

CMPU 187 · Introduction to Digital Humanities

Maps

7 May 2021



Looking

1984

2020



1984

2020



earth.google.com/web/@38.98926242,-103.55056173,3424

← Timelapse in Google Earth

Google 100%

Camera: 15,455 km 38°33'45"N 103°33'02"W

Mapping

On Exactitude in Science

Jorge Luis Borges, *Collected Fictions*, translated by Andrew Hurley.

...In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast Map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography.

—Suarez Miranda, *Viajes de varones prudentes*, Libro IV, Cap. XLV, Lerida, 1658

Maps are models.

The only true model is one that has a full, one-to-one correspondence with reality.

All other models are wrong.

But some are useful.

In 1854, there was an outbreak of cholera in central London:

The most terrible outbreak of cholera which ever occurred in this kingdom, is probably that which took place in Broad Street, Golden Square, and adjoining streets, a few weeks ago. Within two hundred and fifty yards of the spot where Cambridge Street joins Broad Street, there were upwards of five hundred fatal attacks of cholera in ten days. The mortality in this limited area probably equals any that was ever caused in this country, even by the plague; and it was much more sudden, as the greater number of cases terminated in a few hours. The mortality would undoubtedly have been much greater had it not been for the flight of the population. Persons in furnished lodgings left first, then other lodgers went away, leaving their furniture to be sent for. . . . Many houses were closed altogether owing to the death of the proprietors; and, in a great number of instances, the tradesmen who remained had sent away their families; so that in less than six days from the commencement of the outbreak, the most afflicted streets were deserted by more than three-quarters of their inhabitants.²

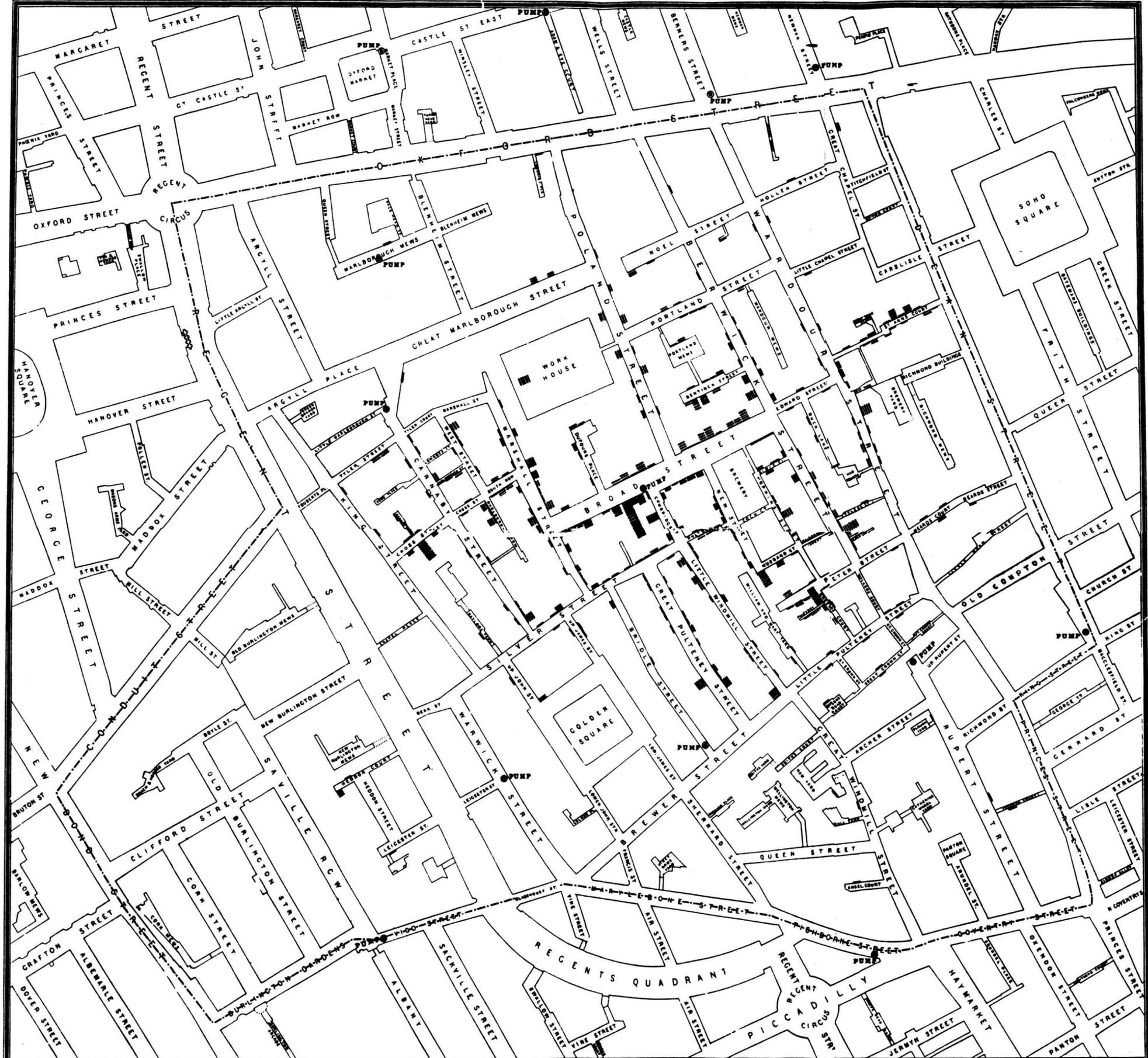
John Snow, *On the Mode of Communication of Cholera*, 1855

