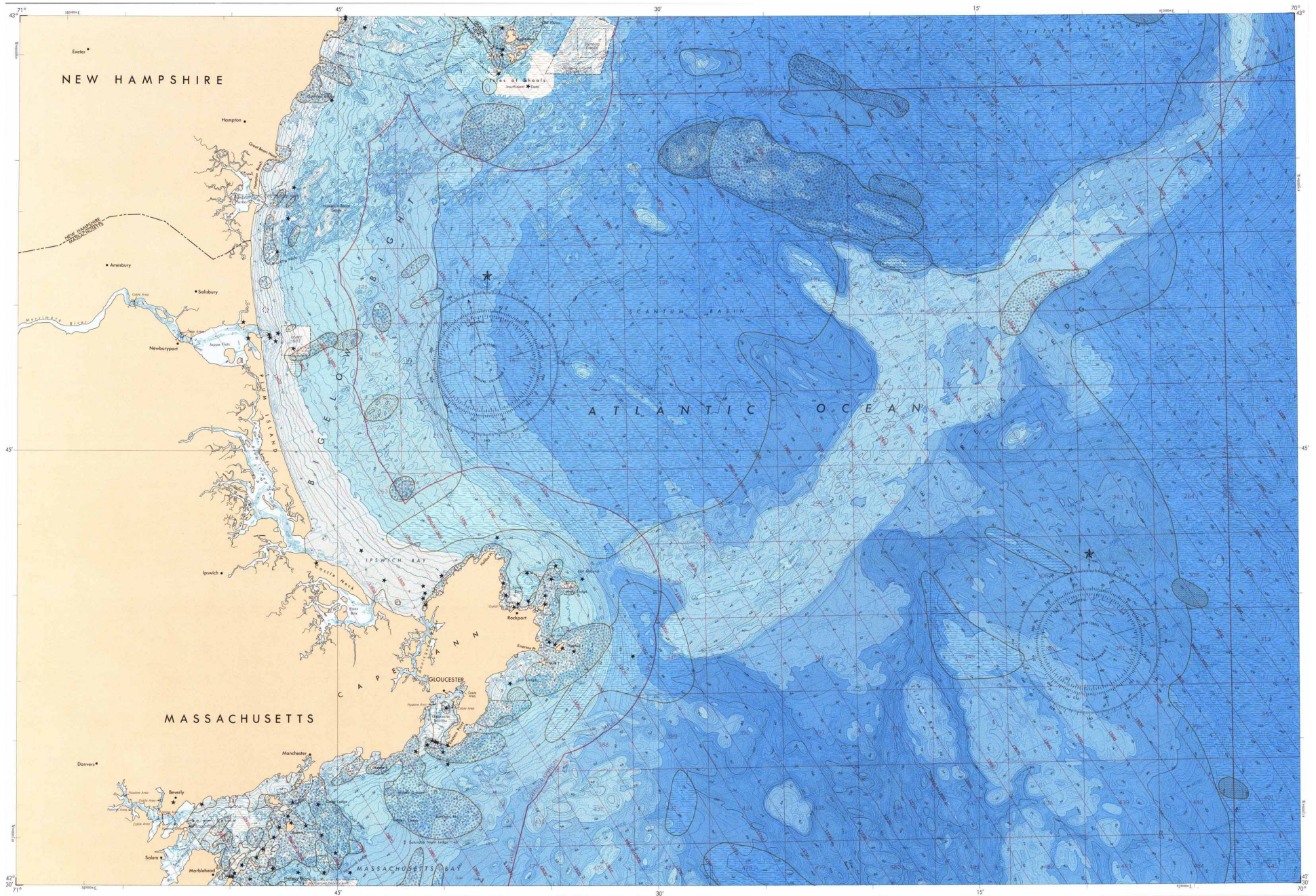


Wind tunnel: give access to invisible patterns
[Wikipedia](#)



