



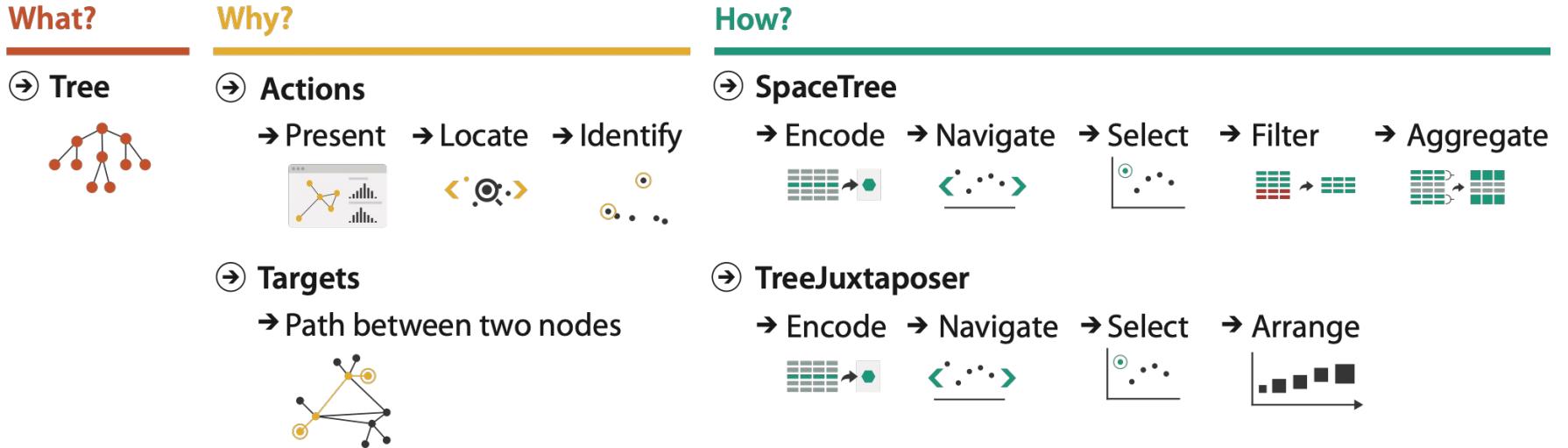
MOSCOW IS JUST THE OTHER
SIDE OF VIENNA YOU SAID

THERE ARE WAFFLE HOUSES
THE WHOLE WAY YOU SAID

Design History and Critique

What and Why

What?
Why?
How?



Why Analyze Visualizations?

- Imposes structure on huge design space
 - Scaffold to help you think systematically about choices
 - Analyzing existing as steppingstone to designing new
 - Most possibilities ineffective for particular task/data combination