The outbreak began on the evening of 31 August 1854.

Snow, who investigated earlier epidemics, suspected the water from a community pump-well at Broad and Cambridge Streets was contaminated.

However, he couldn't reach any definitive conclusion from looking at the water.

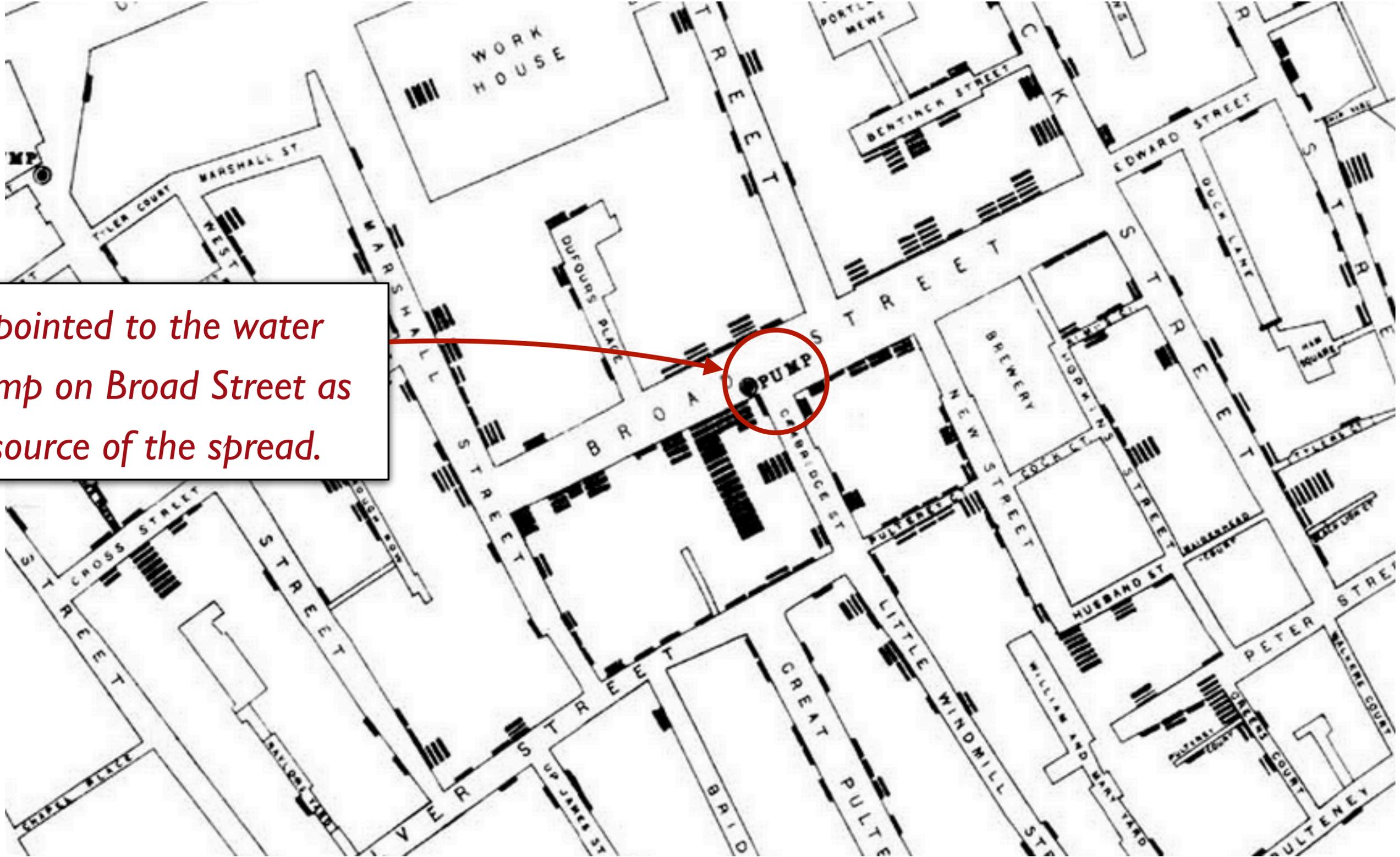
He obtained a list of 83 cholera deaths from the General Register Office and plotted them on a map.