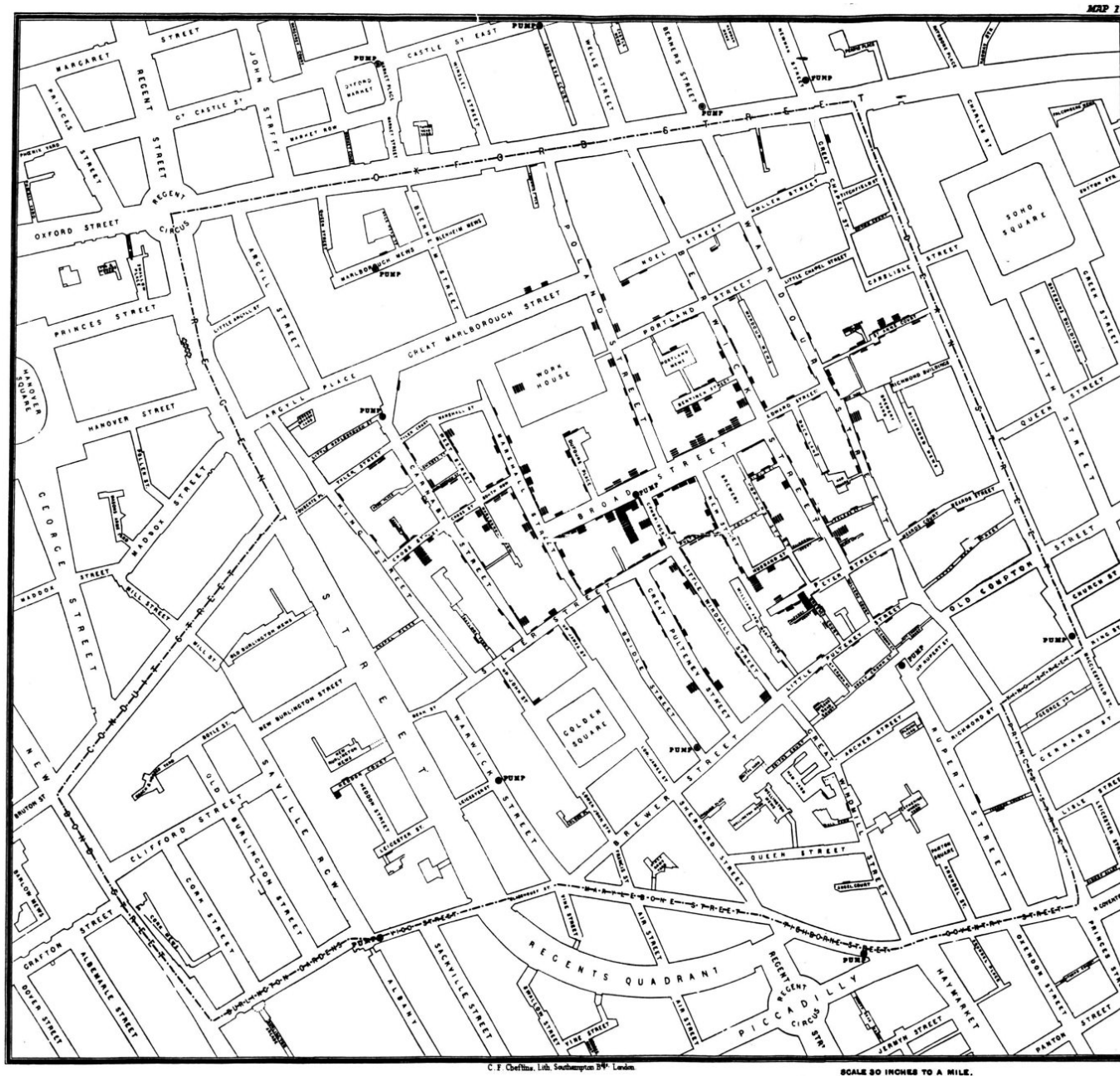


Sphygmograph: record and simplify events
[Étienne-Jules Marey](#)



Bathymetric map: reveal hidden dangers
[NOAA](https://www.noaa.gov)

