

Introduction to Data Visualization

Dario Rodighiero
metaLAB (at) Harvard University

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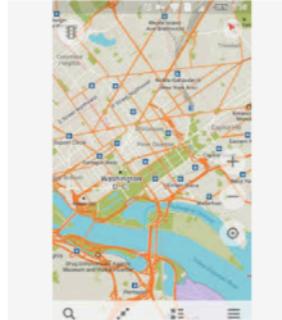
1. Visualization Family
2. From Datafication to Interpretation
3. Examples of Traditional, Modern,
and Contemporary Visualizations
4. Discussion / Work in progress

1.

Visualization Family:
Maps, Charts, Diagrams, Infographics,
Visualizations, and Data Visualizations



Developer Guide | Maps URLs | Google ...
developers.google.com



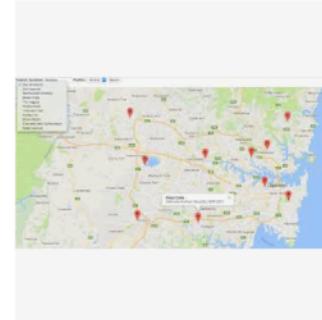
Maps.me - Wikipedia
en.wikipedia.org



Wall Map of the United States ...
geology.com



Asia Europe Centered World Wall Map ...
maps.com



Creating a Store Locator on ...
developers.google.com



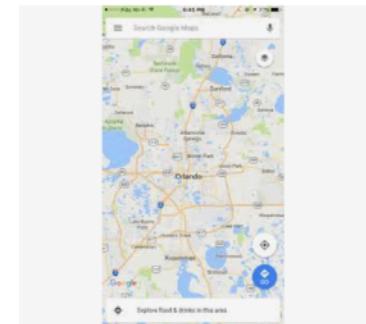
International 1:20 million Supermap ...
mapworld.com.au



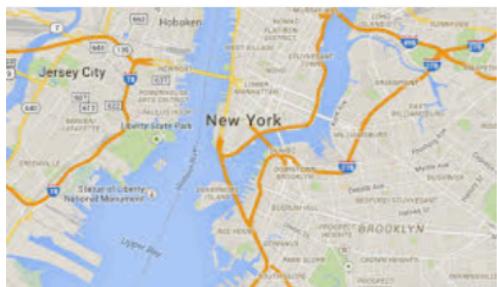
United States Map and Satellite Image
geology.com



World Maps | Maps of all countries ...
ontheworldmap.com



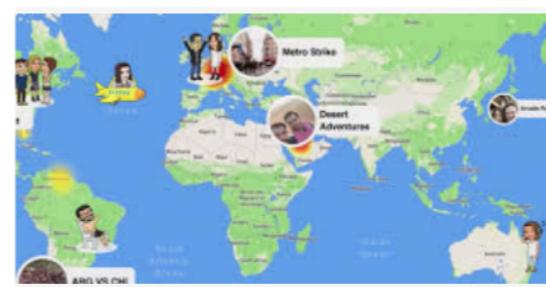
Google Maps (app) - Wikipedia
en.wikipedia.org



Snazzy Maps - Free Styles for Google Maps
snazzymaps.com



My Maps – About – Google Maps
google.com

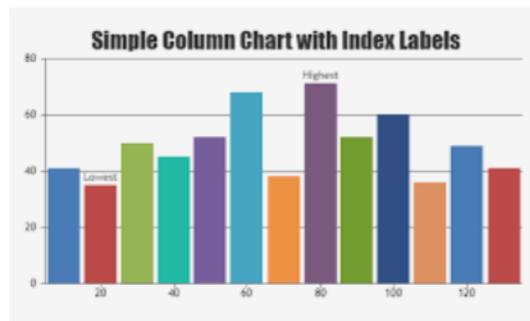


Explore feature makes Maps a social ...
thenextweb.com

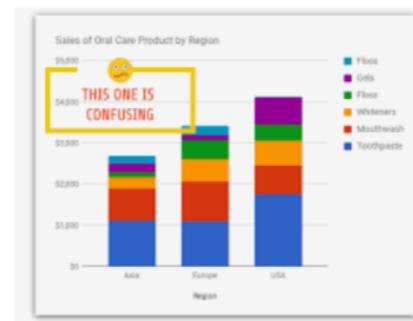


World Wall Map Environmental
mapsinternational.co.uk

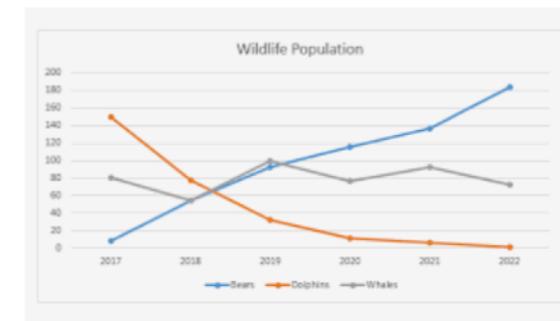
Google Search for “Maps”



Beautiful PHP Charts & Graphs | CanvasJS
canvasjs.com



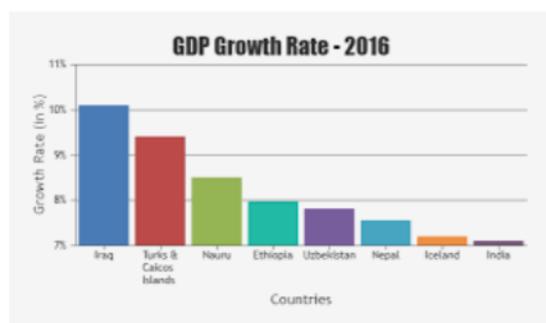
Eye-Catching Sales Charts - Venngage
venngage.com



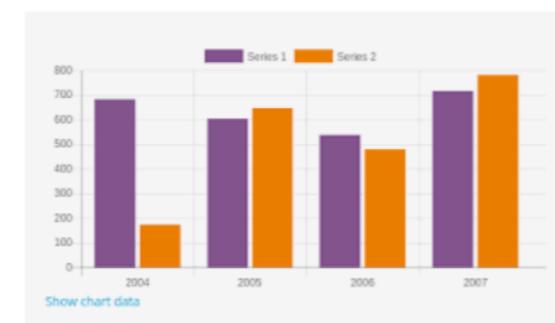
Line Chart in Excel - Easy Excel Tutorial
excel-easy.com



stop those lying line charts – Signal ...
m.signalvnoise.com



jQuery Charts & Graphs | CanvasJS
canvasjs.com



Charts API - MoodleDocs
docs.moodle.org

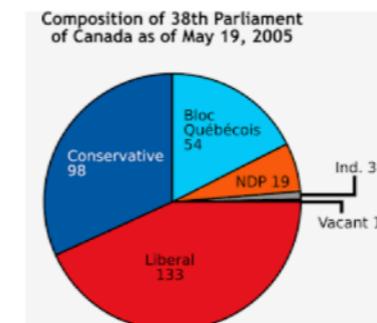
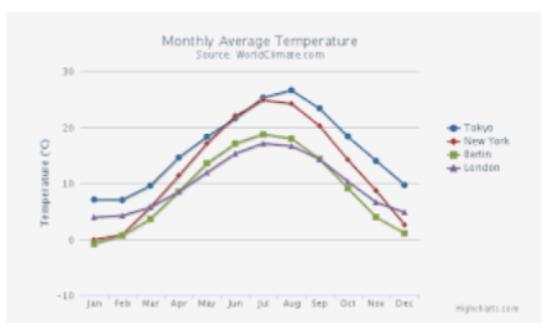
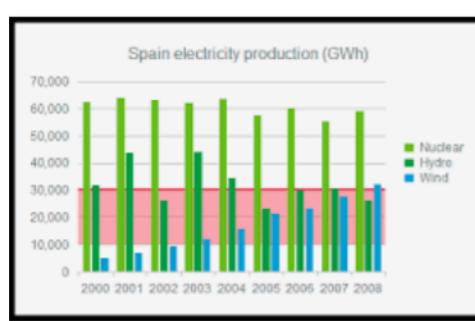


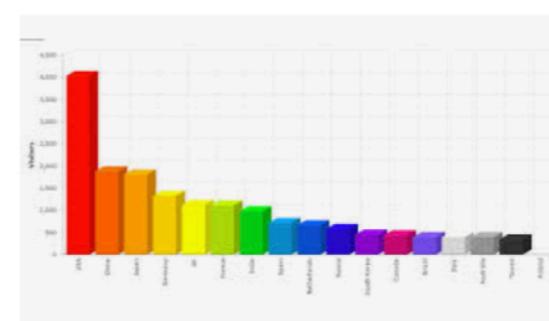
Chart - Wikipedia
en.wikipedia.org



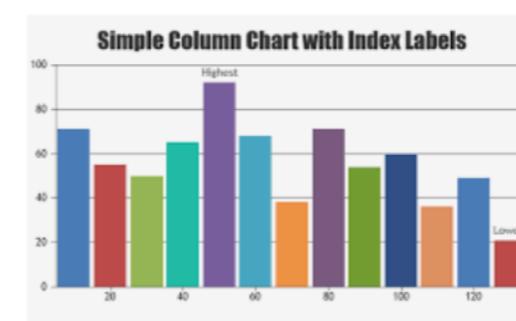
Line chart | Highcharts
highcharts.com



Charts Control - Kendo UI with support ...
telerik.com



3D Column Chart - amCharts
amcharts.com



Beautiful JavaScript Charts & Graphs ...
canvasjs.com



Create Interactive Charts with ui-grid ...
algotech.solutions

Google Search for “Charts”



SmartDraw - Create Flowcharts, Floor ...
smartdraw.com

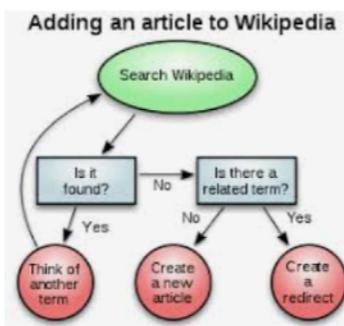
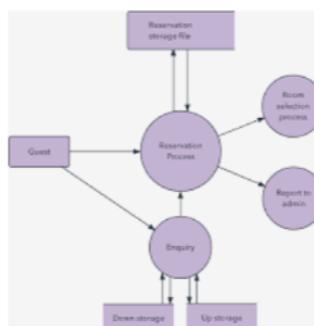


Diagram - Wikipedia
en.wikipedia.org



What is a Data Flow Diagram ...
lucidchart.com



Circle Diagrams
conceptdraw.com



What Is a Cluster Diagram...
lucidchart.com

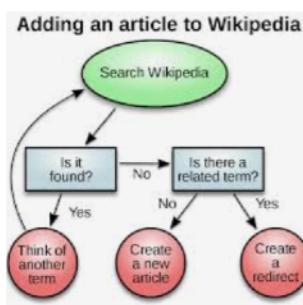
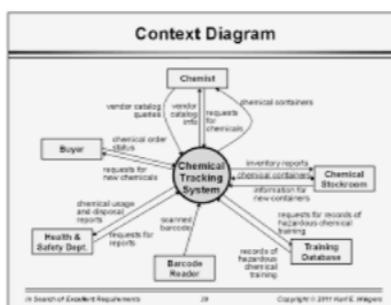
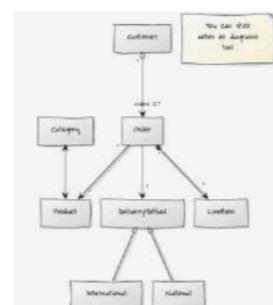


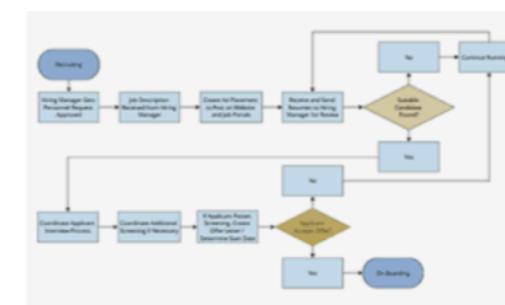
Diagram - Wikipedia
en.wikipedia.org



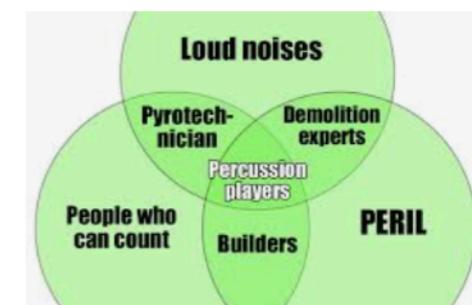
Analysis Diagrams | University IT
uit.stanford.edu