Graphics Capabilities Have Come a Long Way

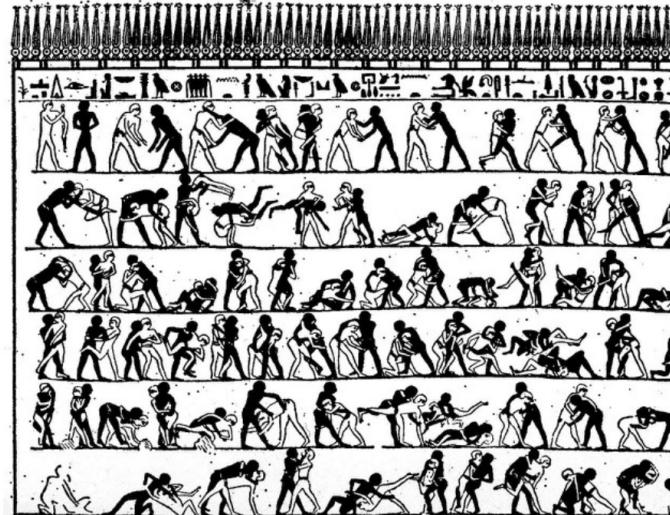
>64000 years ago



static images

<https://www.southampton.ac.uk/news/2018/02/neanderthals-art.page>

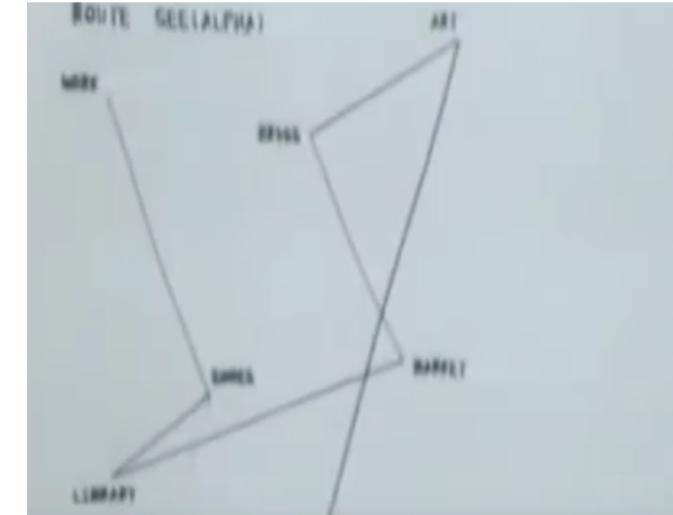
4000 years ago



animated images

<https://en.wikipedia.org/wiki/File:Egyptmotionseries.jpg>

>50 years ago

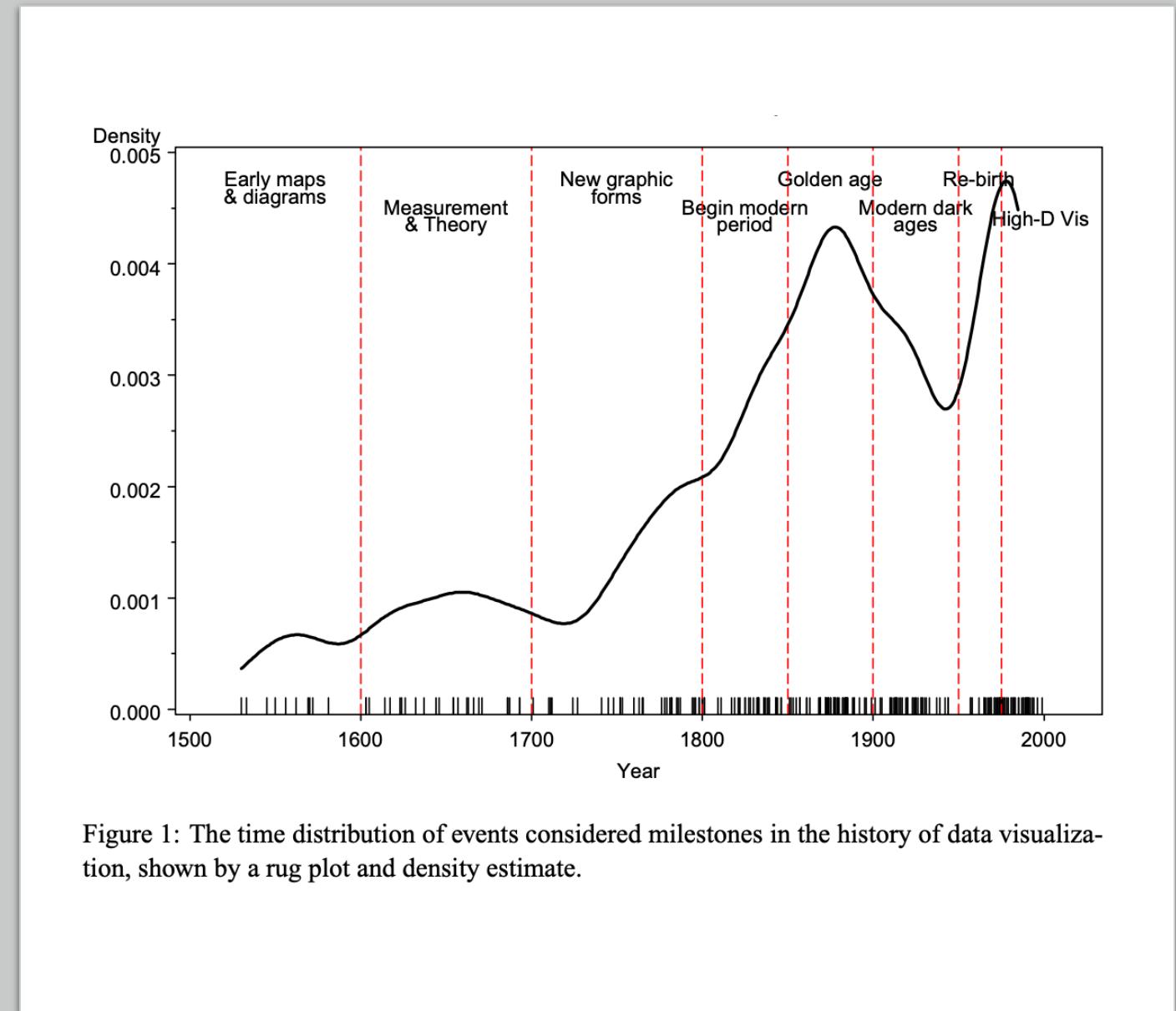


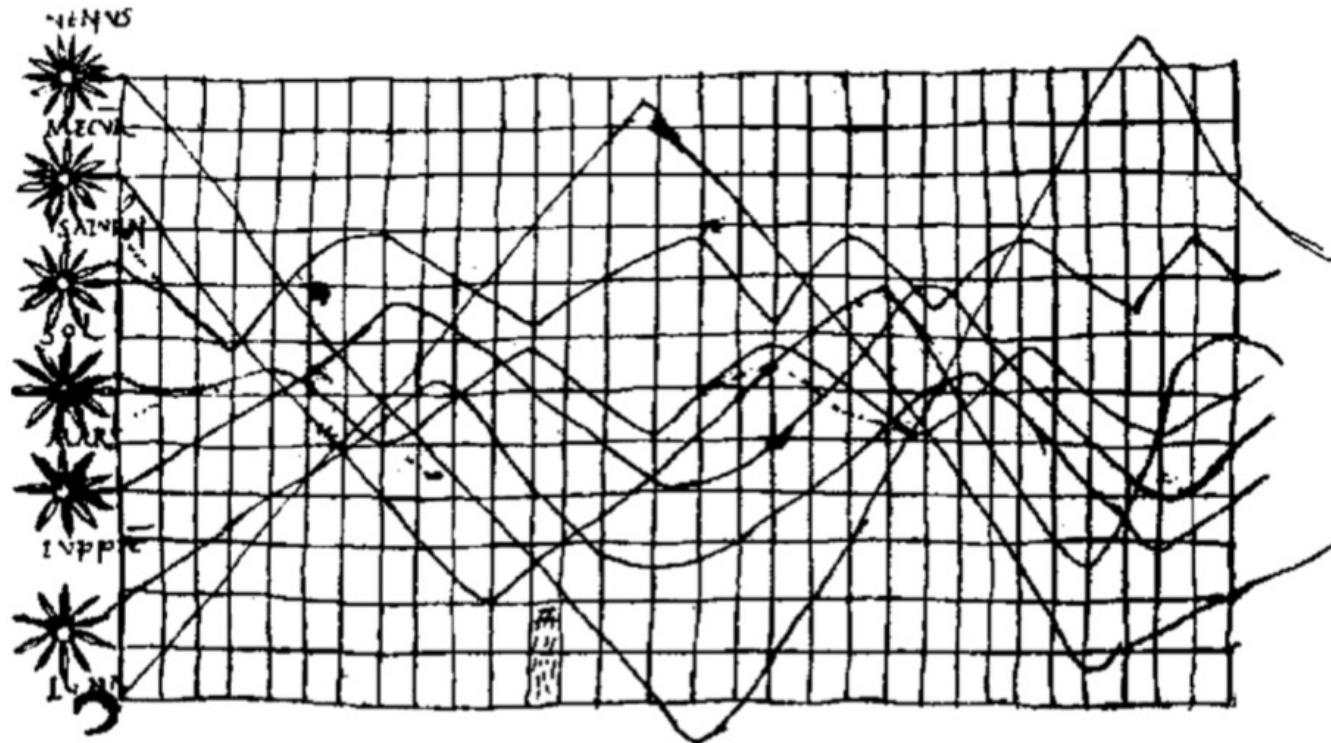
interactive graphics

<https://youtu.be/yJDv-zdhzMY>

Milestones in Visualization History

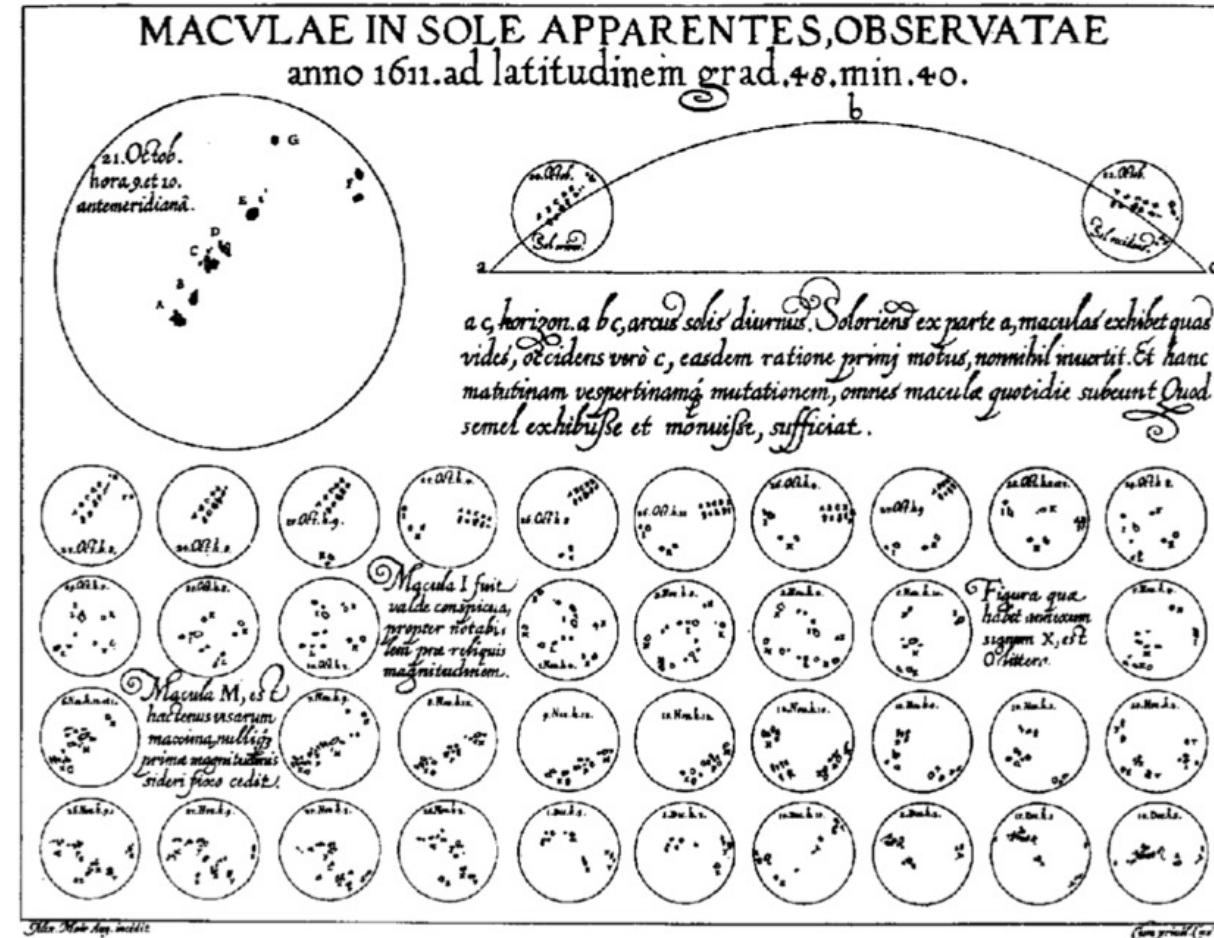
- Friendly, M. (2008). *Handbook of data visualization*, chapter A brief history of data visualization, pages 15–56. Handbooks of Computational Statistics. Springer.





Planetary movements by an unknown astronomer around or before the 10th century

Christopher
Scheiner's
recordings of
sunspots from
23 Oct – 10 Dec
1611



A Specimen of a Chart of Biography.