On proceeding to the spot, I found that nearly all of the deaths had taken place within a short distance of the pump. There were only ten deaths in houses situated decidedly nearer to another street pump. In five of these cases the families of the deceased persons informed me that they always sent to the pump in Broad Street, as they preferred the water to that of the pump which was nearer. In three other cases, the deceased were children who went to school near the pump in Broad Street. Two of them were known to drink the water; and the parents of the third think it probable that it did so. The other two deaths, beyond the district which this pump supplies, represent only the amount of mortality from cholera that was occurring before the irruption took place.

With regard to the deaths occurring in the locality belonging to the pump, there were sixty-one instances in which I was informed that the deceased persons used to drink the pump-water from Broad Street, either constantly or occasionally. In six instances I could get no information, owing to the death or departure of every one connected with the deceased individuals; and in six cases I was informed that the deceased persons did not drink the pump-water before their illness.⁴

John Snow, *On the Mode of Communication of Cholera*, 1855



This map pointed to the water from a pump on Broad Street as the likely source of the spread.

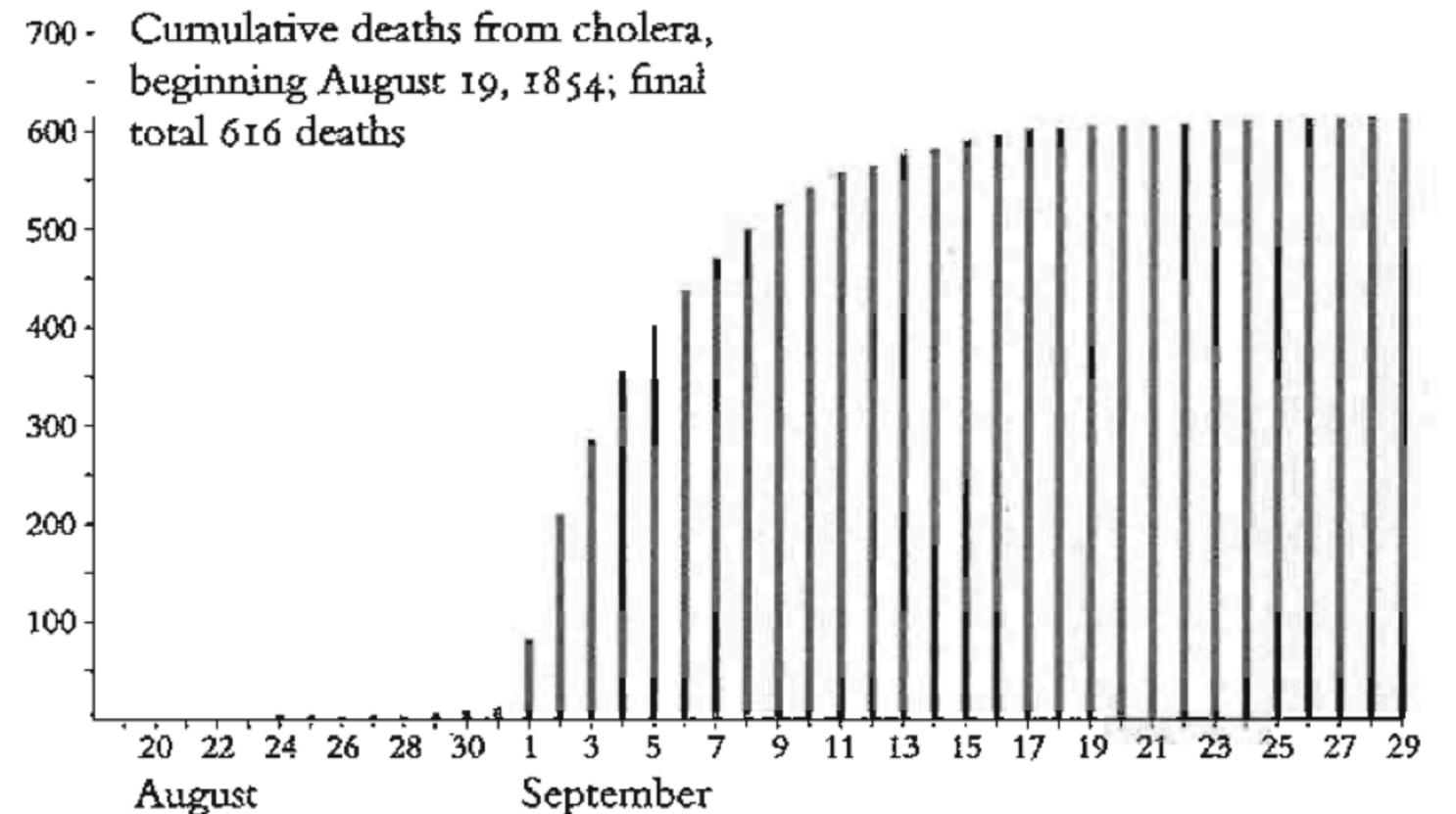
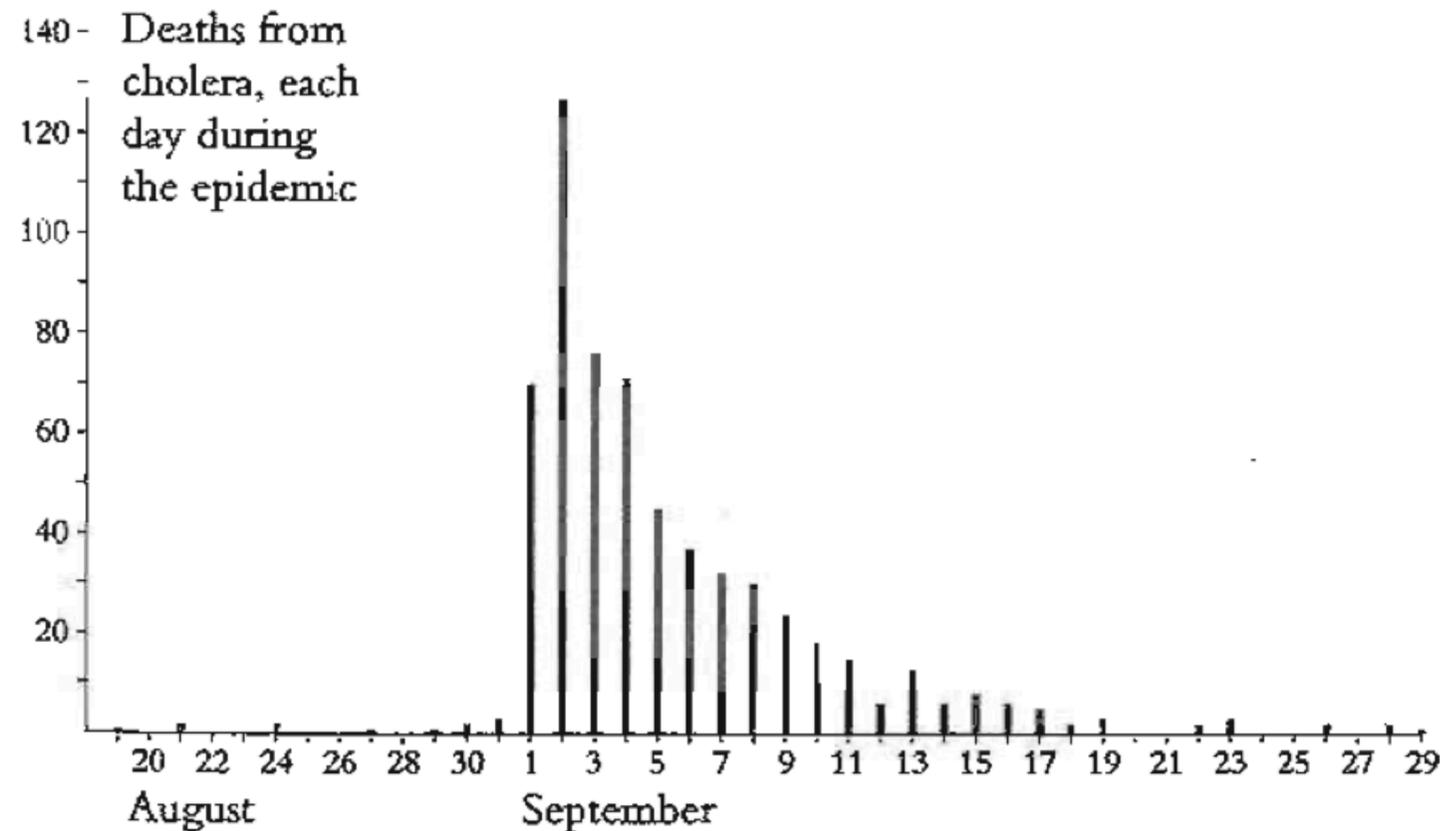
It was time to act.