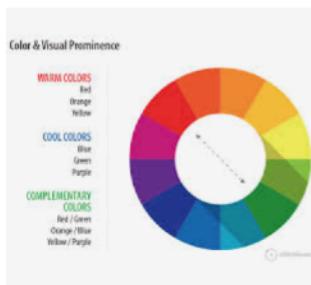
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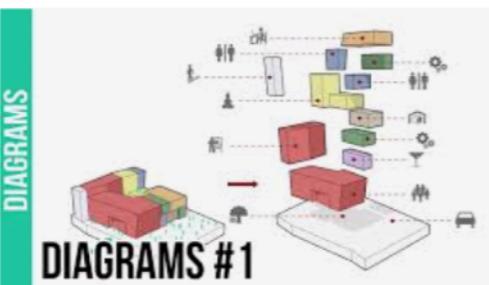
SmartDraw Diagrams
smartdraw.com



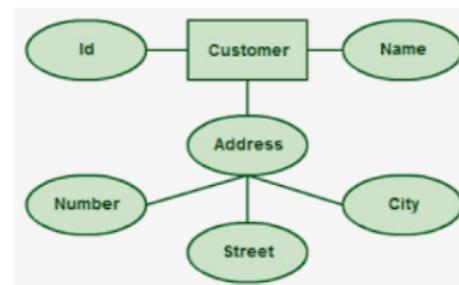
Venn diagrams for musicians - Classic FM
classicfm.com



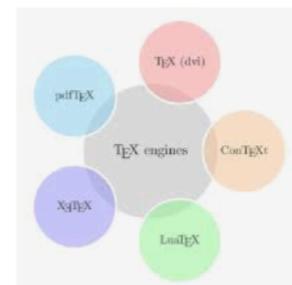
Diagrams That Explain Conte...
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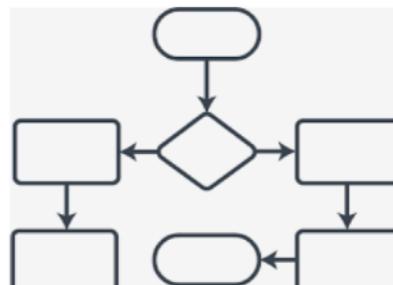
How to create Architecture Diagrams #1 ...
youtube.com



ER Diagram Tutorial | Complete Guide to ...
creately.com



TikZ examples tag: Diagrams
texample.net



All About Business Process Mapping ...
lucidchart.com

Google Search for “Diagrams”



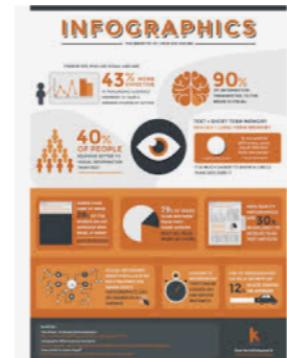
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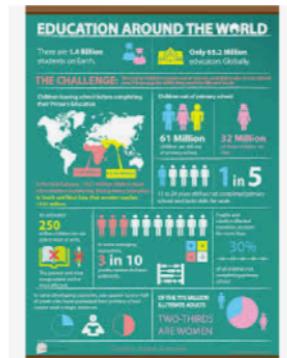
Milestone Infographics - 6 Steps by ...
graphicriver.net



Brochures, Flyers & More ...
venngage.com



Visual.ly
visual.ly



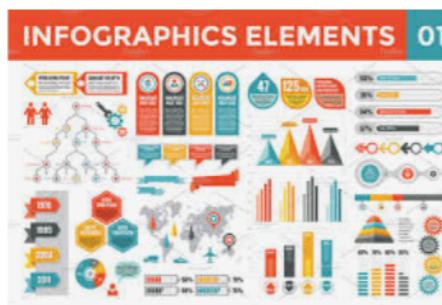
10 Great Infographics for E...
piktochart.com



Infographics Vectors, Photos and P...
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Creative Brain Infographic...
graphicriver.net



Infographics Elements 01 ~ Presentation ...
creativemarket.com



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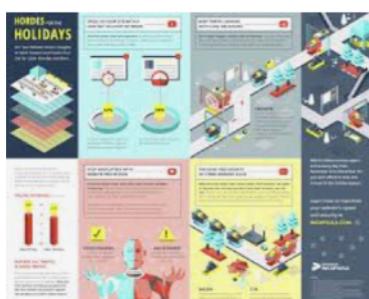
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videohive.net



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Infographics template ~ Illu...
creativemarket.com



The 45 Most Creative Infographics ...
columnfivemedia.com



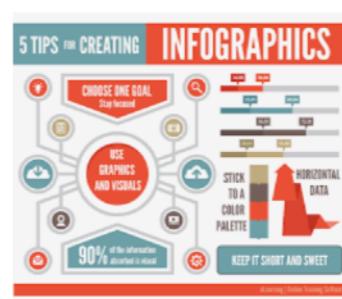
Cheap Infographics - fives...
fivesquid.com



manufacturing industry ...
matthews.com.au



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istockphoto.com



5 Tips for Creating Infographics ...
digitalchalk.com



Our Infographic Design Se...
quintagroup.com

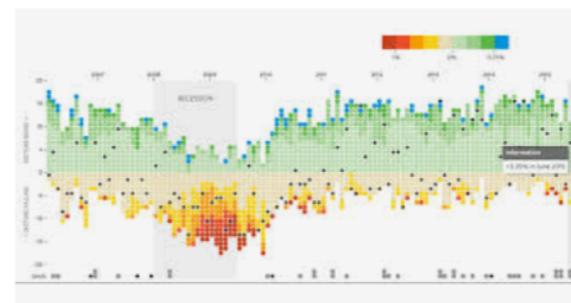
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What makes a good visualization? | E ...
e-nor.com



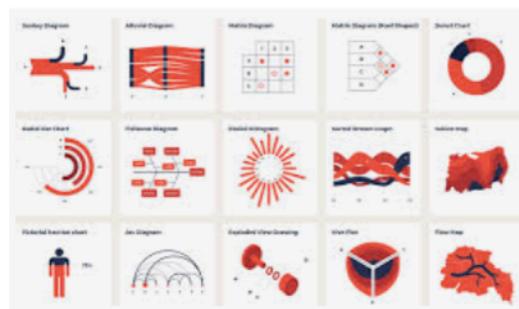
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blogs.perficient.com



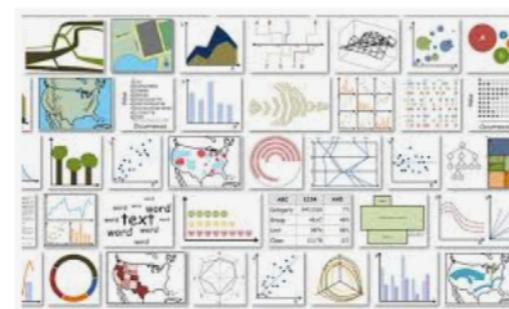
The Best Topical Data Visualizations of ...
generalassembly.ly



Getting it right: why infographics are ...
blog.prototypr.io



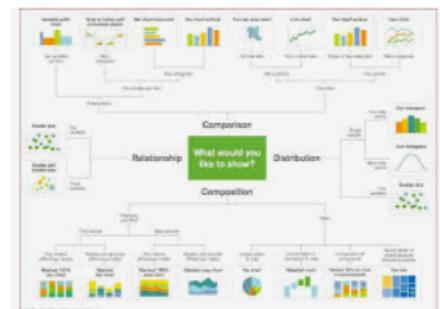
Data Visualizations ...
datainnovation.org



data visualization memorable ...
seas.harvard.edu



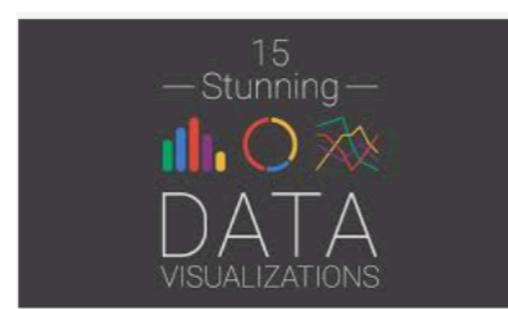
What makes a data visualization memorable?
phys.org



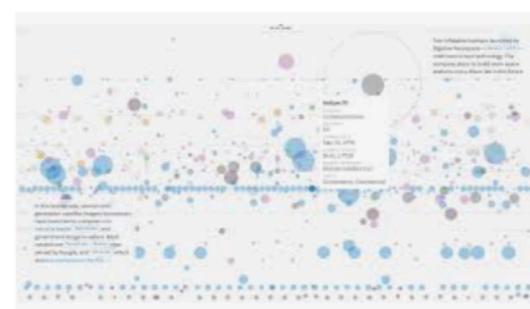
Data Visualizations in Python with Code
towardsdatascience.com



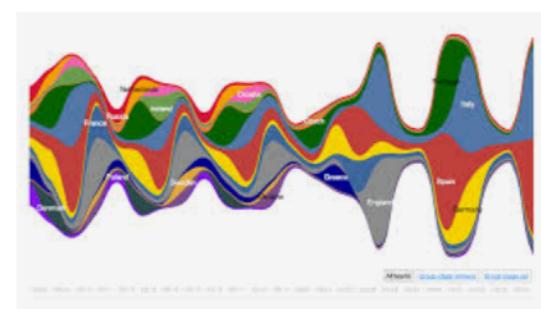
The Best Data Visualizations of All ...
datapine.com



15 Stunning Data Visualizations (And ...
blog.visme.co

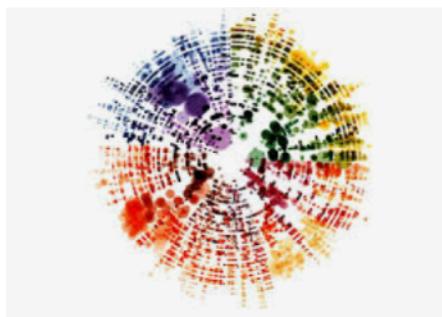


15 Data Visualizations That Will Blow ...
blog.udacity.com



data density visualizations ...
radar.oreilly.com

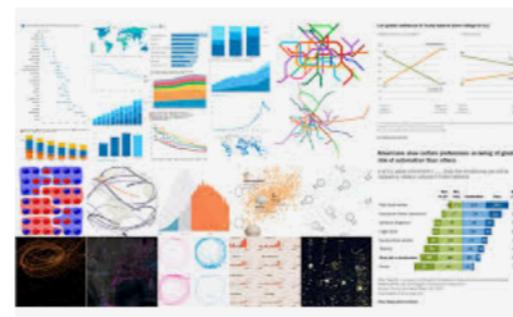
Google Search for “Visualizations”



Tips for Data Visualization – Towards ...
towardsdatascience.com



Choose the Right Data Visualization ...
pcmag.com



AnyChart | Data Visualization in 2017 ...
anychart.com



What is Data Visualization? | Geotab
geotab.com



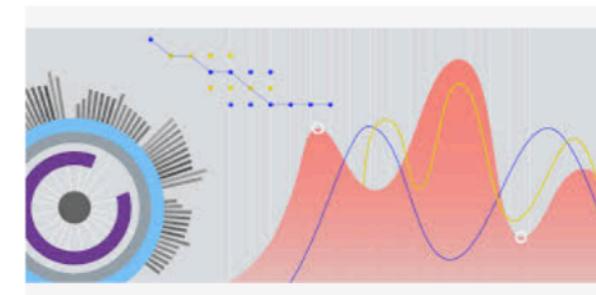
The importance of Data Visualisation ...
nice.one



10 Big Data Visualization Tools ...
promptcloud.com



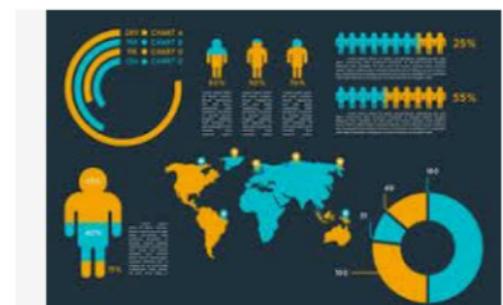
Coding for Data Visualization – Coding ...
codinginthewild.com