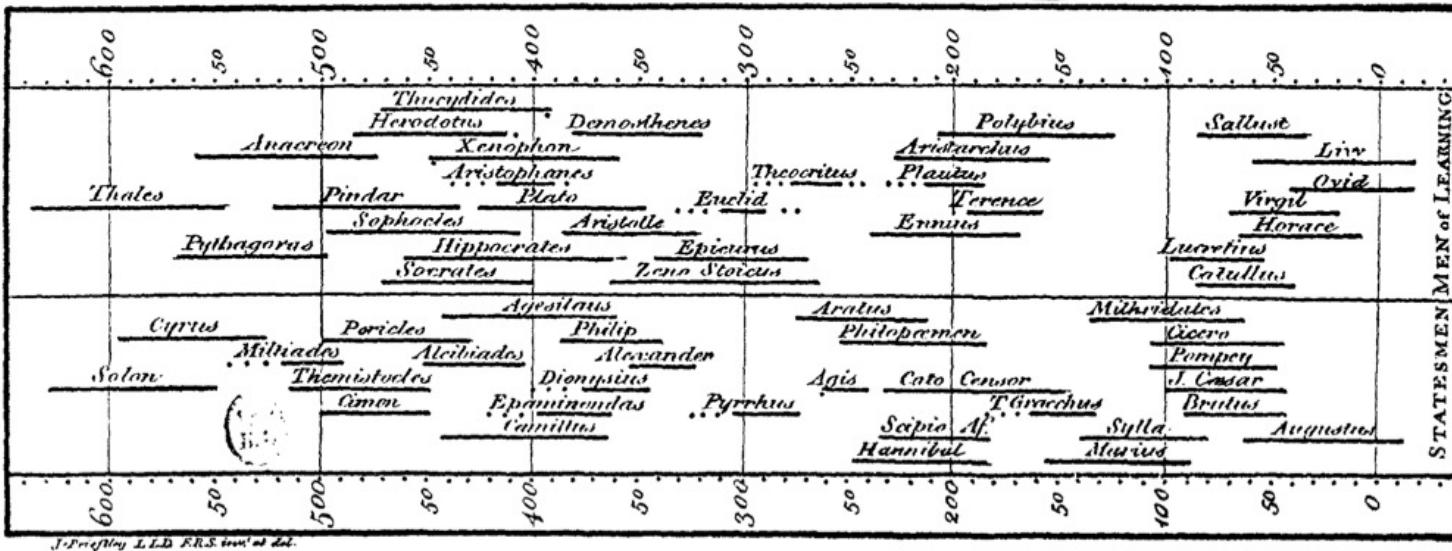
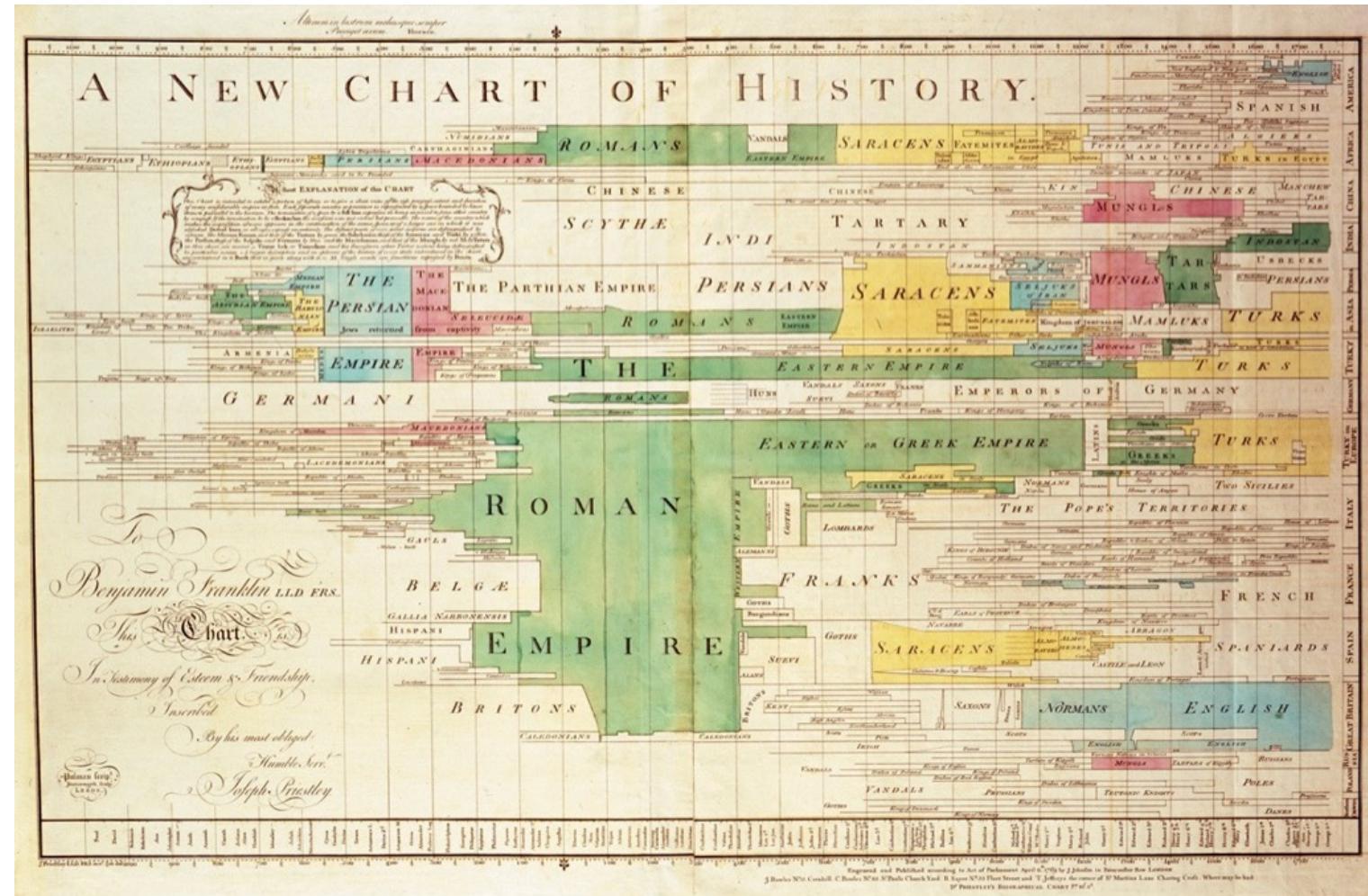
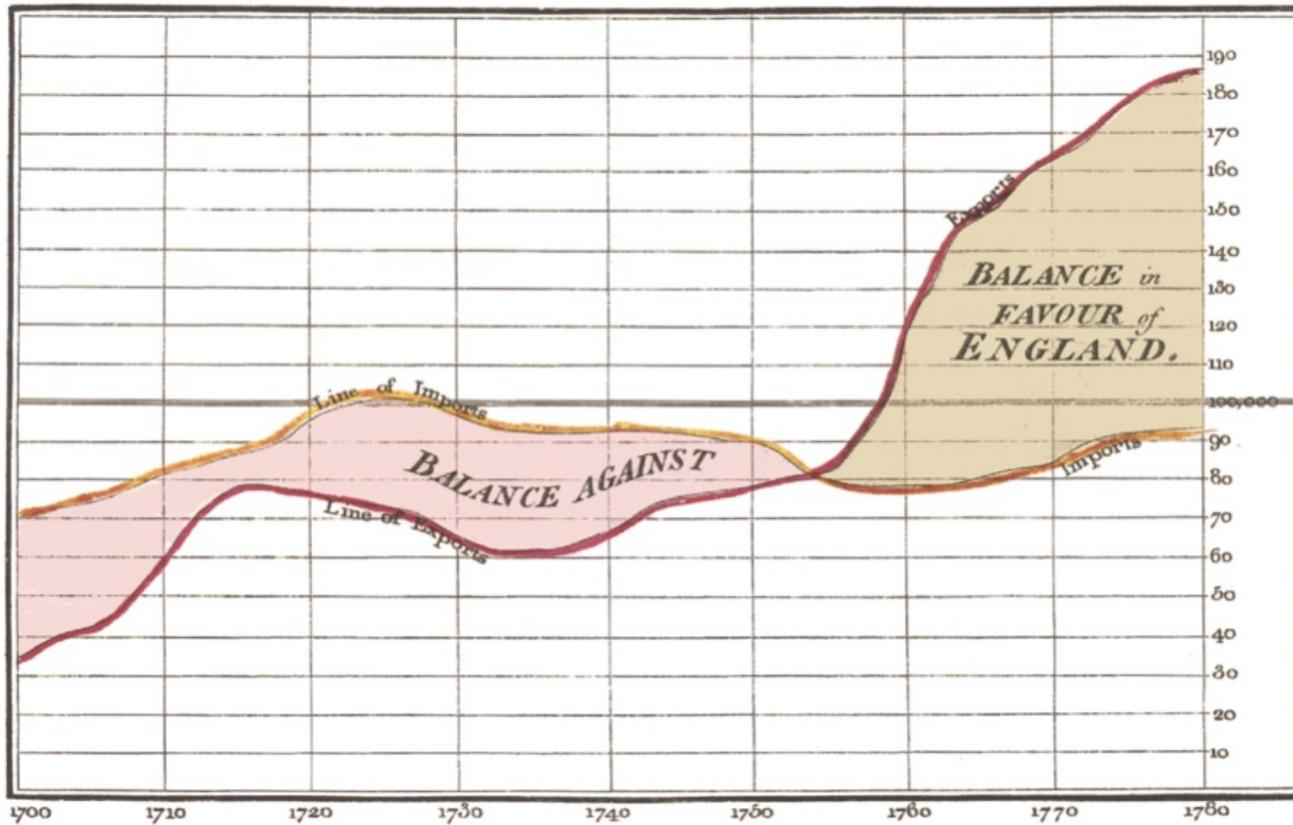