Snow described his findings to the Board of Guardians of St James's Parish, who were responsible for the water supply.

The Board ordered the pump-handle be removed immediately, and the epidemic soon ended.

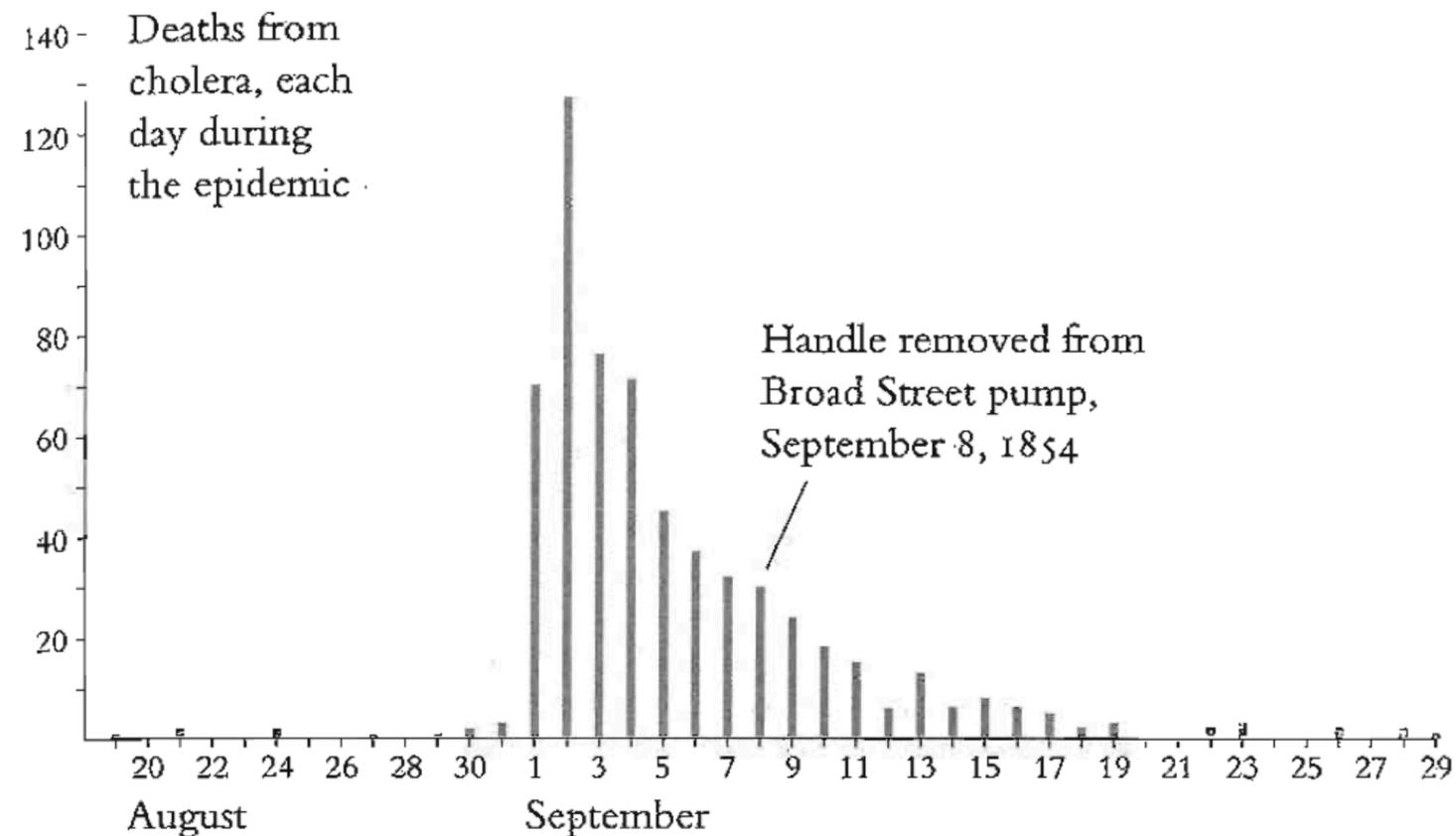
The original data Snow obtained listed the victims' names and described their circumstances, in order by date of death.