Data Visualization – Design at IBM ...
medium.com



Your guide to Data Visualization for ...
uxdesign.cc



Data Visualization Free Vector Art ...
vecteezy.com



7 data visualization techniques for ...
blog.mapbox.com



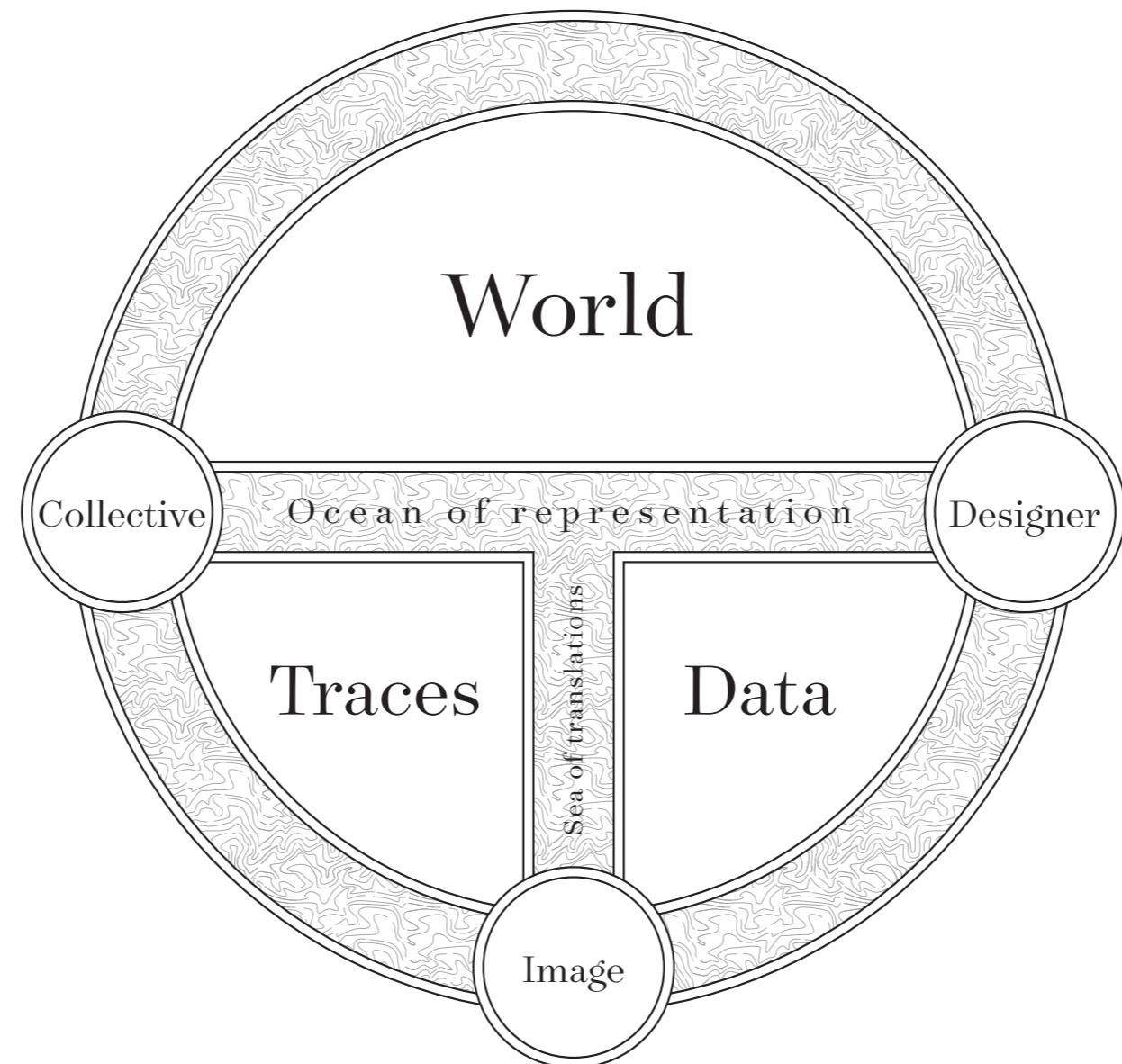
AnyChart | Visualizing Data in Charts ...
anychart.com

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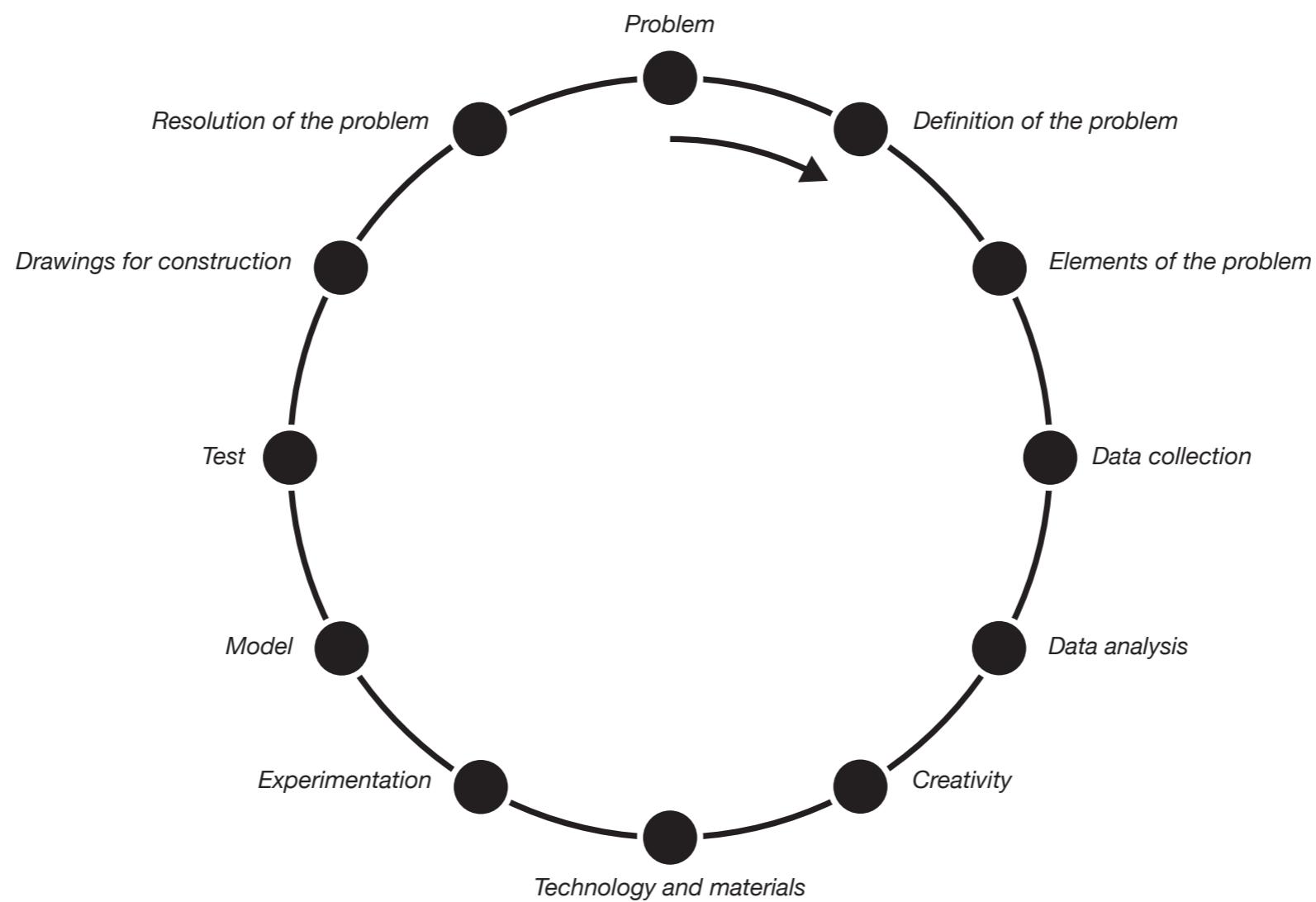
2.

The Three Translations of Data Visualization:

- A) Datafication: From World to Data
- B) Design: From Data to Visualization
- C) Reading: From Visualization to Interpretation



A) Datafication: From World to Data
Rodighiero and Romele 2018



B) Design: From Data to Visualization

Munari, Bruno. 1983. *Da Cosa Nasce Cosa: Appunti per Una Metodologia Progettuale*. Laterza.

Elements

Points

Lines

Shapes

Volumes

Texts

Characteristics

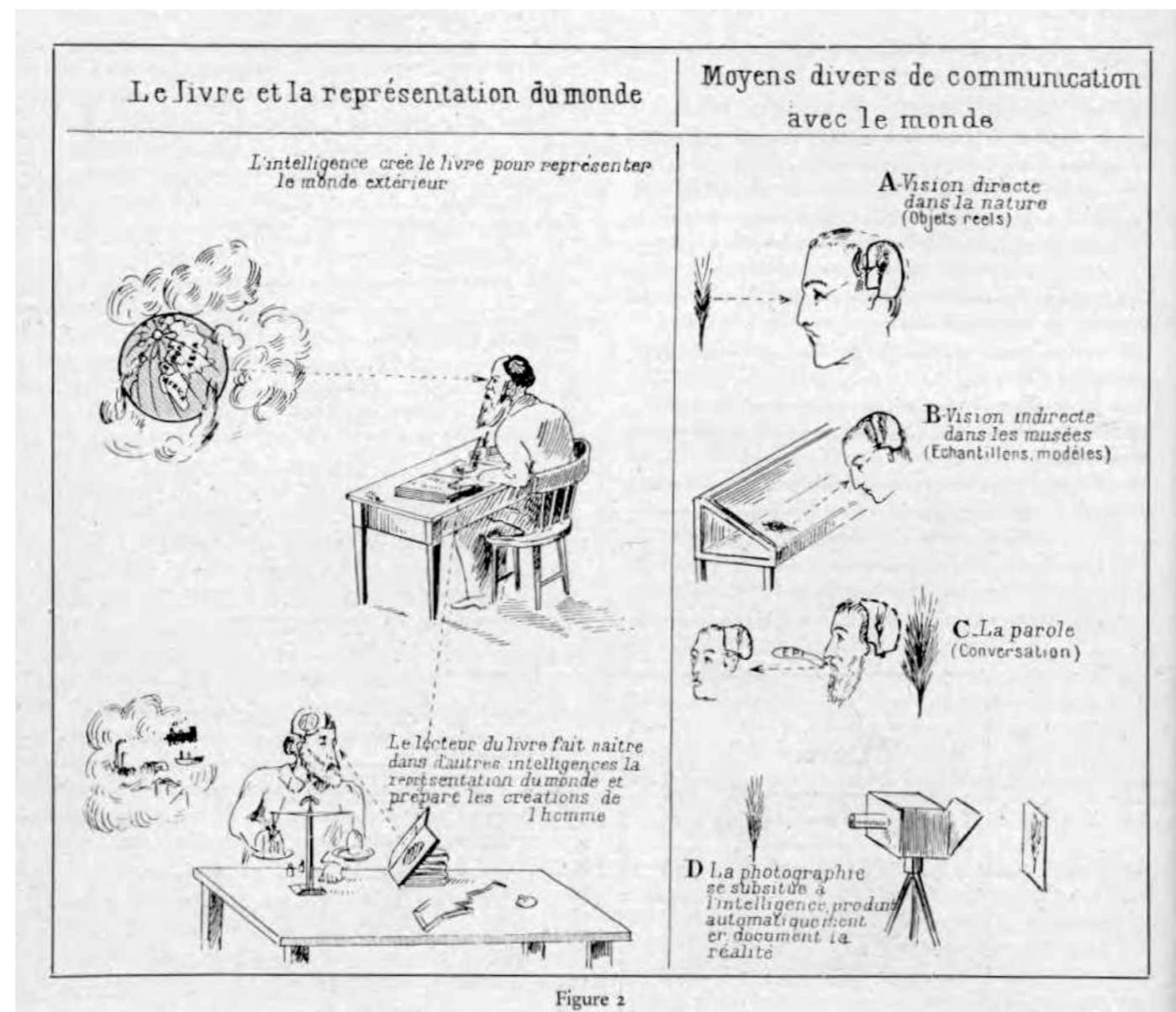
Size

Position

Color

Transparency

Font Family



3. Reading: From Visualization to Interpretation
 Traité de documentation : le livre sur le livre, théorie et pratique, Paul Otlet (1934)

3.