Chart of
Biography by
Joseph Priestley,
1765

A New Chart of History by Joseph Priestley, 1769



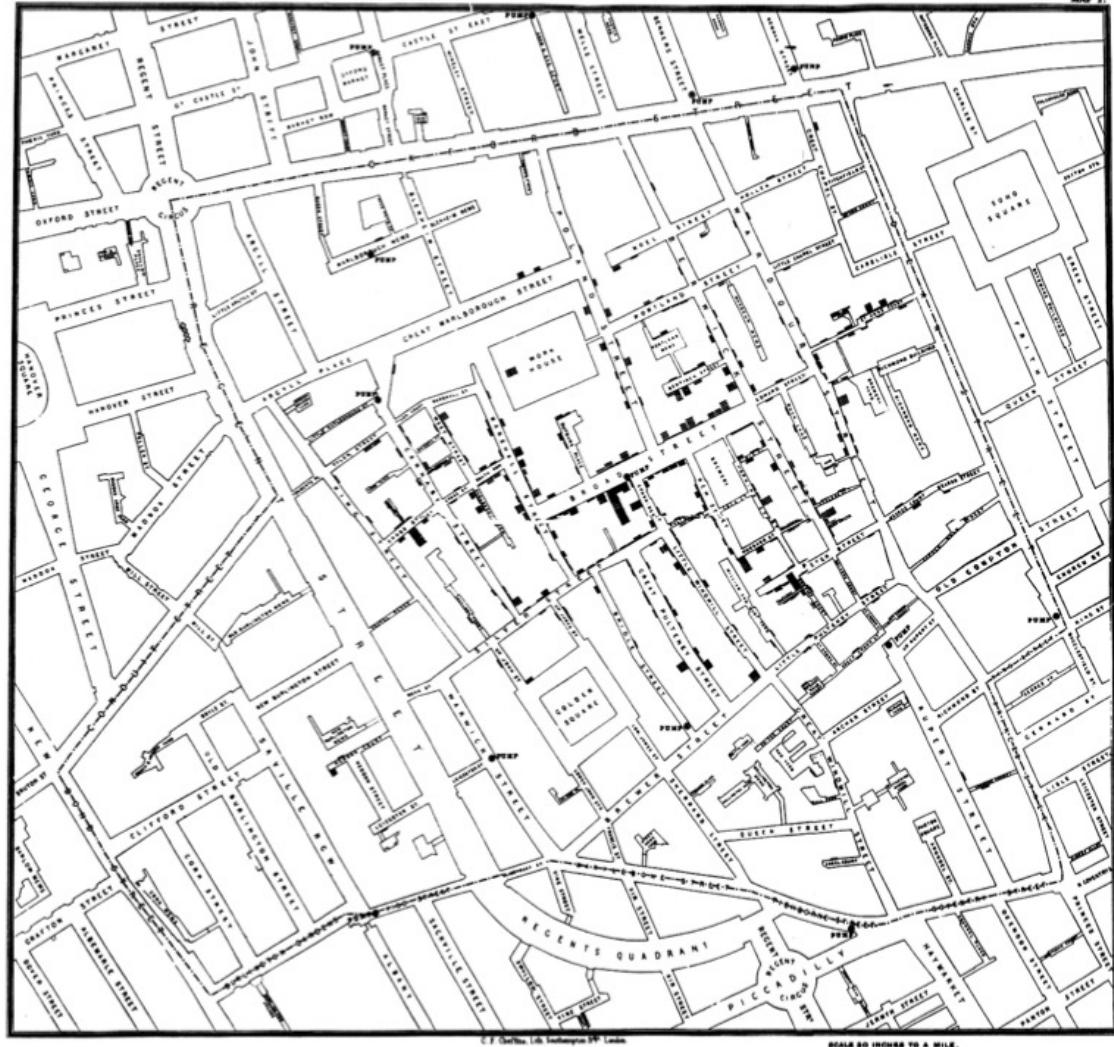
Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.

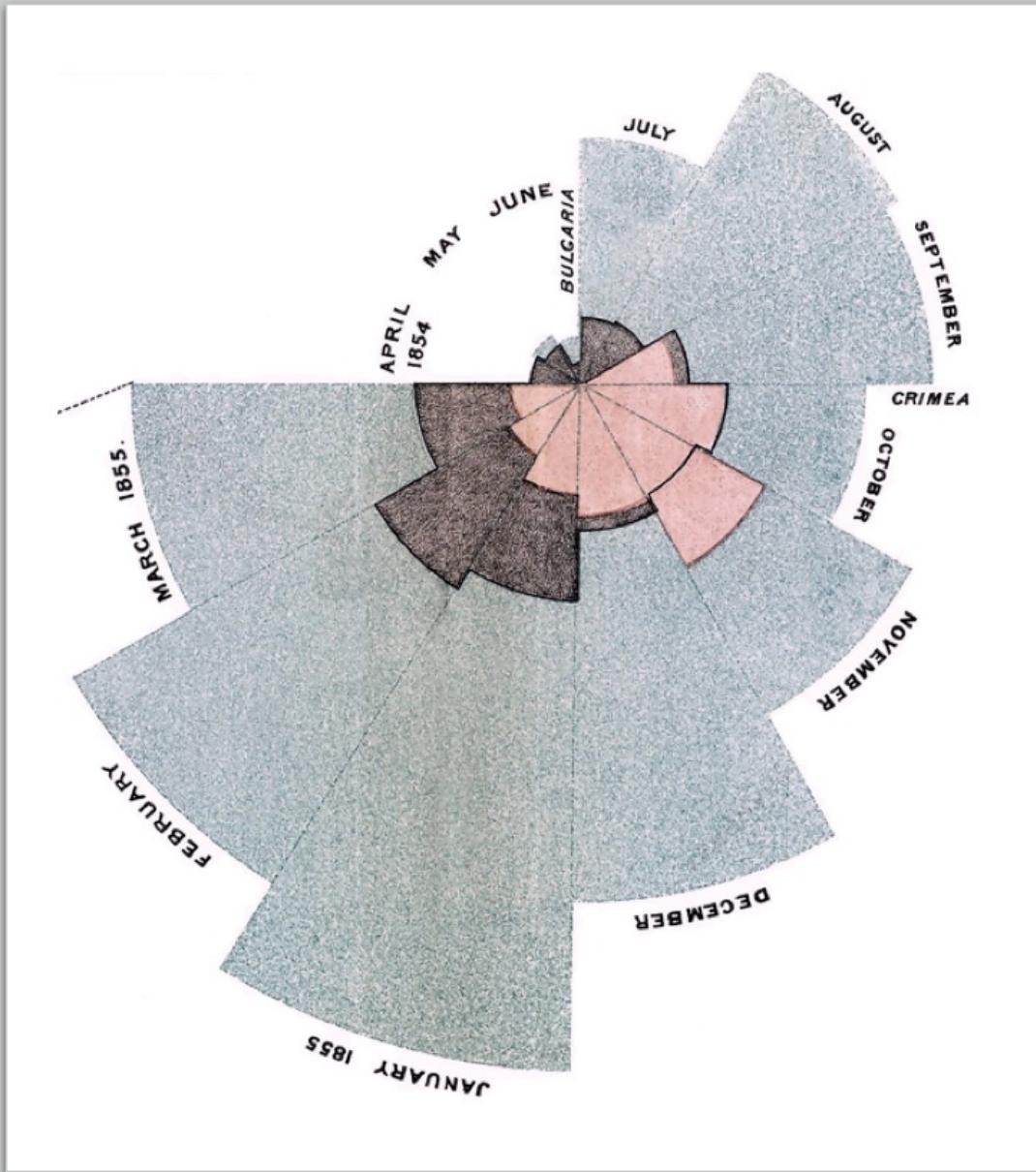


The Bottom line is divided into Years, the Right hand line into £10,000 each.
Published as the Act directs, 1st May 1786, by W^m Playfair
Neale sculpt 392, Strand, London.