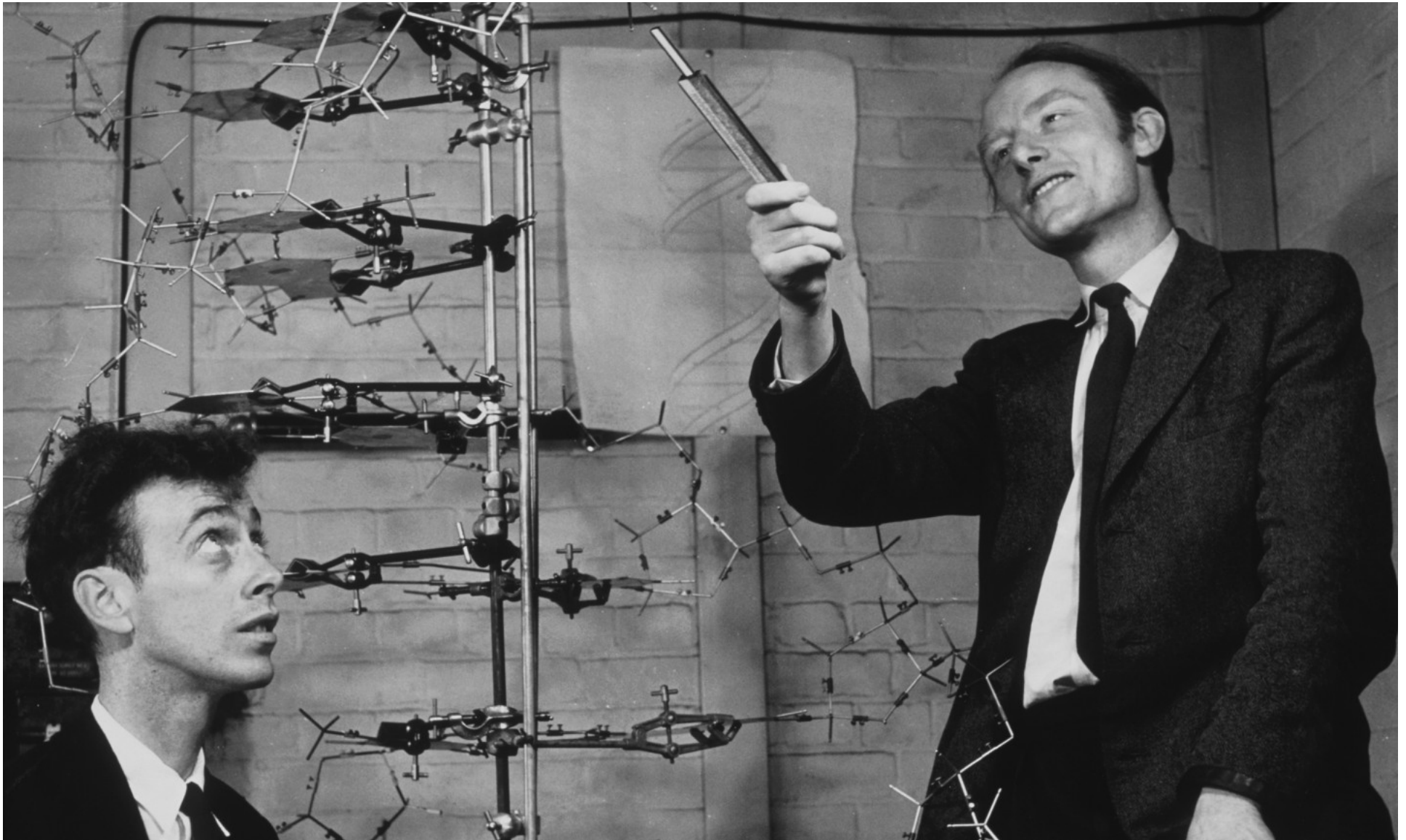




Snow's London Cholera map: Answer questions about the world
[Dataviz Blog](#)