Examples

Traditional Visualizations (*19th centuries*)

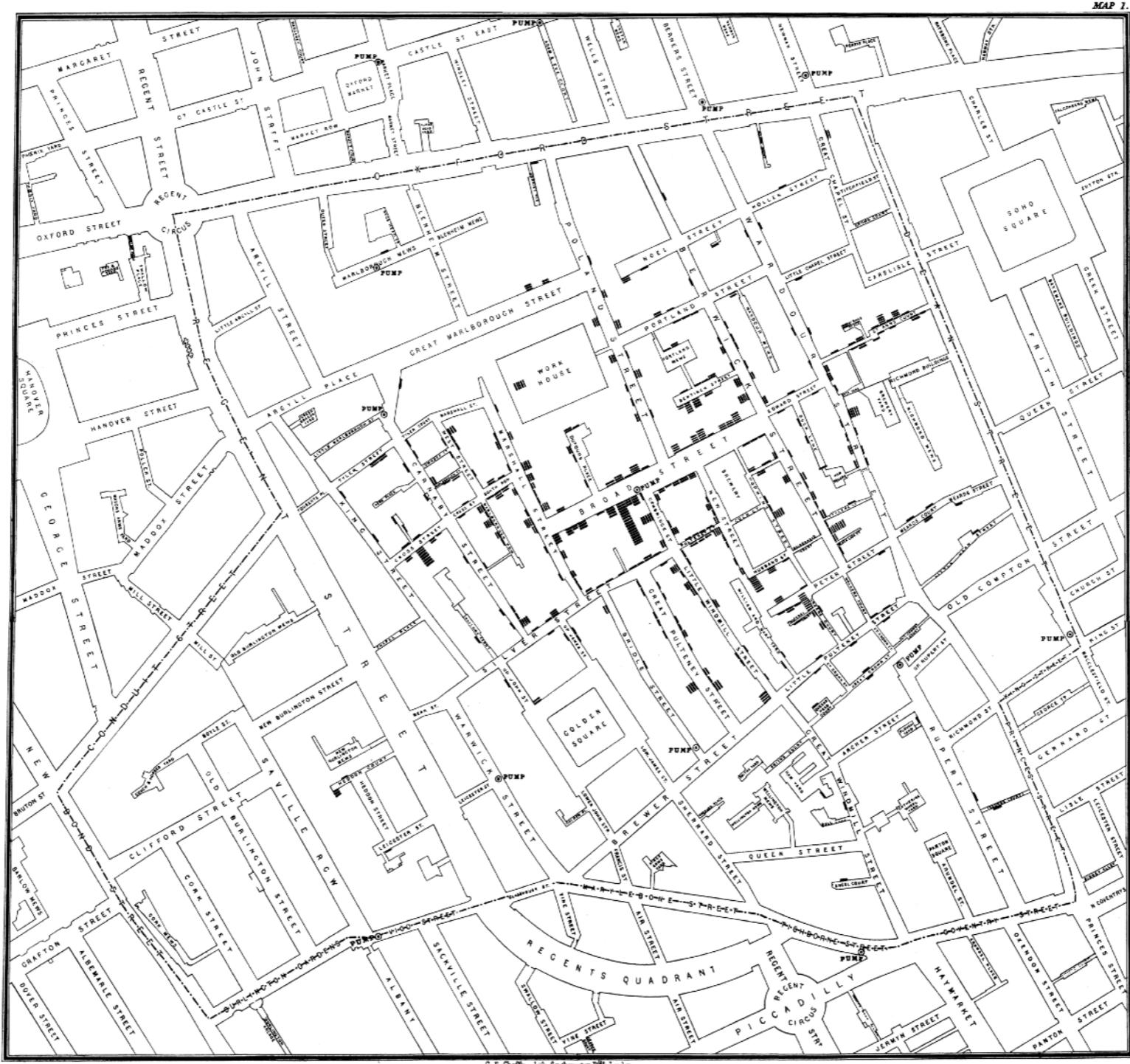
Modern Visualizations (*20th century*)

Contemporary Visualizations (*21st century*)

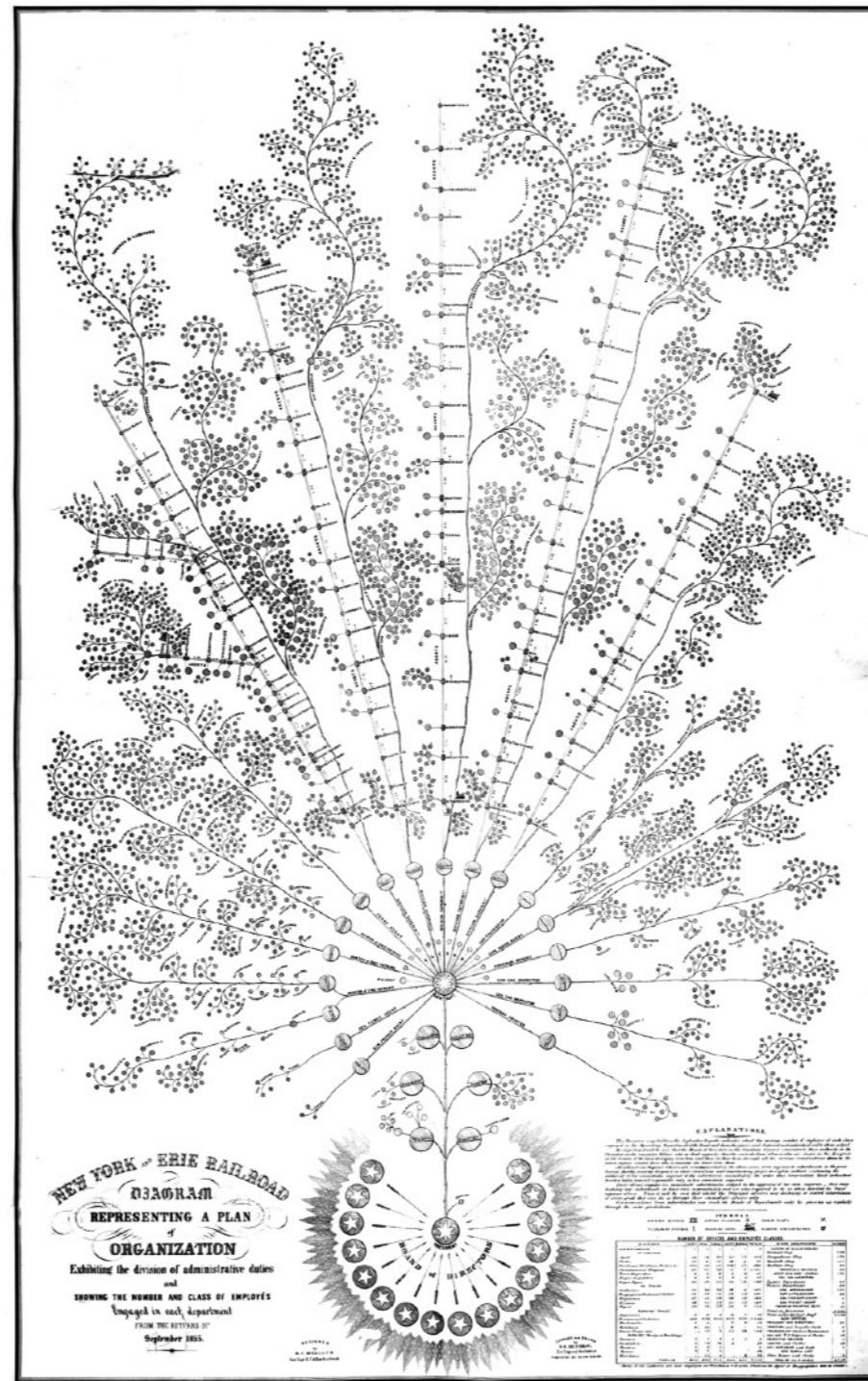
a.

Traditional Visualizations

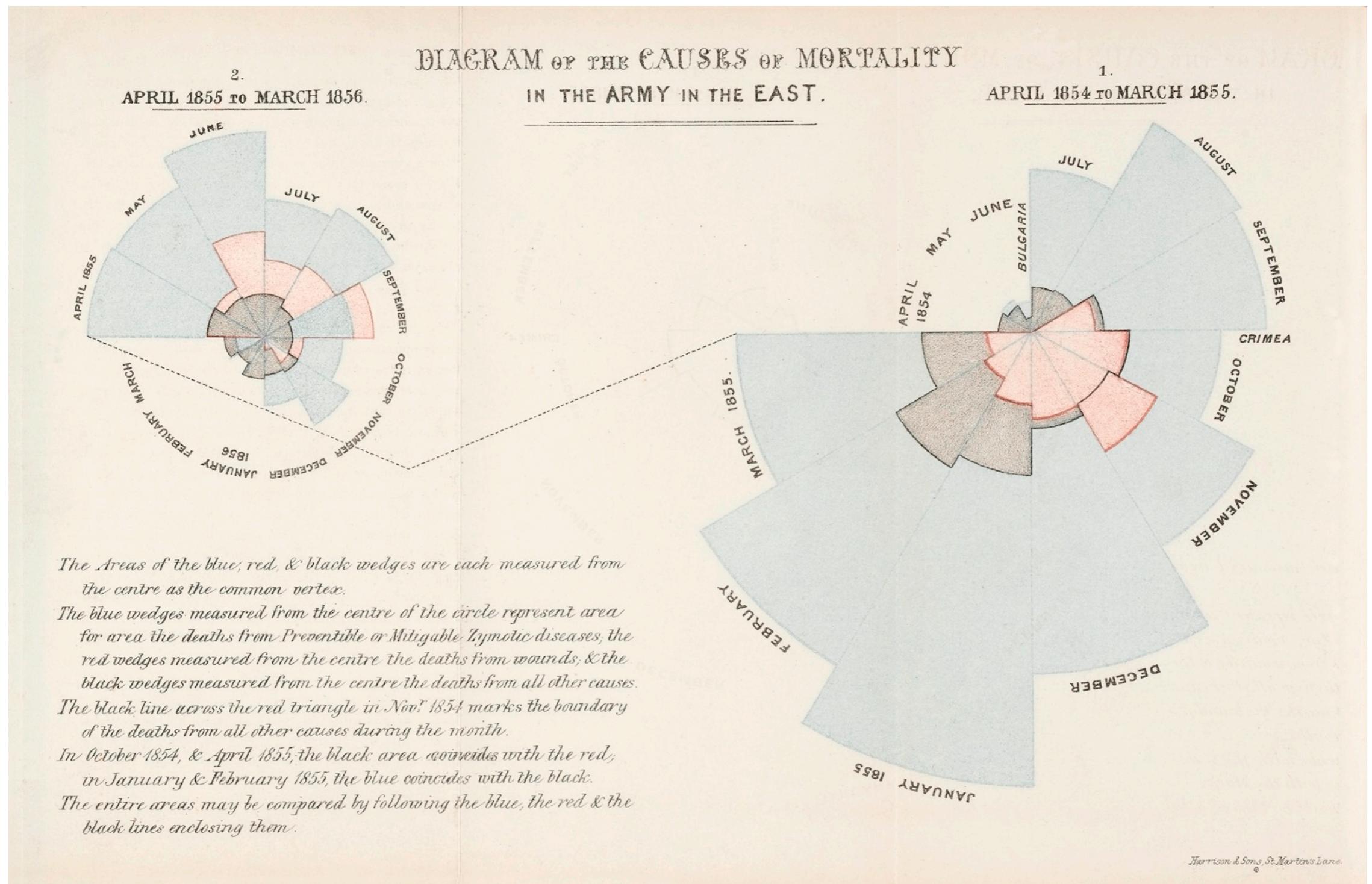
MAP I.



Clusters of cholera cases in the London, John Snow (1854)
https://en.wikipedia.org/wiki/John_Snow



Organizational diagram of the New York and Erie Railroad, Daniel McCallum (1855)
https://en.wikipedia.org/wiki/Daniel_McCallum



Mortalité de l'armée britannique - Illustration, Florence Nightingale (1858)
https://en.wikipedia.org/wiki/Florence_Nightingale

Carte Figurative des pertes successives en hommes de l'Armée Française dans la Campagne de Russie 1812-1813.

Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite

Paris, le 20 Novembre 1869.

Les nombres d'hommes perdus sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes ; ils sont de plus écrits en travers des zones. Le rouge désigne les hommes qui entrent en Russie, le noir ceux qui en sortent. — Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M. M. Chiers, de Séguir, de Fezensac, de Chambray et le journal inédit de Jacob, pharmacien de l'Armée depuis le 28 Octobre.

Pour mieux faire juger à l'œil la diminution de l'armée, j'ai supposé que les corps du Prince Jérôme et du Maréchal Davout qui avaient été détachés sur Minsk en Mobilow et ont rejoint vers Orscha en Witebsk, avaient toujours marché avec l'armée.

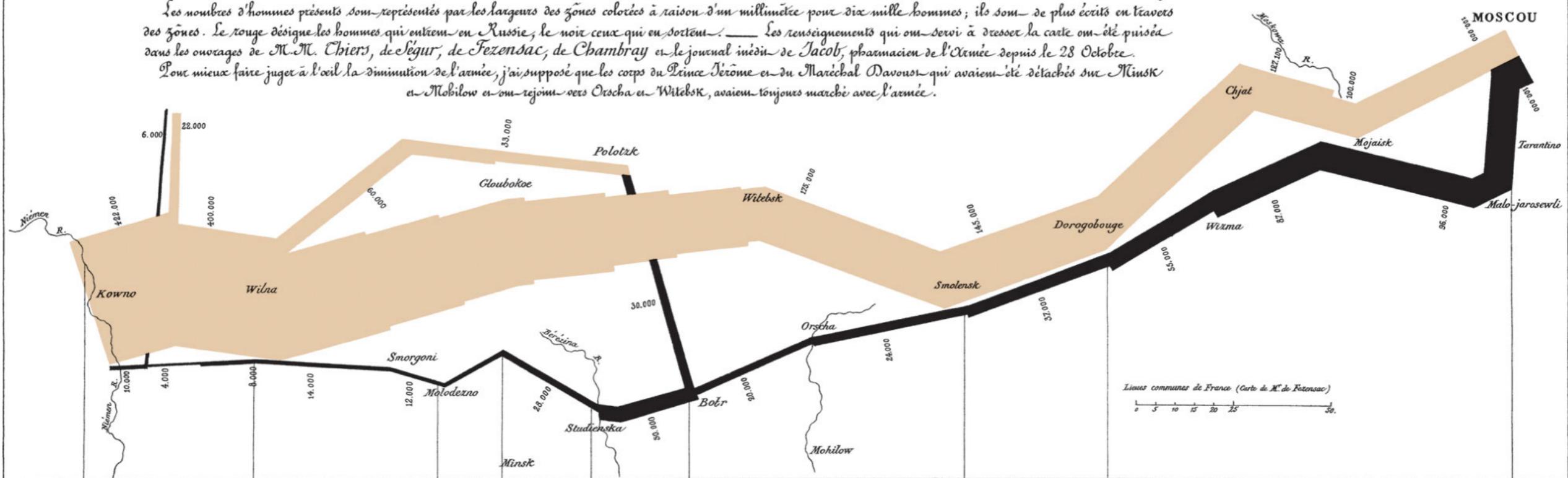
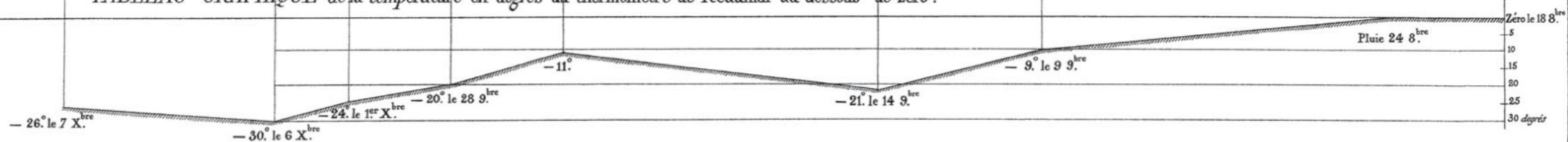


TABLEAU GRAPHIQUE de la température en degrés du thermomètre de Réaumur au dessous de zéro.