William
Playfair:
Exports and
imports to and
from Denmark
& Norway from
1700 to 1780
(1786)

Cholera map of
central London
by John Snow,
1854



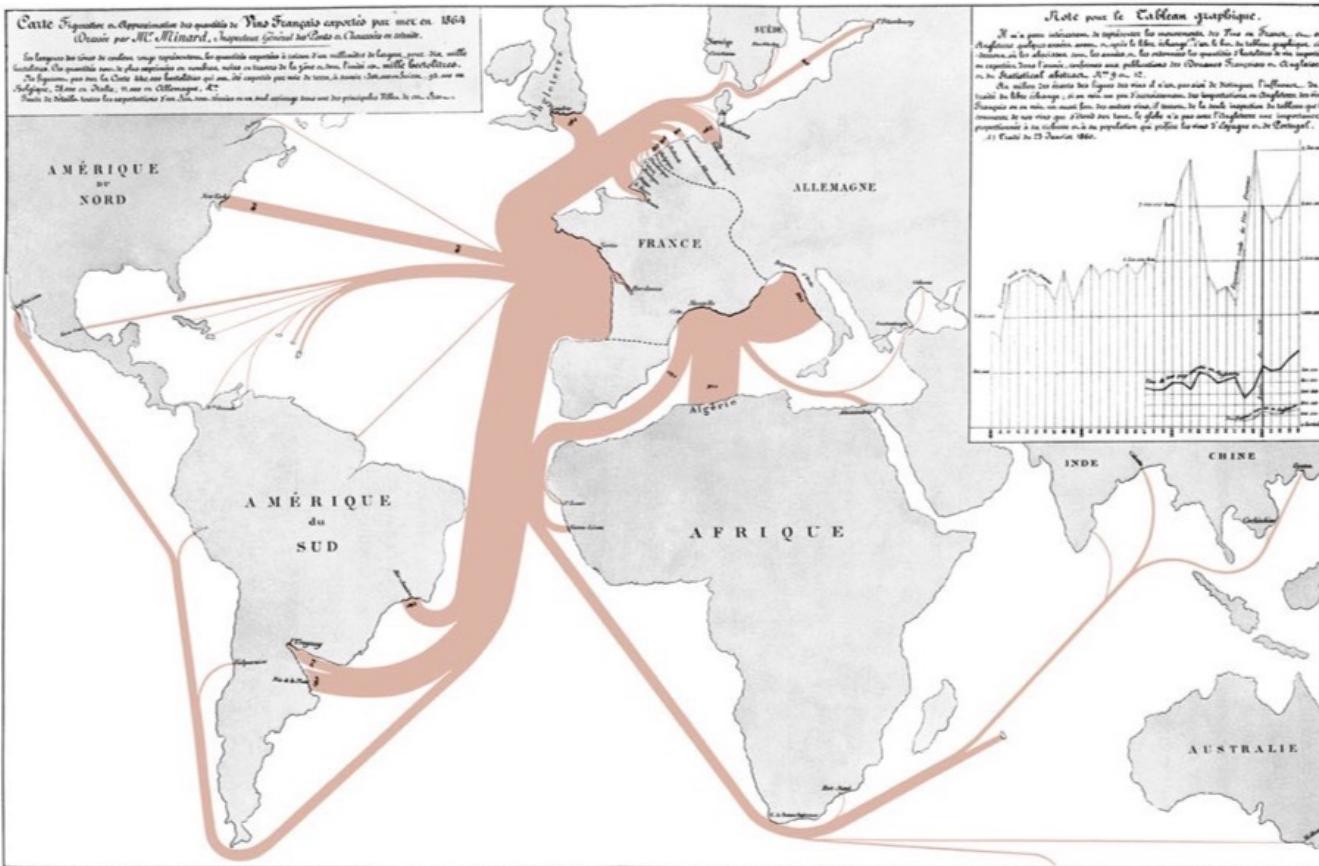


Florence Nightingale's *Diagram of the causes of mortality in the army in the East, 1858*

- derivation of piechart, seasonal sources of patient mortality
- most deaths due to poor sanitation rather than battle

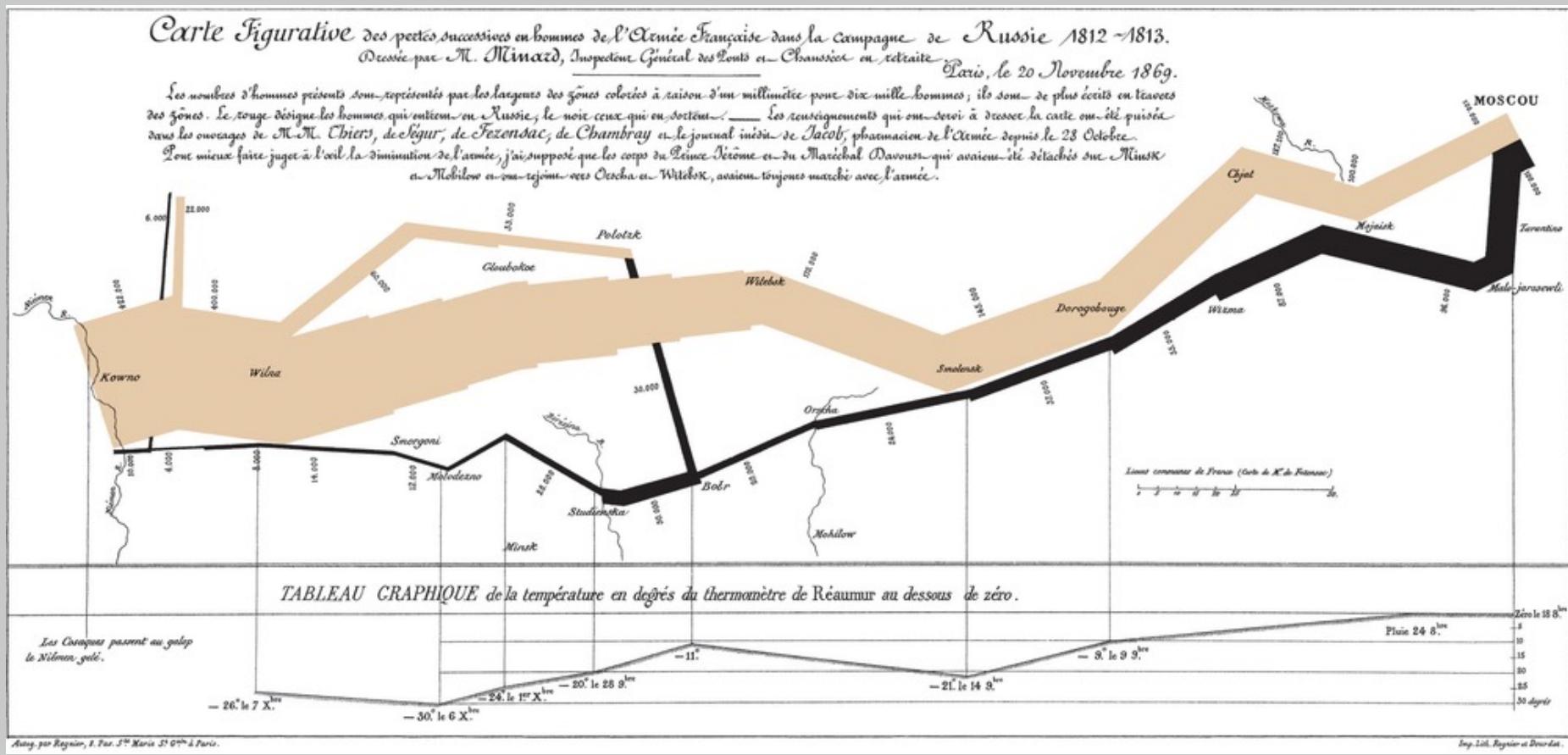
Causes of death

- preventable diseases
- from wounds
- all other causes



Charles Joseph Minard, *Tableaux Graphiques et Cartes Figuratives de M. Minard, 1845-1869*, a portfolio of his work held by the Bibliothèque de l'École Nationale des Ponts et Chaussées, Paris.