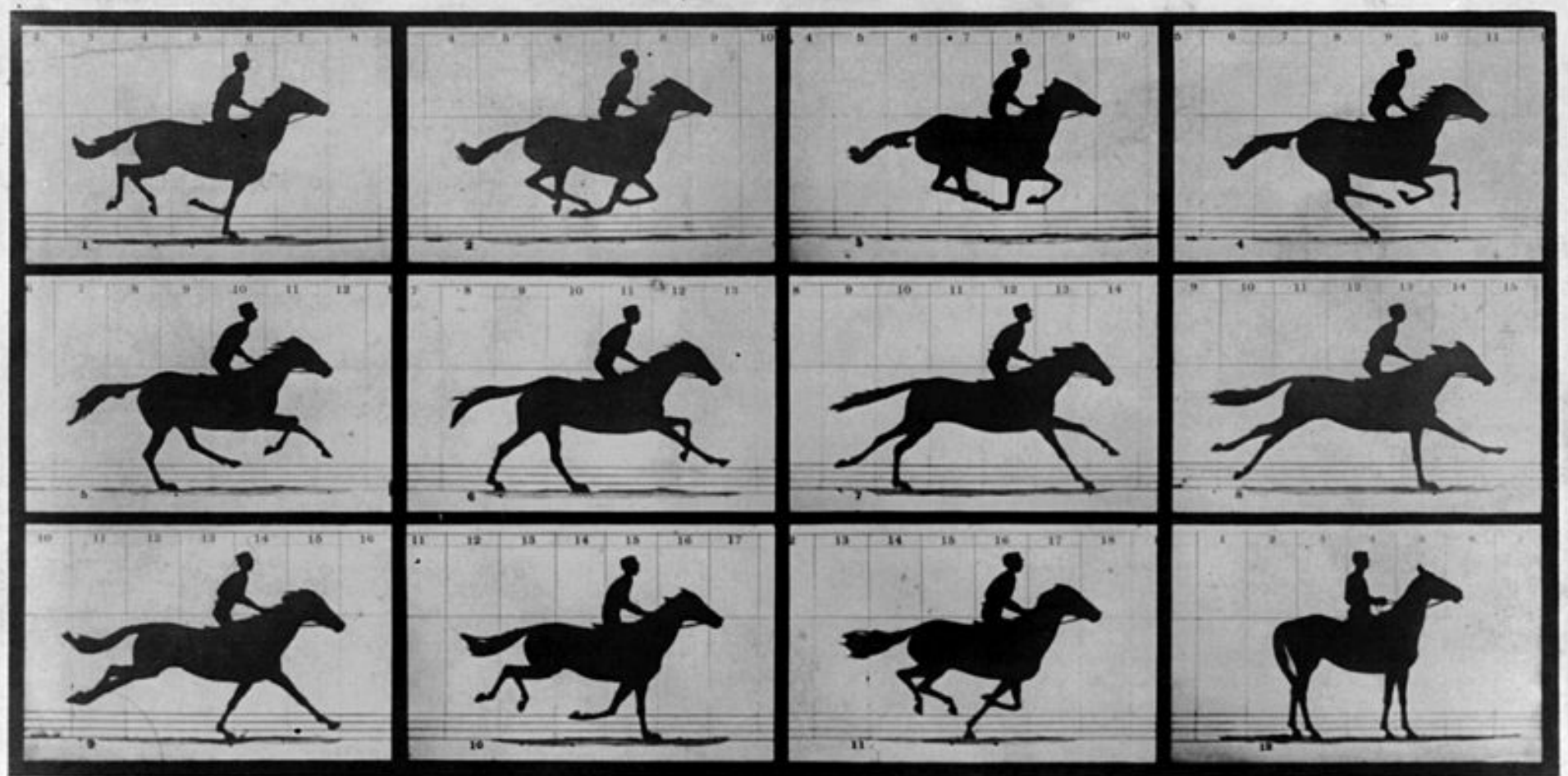






Watson & Crick explain DNA: Explain information to others
[Dataviz Blog](#)





Copyright, 1878, by MUYBRIDGE.

MORSE'S Gallery, 417 Montgomery St., San Francisco.

THE HORSE IN MOTION.

Illustrated by
MUYBRIDGE.

AUTOMATIC ELECTRO-PHOTOGRAPH.

"SALLIE GARDNER," owned by LELAND STANFORD; running at a 1.40 gait over the Palo Alto track, 19th June, 1878.

The negatives of these photographs were made at intervals of twenty-seven inches of distance, and about the twenty-fifth part of a second of time; they illustrate consecutive positions assumed in each twenty-seven inches of progress during a single stride of the mare. The vertical lines were twenty-seven inches apart; the horizontal lines represent elevations of four inches each. The exposure of each negative was less than the two-thousandth part of a second.

Horse in motion, 1878: Document and explain phenomena
[Eadweard Muybridge](#)



Increasing the capability of a man to approach a complex problem situation, to gain comprehension to suit his particular needs, and to derive solutions to problems.

Douglas Engelbart
Augmenting Human Intellect:
A Conceptual Framework





Archimedes lever: Magnify human capabilities
[Wikipedia](#)



Data Visualization magnifies the capabilities of Science to understand our universe.