Les Cosaques passent au galop
le Niémen gelé.

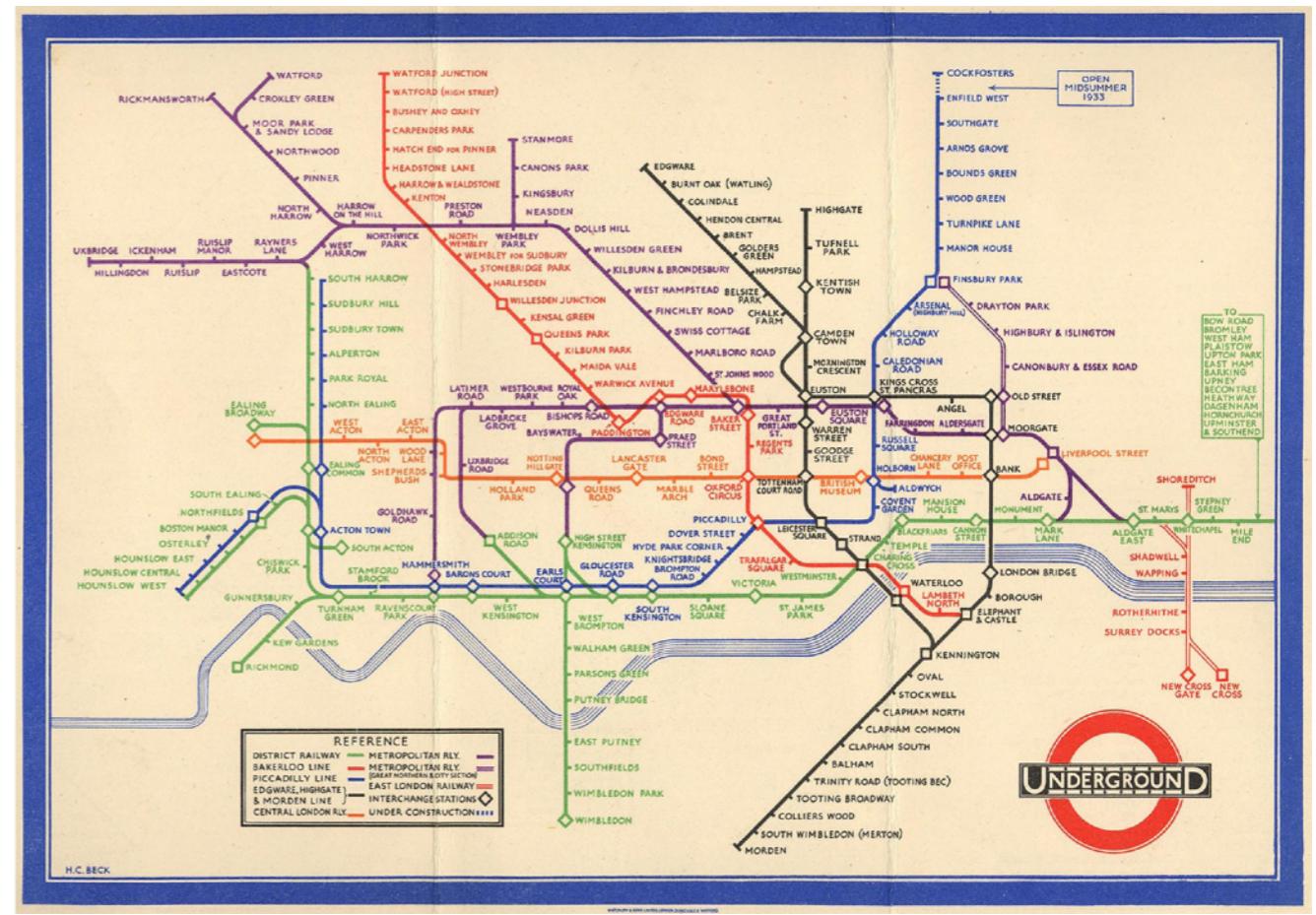
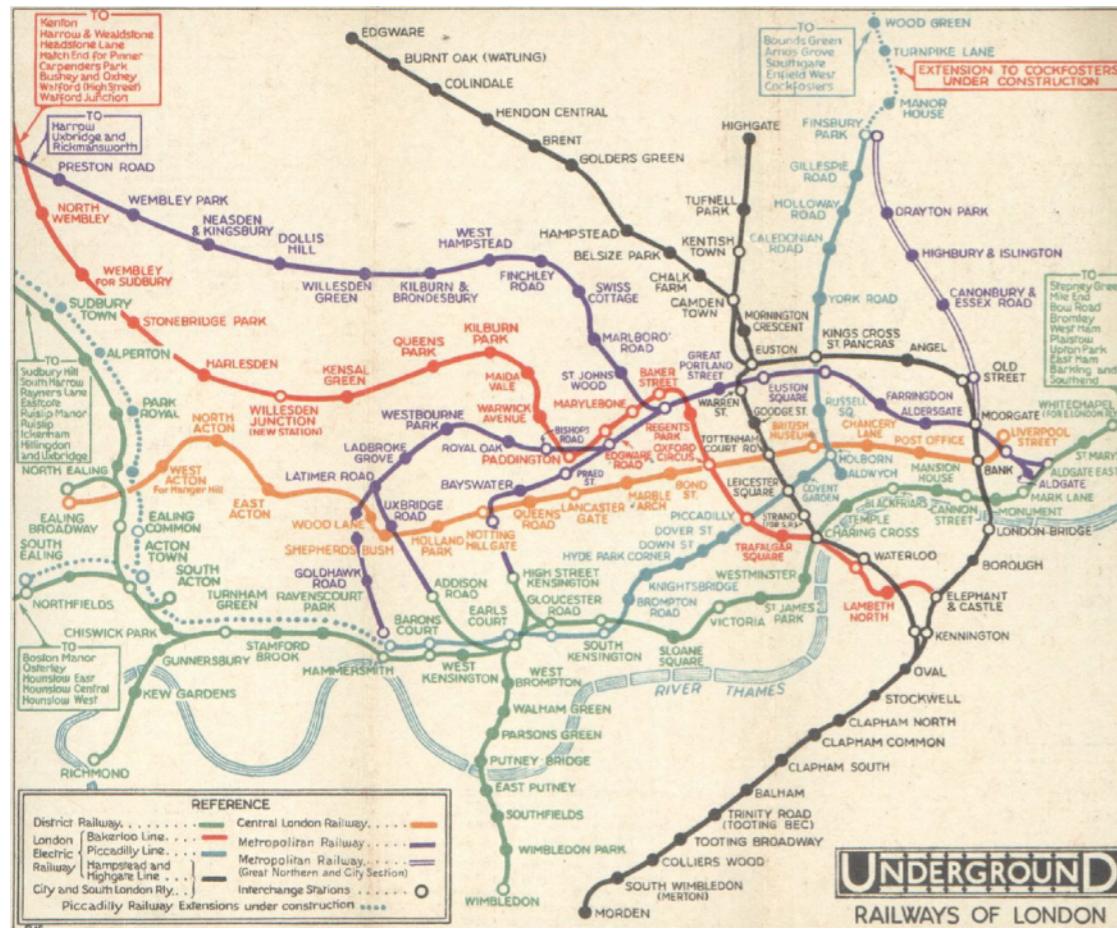


Autog. par Regnier, 8. Pas. S^{te} Marie St^e G^{me} à Paris.

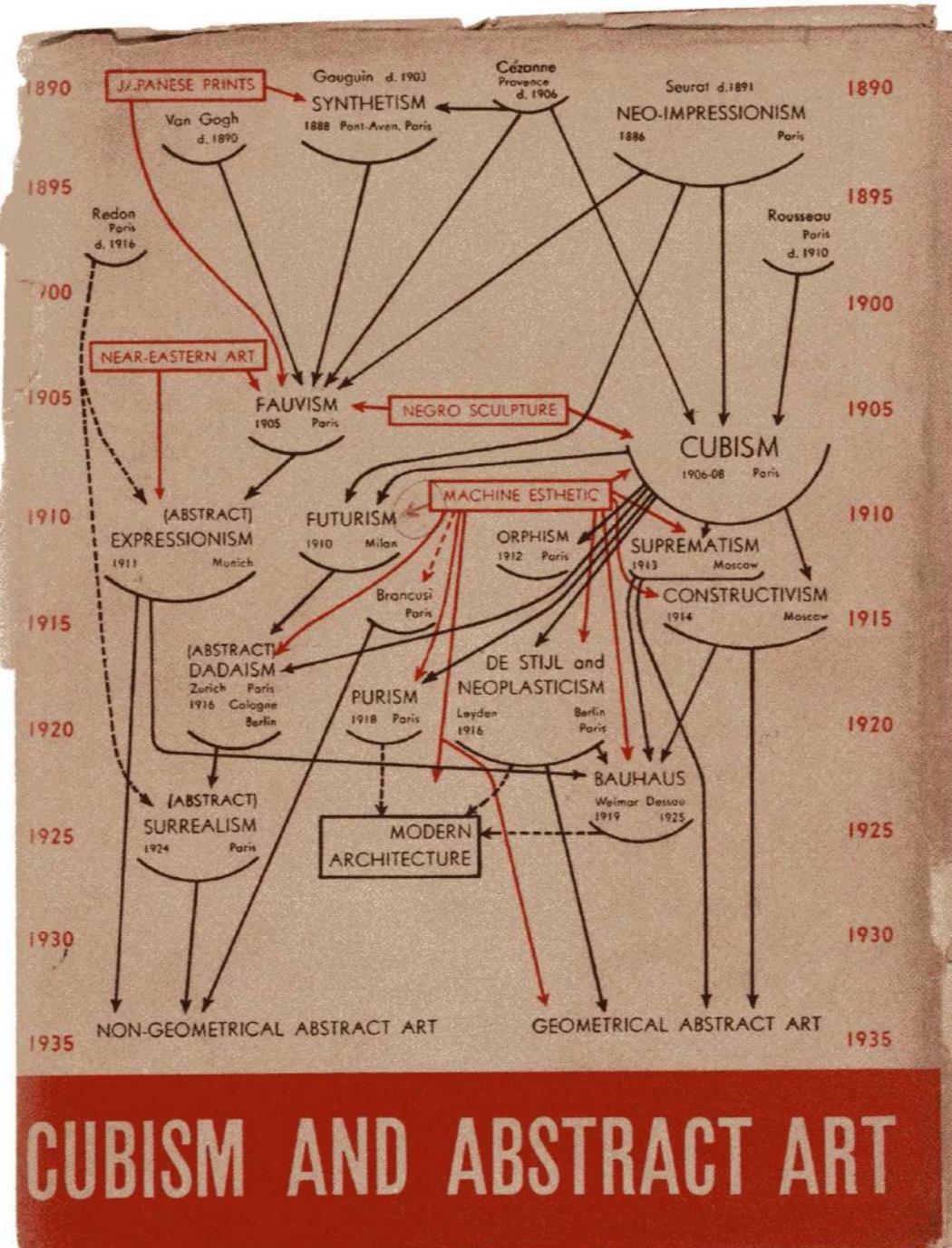
Imp. Lith. Regnier et Dourdet.

b.