Map of French wine exports by Minard, 1864



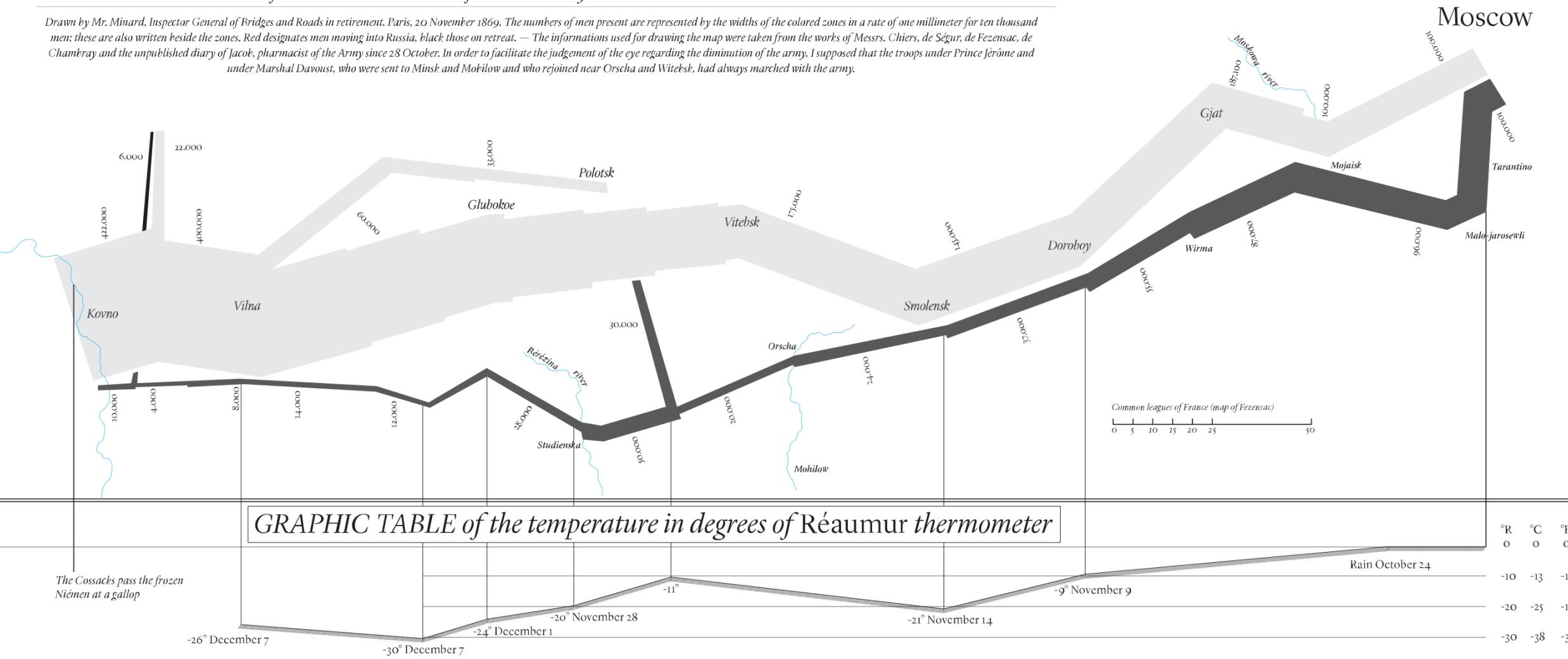
Napoleon's March by Minard, 1869

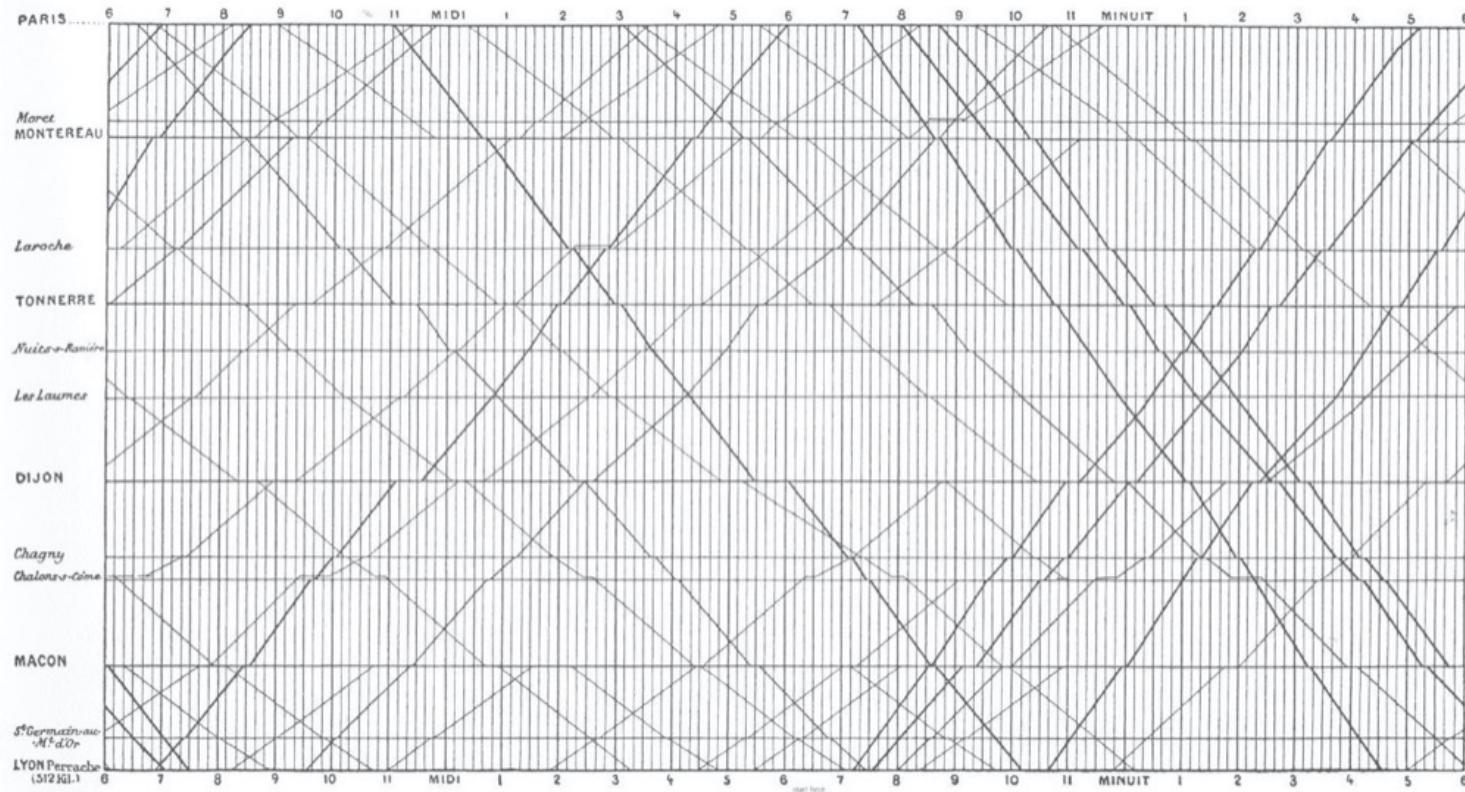
- Information designer [Edward Tufte](#) says it "may well be the best statistical graphic ever drawn" and uses it as a prime example in *The Visual Display of Quantitative Information*.

https://en.wikipedia.org/wiki/Charles_Joseph_Minard

FIGURATIVE MAP of the successive losses in men of the French Army in the RUSSIAN CAMPAIGN OF 1812-1813