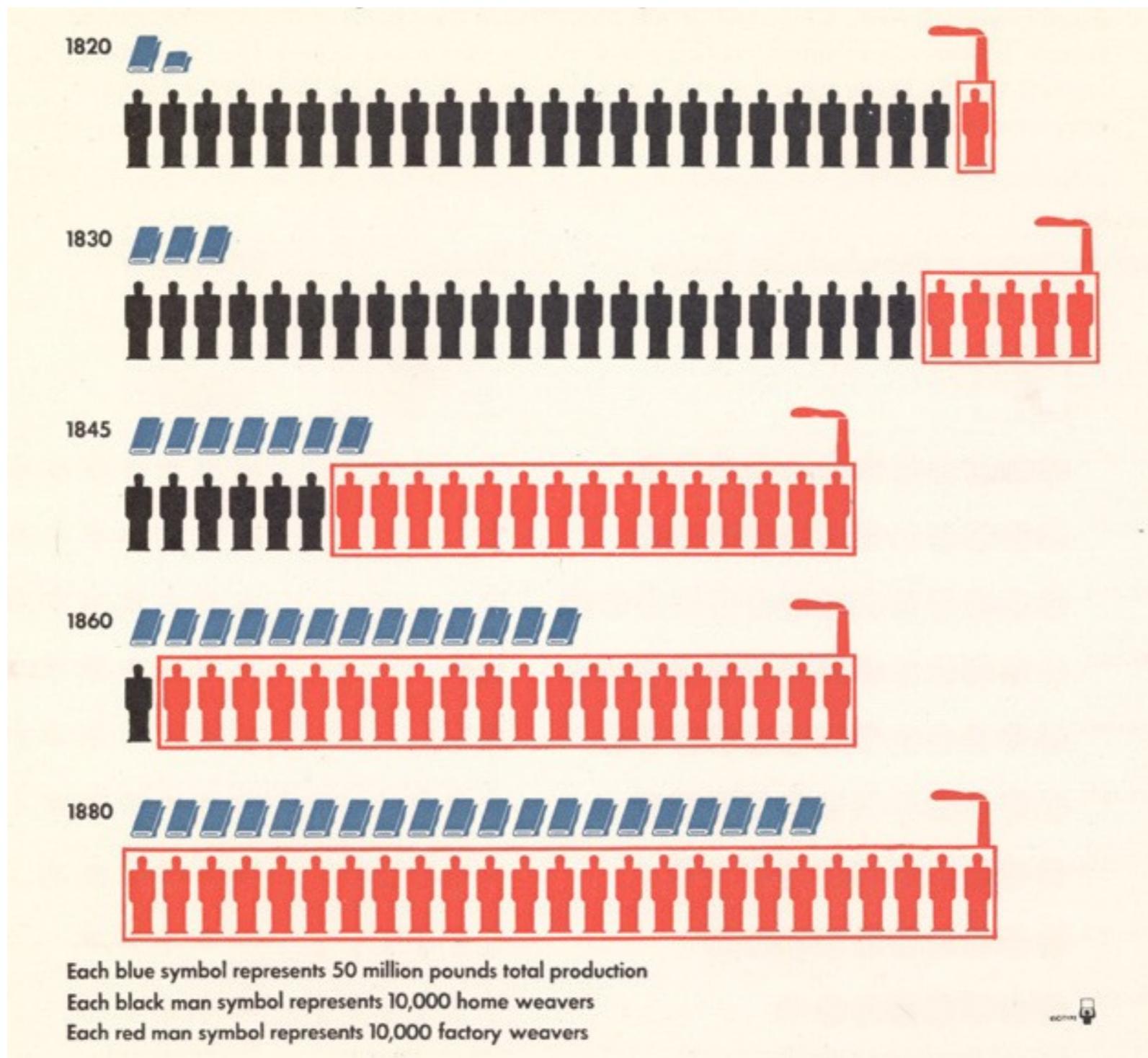
Modern Visualizations



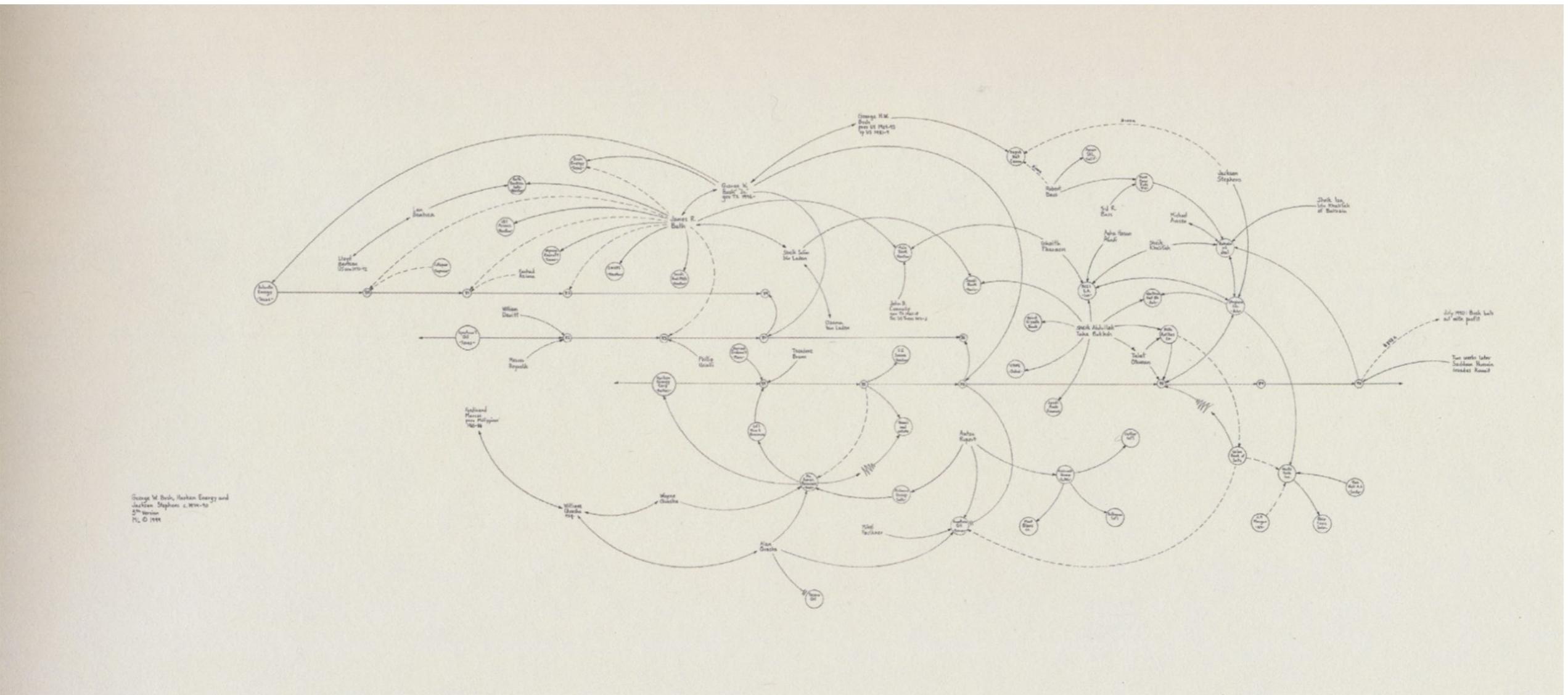
On the right: London Underground Map, Harry Beck (1933)
https://en.wikipedia.org/wiki/Harry_Beck



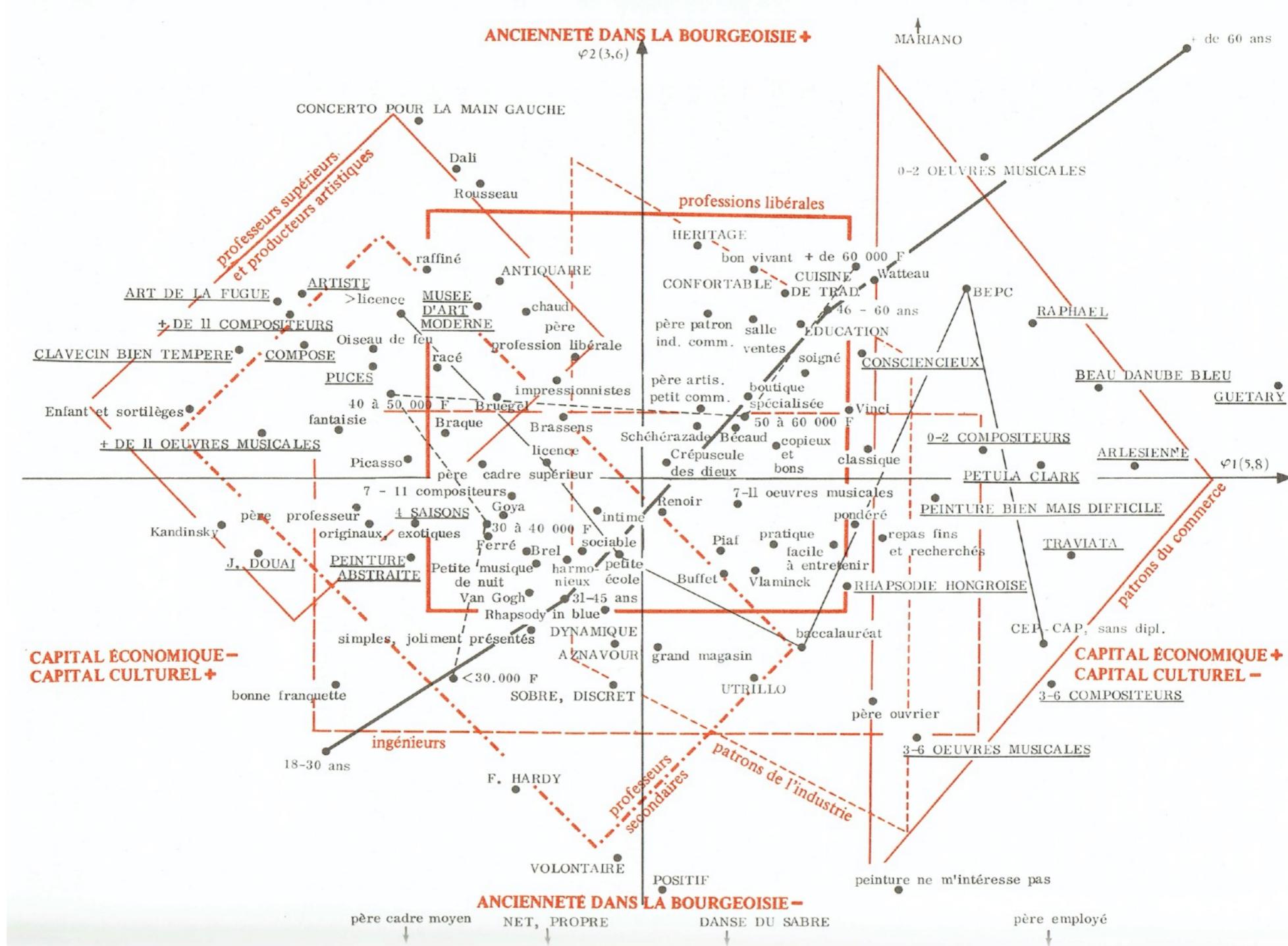
Cubism and Abstract Art, Alfred Barr (1936)
<https://www.moma.org/calendar/exhibitions/2748>



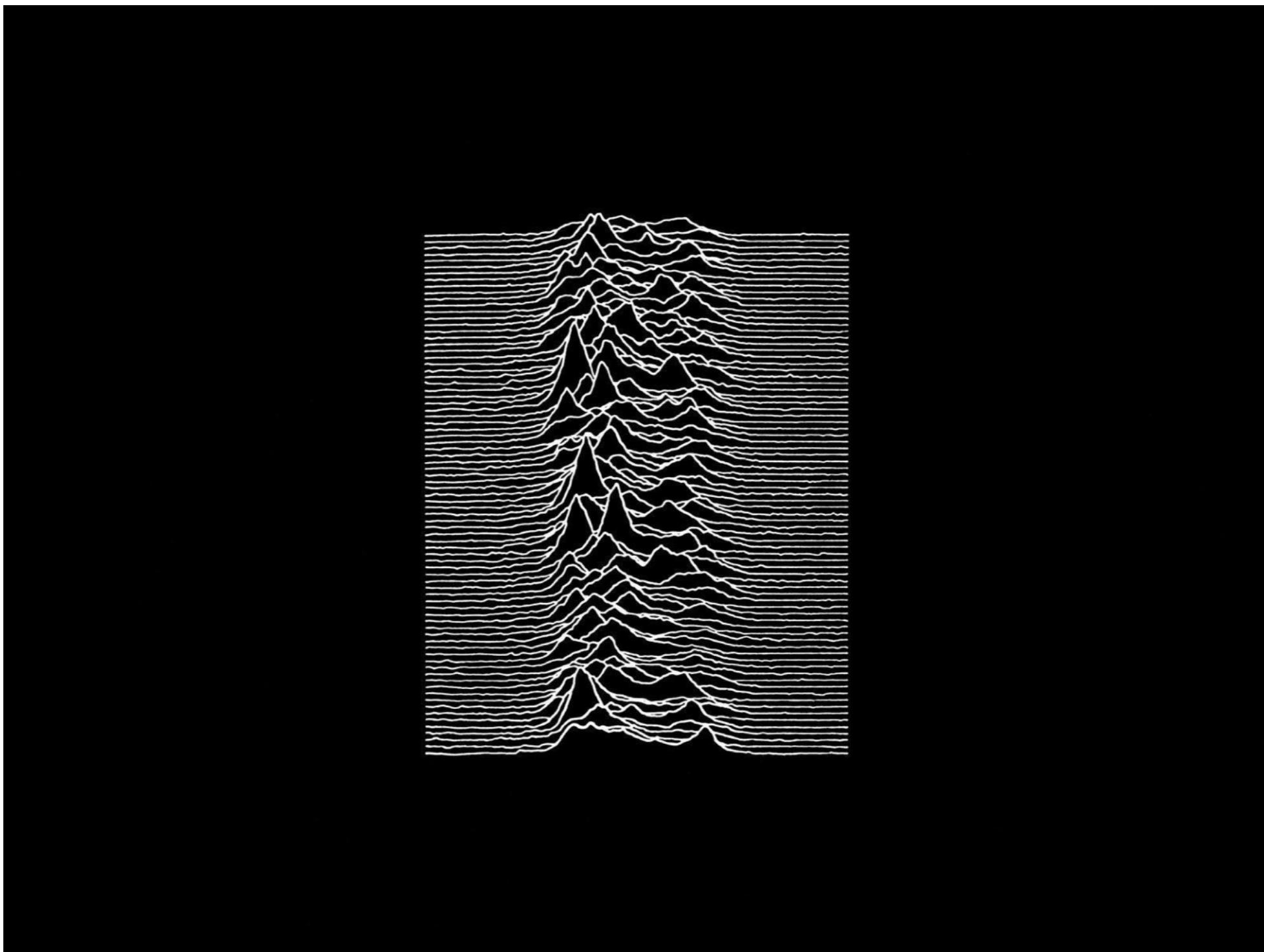
Modern Man in the Making – Isotype, Otto Neurath (1939)
https://en.wikipedia.org/wiki/Otto_Neurath