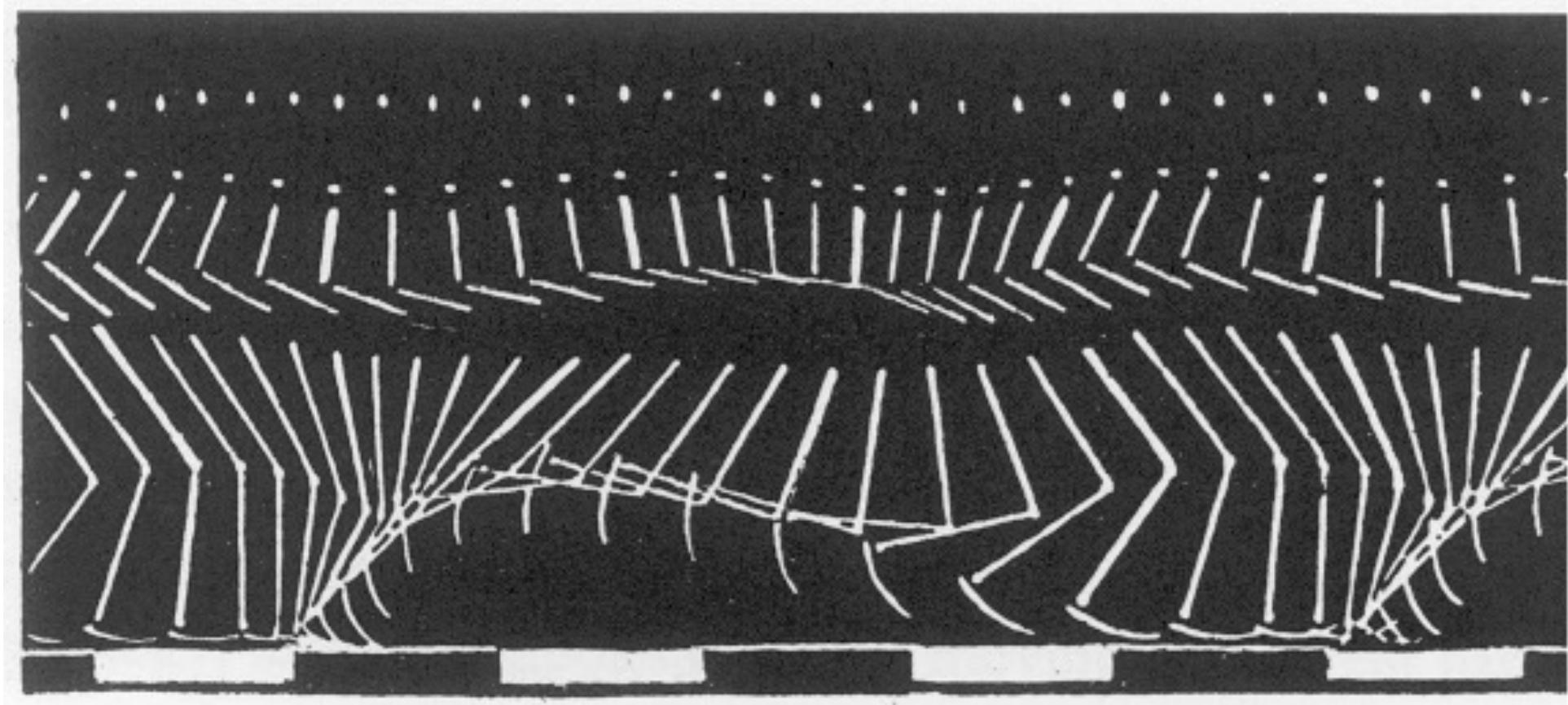
Drawn by Mr. Minard, Inspector General of Bridges and Roads in retirement. Paris, 20 November 1869. The numbers of men present are represented by the widths of the colored zones in a rate of one millimeter for ten thousand men; these are also written beside the zones. Red designates men moving into Russia, black those on retreat. — The informations used for drawing the map were taken from the works of Messrs. Chiers, de Séguir, de Fezensac, de Chambray and the unpublished diary of Jacob, pharmacist of the Army since 28 October. In order to facilitate the judgement of the eye regarding the diminution of the army, I supposed that the troops under Prince Jérôme and under Marshal Davoust, who were sent to Minsk and Mohilow and who rejoined near Orscha and Vitebsk, had always marched with the army.





Train schedule
from for Paris to
Lyon by E.J.
Marey, 1885

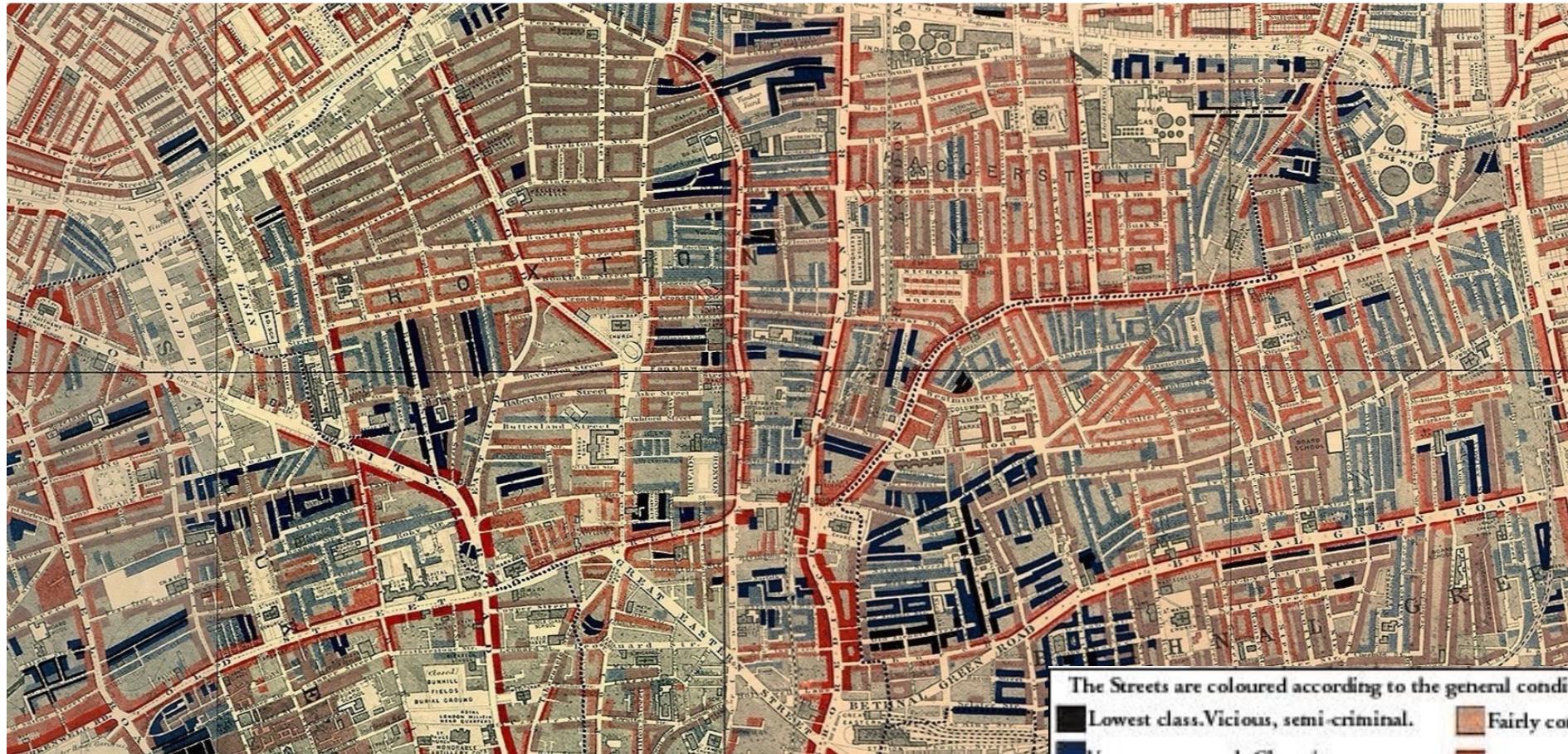
Visualizing motion



Using white tape and black velvet, E. J. Marey invented time series images in 1895

Tufte, E. R. (1983). *The Visual Display of Quantitative Information*. Graphics Press, first edition edition.