George W. Bush, Harken Energy, and Jackson Stephens, Mark Lombardi (1979–90)
https://medium.com/@ben_fry/learning-from-lombardi-a28032a7eb5



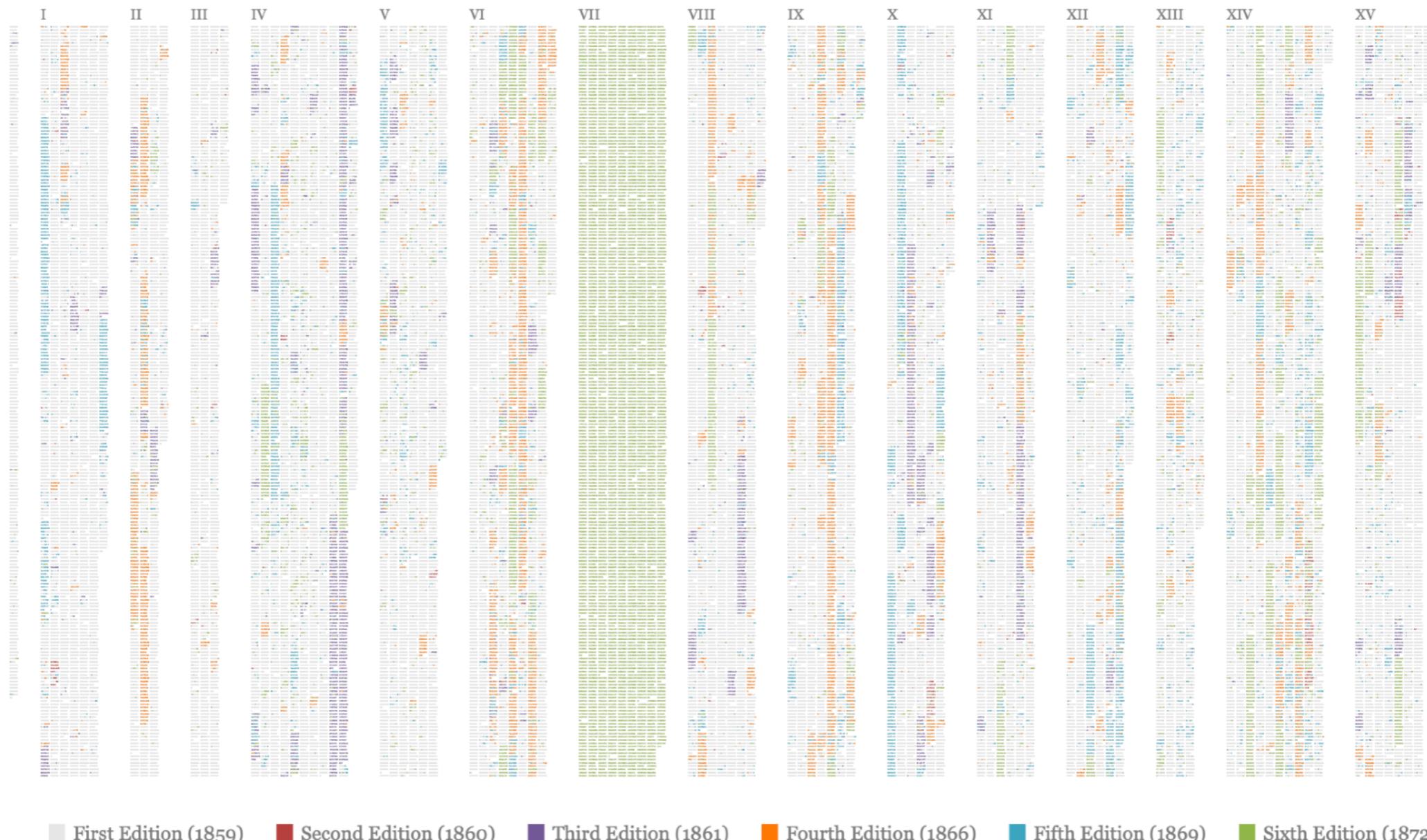
Multiple Correspondence Analysis (MCA) in *La distinction*, Pierre Bourdieu (1979)
https://en.wikipedia.org/wiki/Multiple_correspondence_analysis



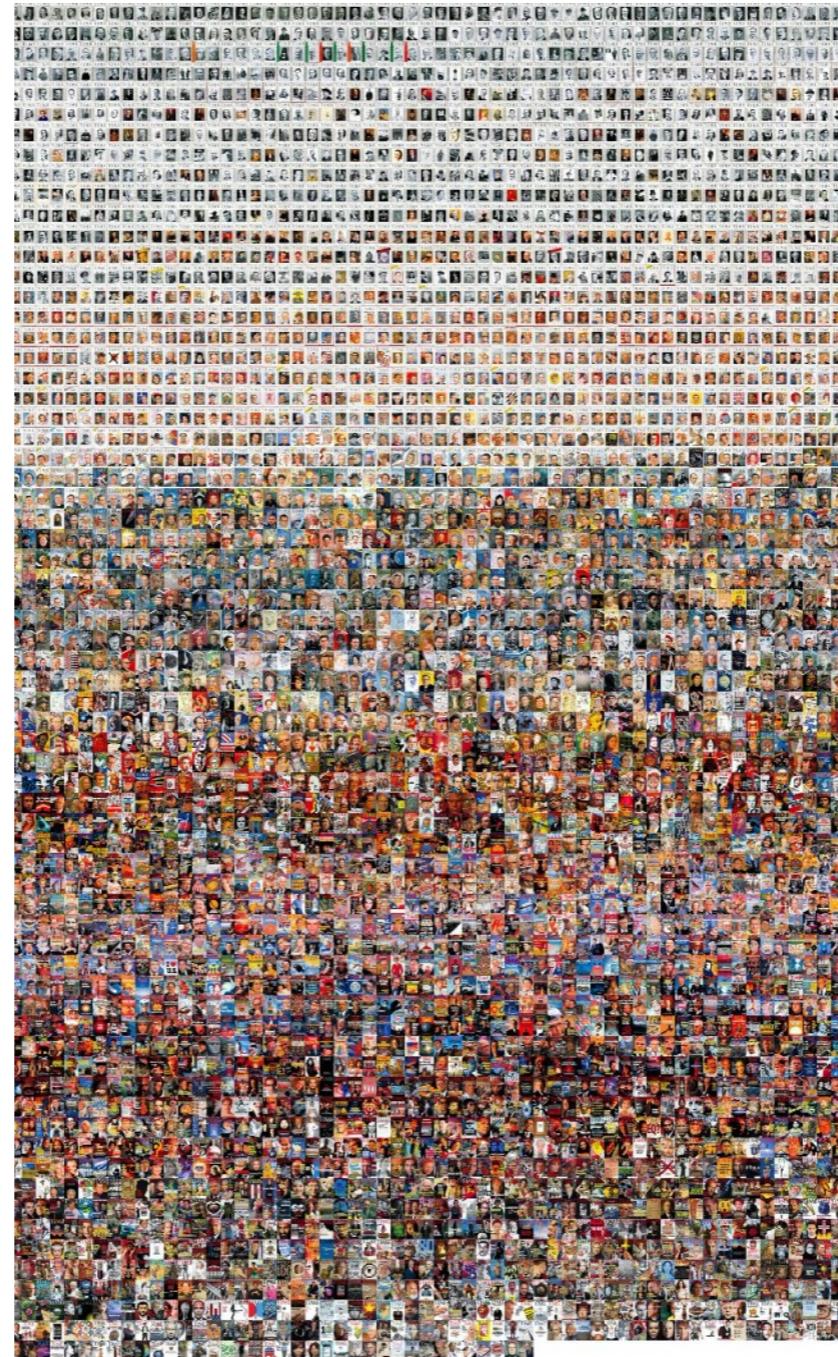
Stacked Plot of Radio Signals from a Pulsar, Harold Craft (1977)
<https://blogs.scientificamerican.com/sa-visual/pop-culture-pulsar-origin-story-of-joy-division-s-unknown-pleasures-album-cover-video/>

C.