Visualizing social class in London



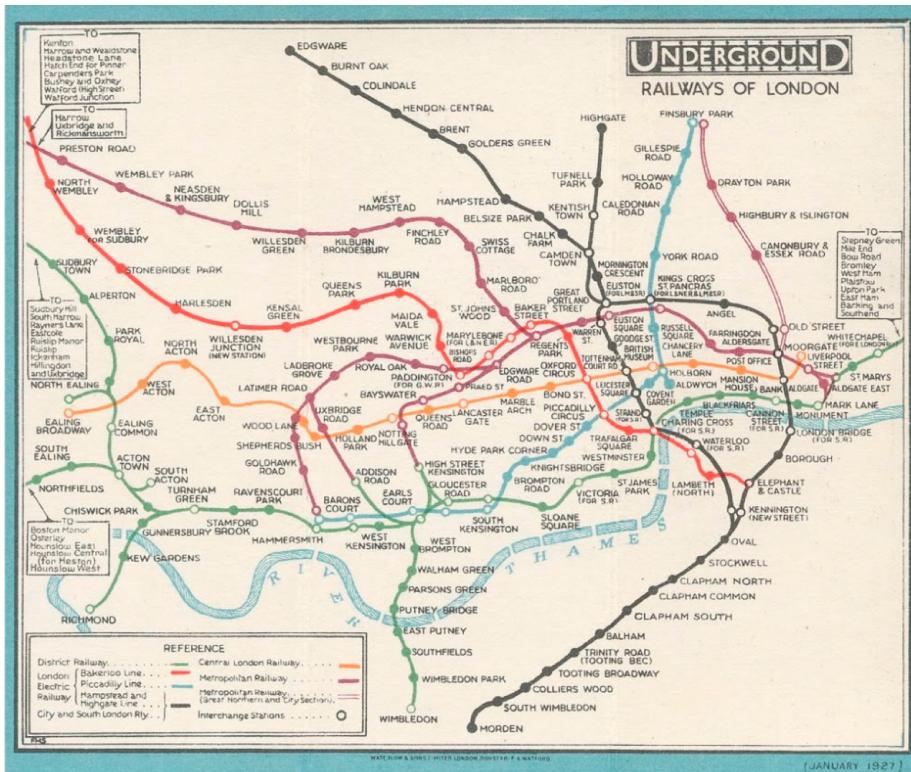
Charles Booth 1892

The Streets are coloured according to the general condition of the inhabitants, as under:

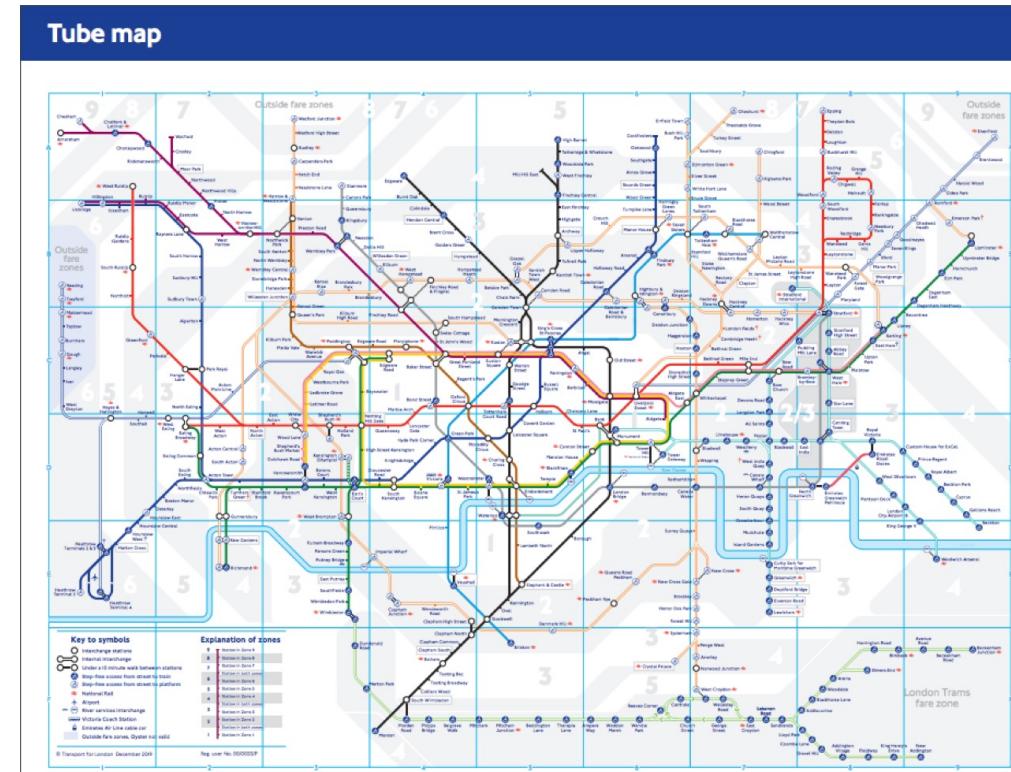
Lowest class. Vicious, semi-criminal.	Fairly comfortable. Good ordinary earnings.
Very poor, casual. Chronic want.	Middle-class. Well-to-do.
Poor. 18s. to 21s. a week for a moderate family.	Upper-middle and Upper classes. Wealthy.
Mixed. Some comfortable, others poor.	A combination of colours— as dark blue and black, or pink red— indicates that the street contains a fair proportion of the classes represented by the respective colours.

Visualizing London Subway

1927

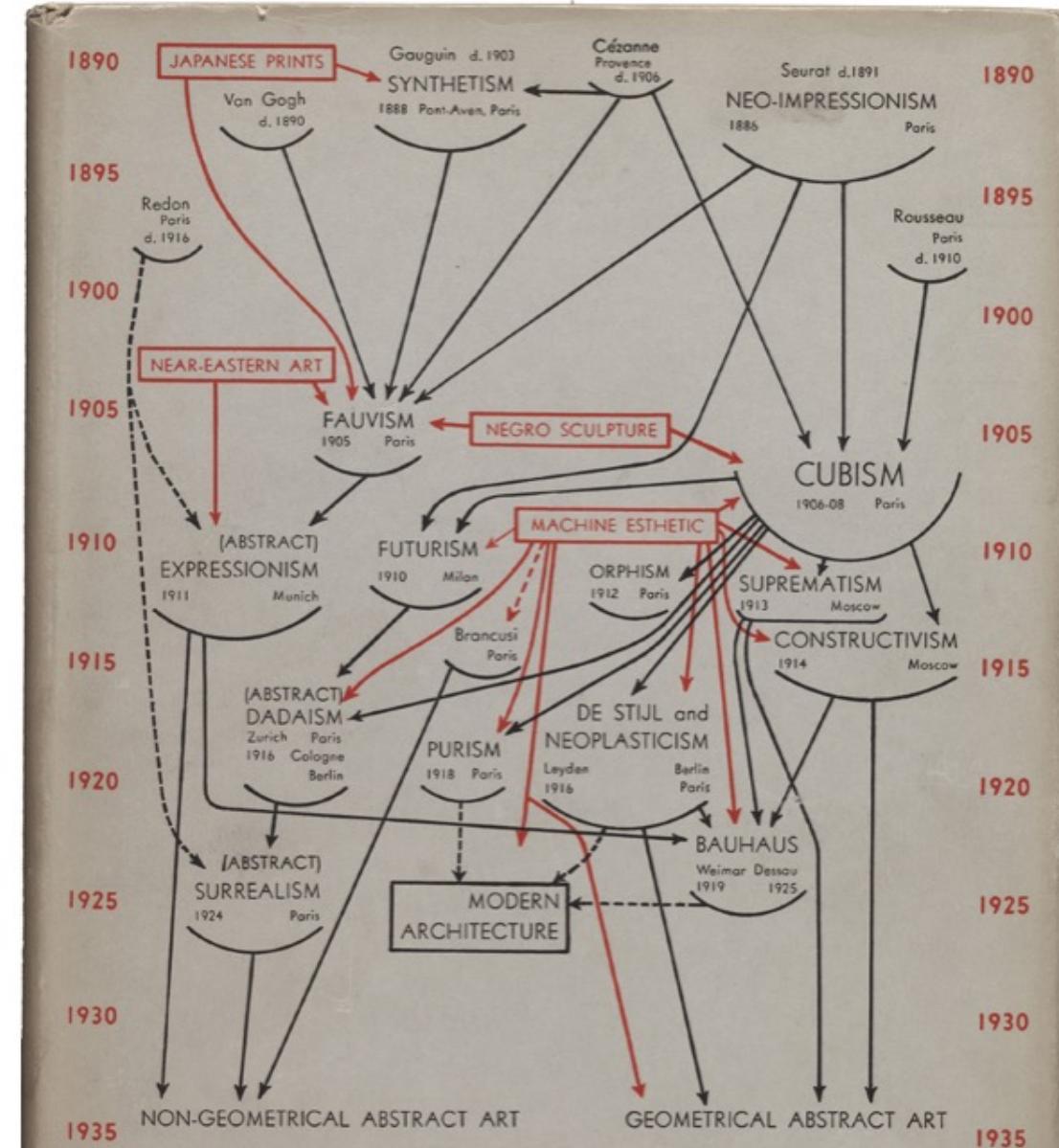


2019



Visualizing art

- Cover of exhibition catalog by Alfred H. Barr Jr, 1936



An Interactive Timeline of the Most Iconic Infographics



<https://history.infowetrust.com/>

Design Critique

- What is the purpose of the visualization? Does it serve its purpose well?
- Does it convey the data honestly?
- Does it show the appropriate amount of data?
- Are effective visual encodings used?
- Is interaction used to enable effective exploration or examination of the data?
- Does it address an important topic? Is it innovative?