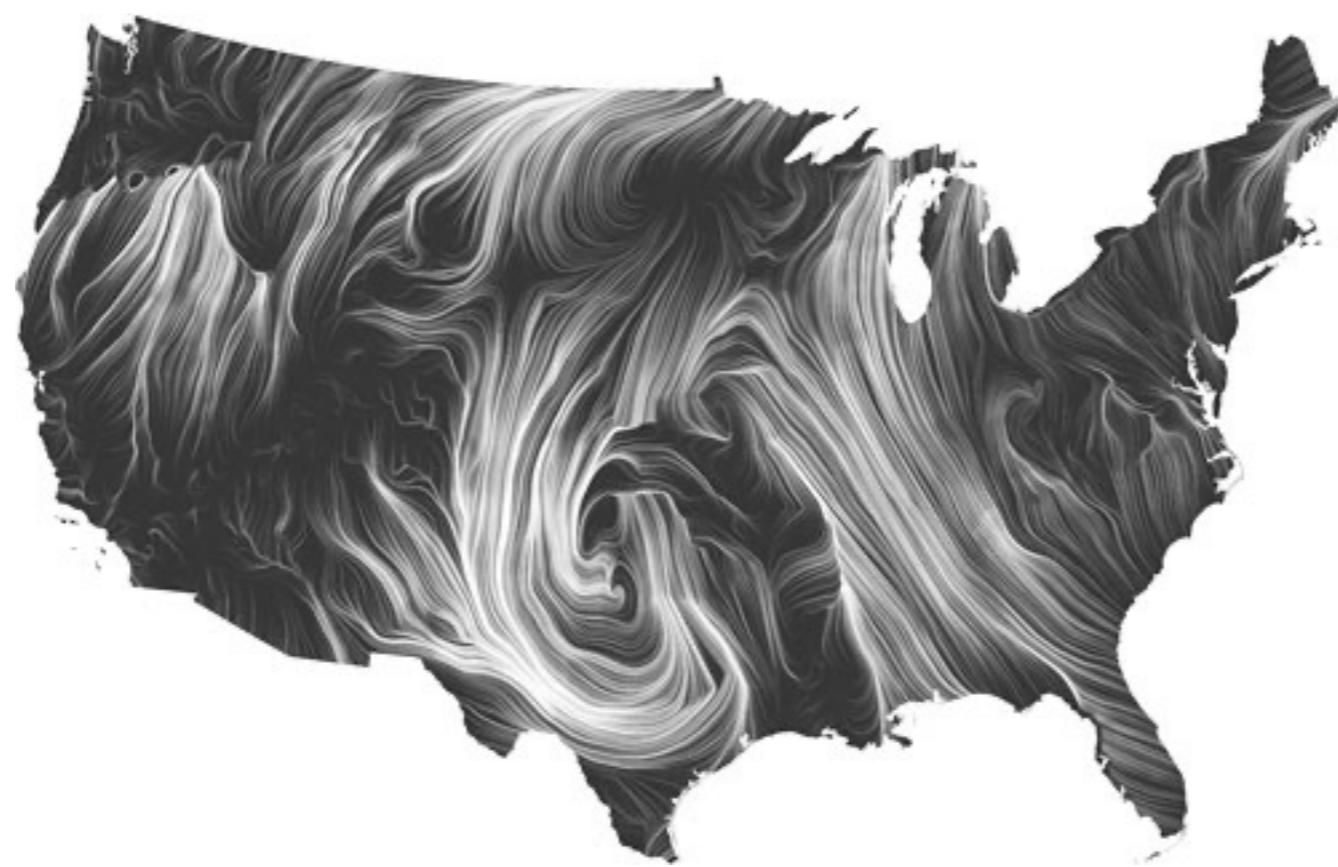
Contemporary Visualizations



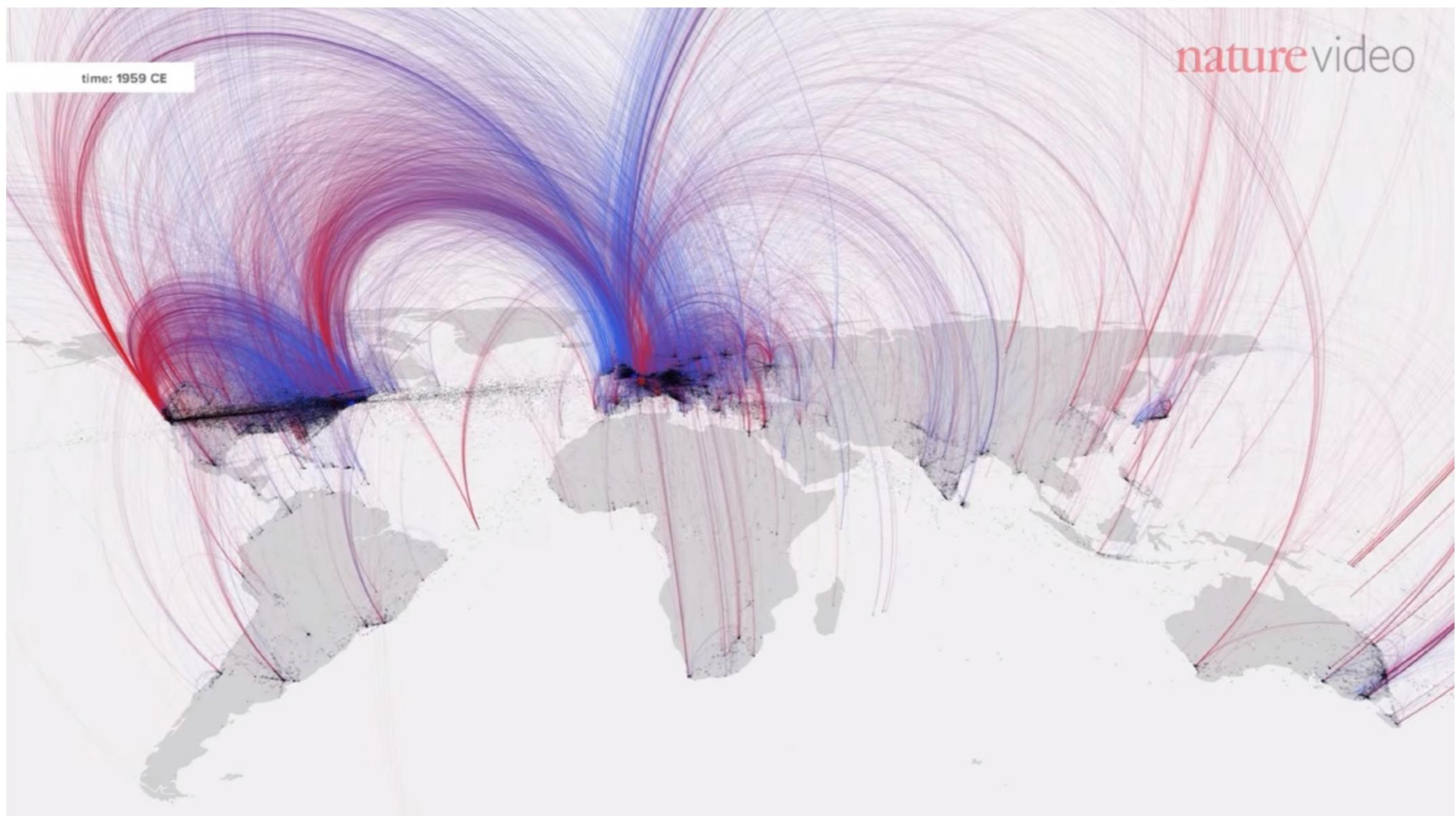
The preservation of Favoured Traces, Ben Fry (2009)
<https://fathom.info/traces/>



Timeline, Lev Manovich (2010)
<http://manovich.net/index.php/exhibitions/timeline>



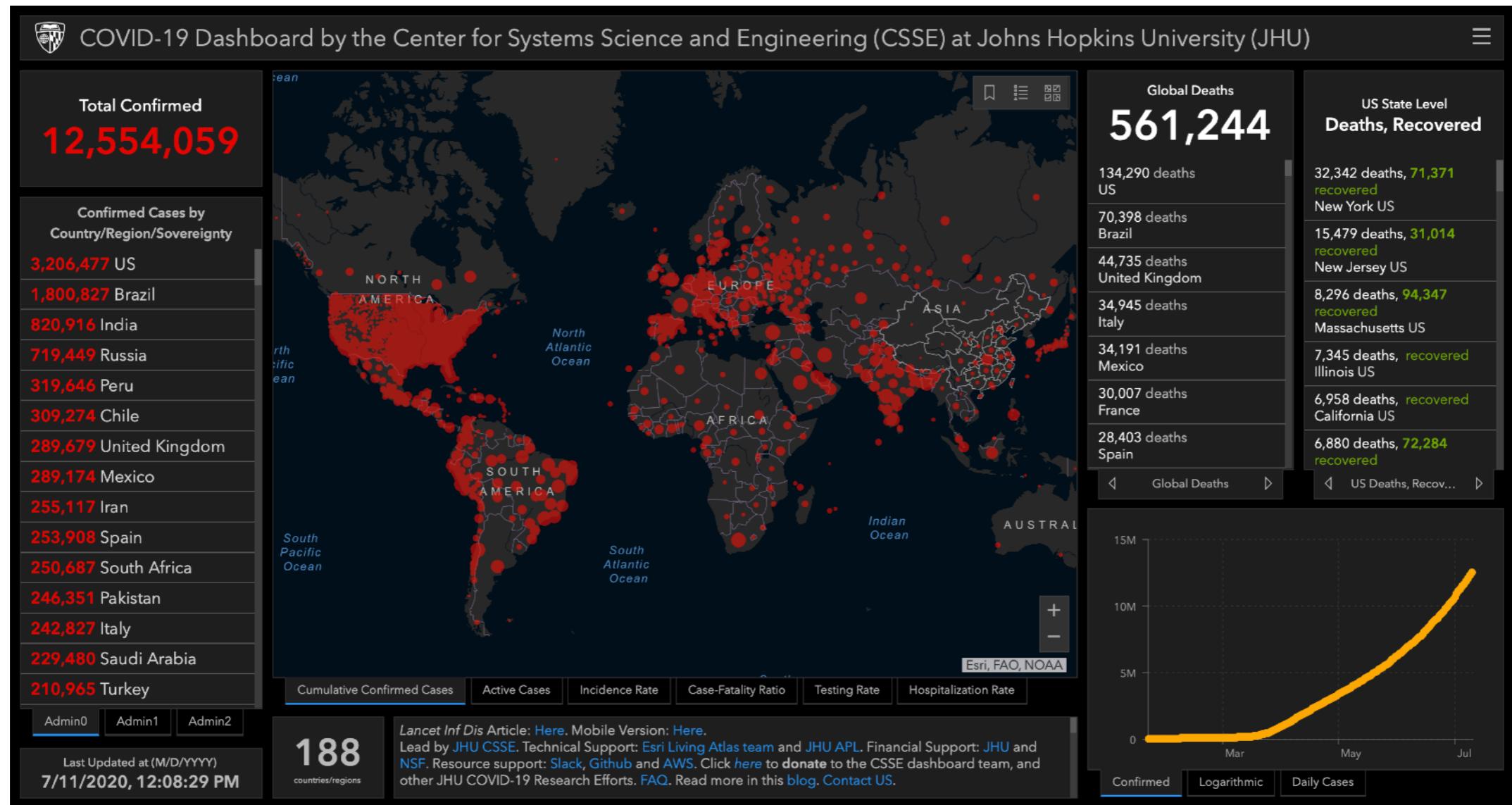
Wind Map, Fernanda Viégas (2012)
<http://hint.fm/projects/wind/>



Charting Culture, Mauro Martino (2014)
<http://www.mamartino.com/projects/cultsci/>



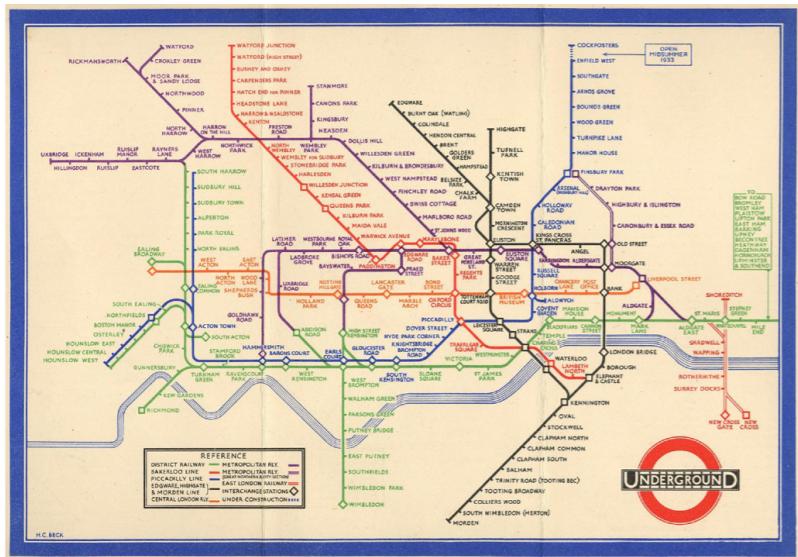
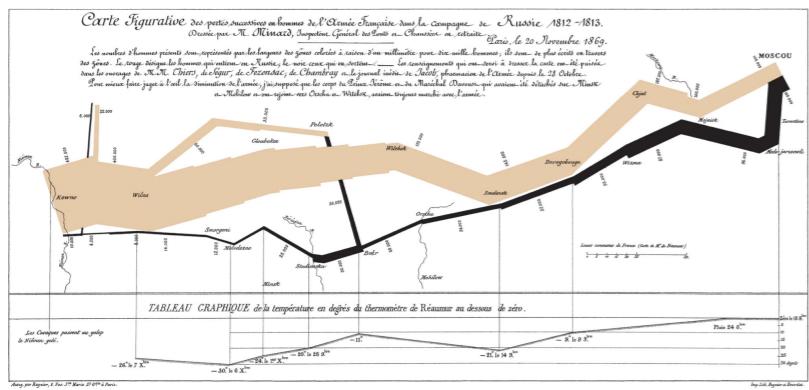
The Rhythm of Food, Moritz Stefaner (2017)
<https://truth-and-beauty.net>



The COVID-19 Dashboard by Johns Hopkins University (Dong, Du, and Gardner 2020)
<https://coronavirus.jhu.edu/map.html>

4.

Three Visualizations and Three
Translations to keep in Mind

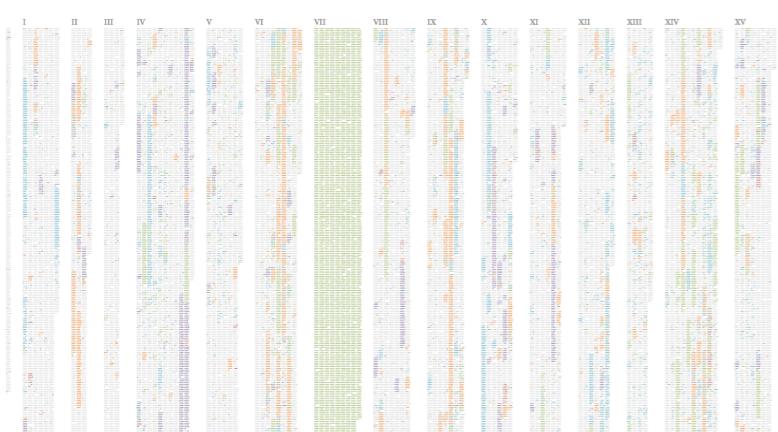


The Three Translations of Data Visualization:

A) Datafication: From World to Data

B) Design: From Data to Visualization

C) Reading: From Visualization to Interpretation



■ First Edition (1859) ■ Second Edition (1860) ■ Third Edition (1861) ■ Fourth Edition (1866) ■ Fifth Edition (1869) ■ Sixth Edition (1872)



Lexical Cartography, Dario Rodighiero (2020)
<https://rodighiero.github.io/DH2020/>

Thanks

@dariorodighiero

<https://dariorodighiero.com>