The obvious visualization would be a time series – a display of the progress of the epidemic, either daily or cumulative:

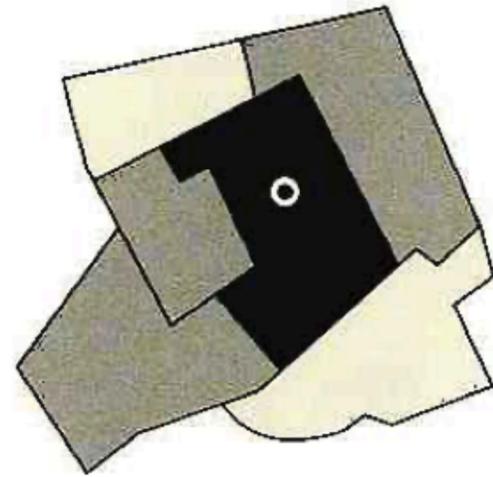


These visualizations would have been practically useless in discovering a strategy for stopping the epidemic.

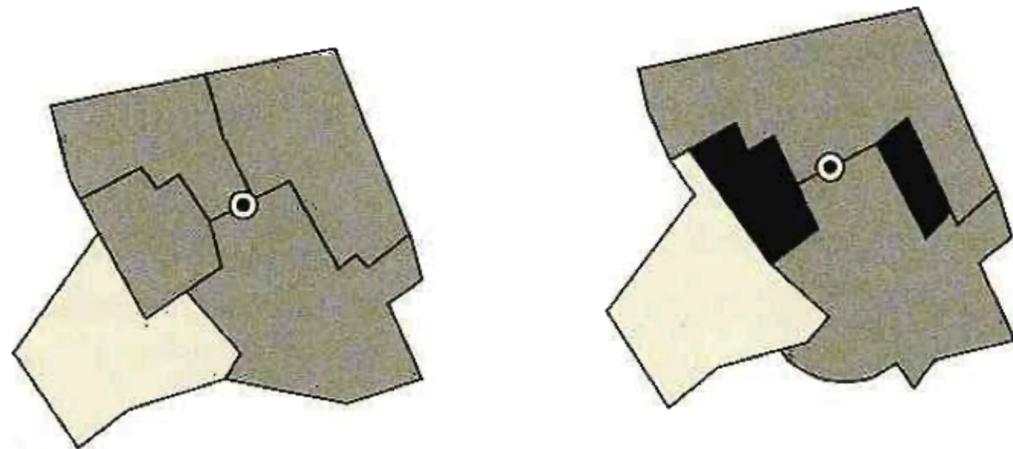
They can, however, show that removing the pump handle may have been done too late to “save the day”. The epidemic was already in decline:



A clearer picture of the outbreak might have been gained by aggregating the data rather than plotting individual deaths:



But different choices of boundaries could hide the center of the outbreak entirely:



Mark Monmonier,
*How to Lies with
Maps*, 1991

50 0 50 Yards 100 150 200

X Pump • Deaths from cholera



Mapping terms to know

Geocoding is the process of determining machine-readable location coordinates from a plain-language street address.

Usually this means we're looking for latitude and longitude, e.g.,

124 Raymond Avenue, Poughkeepsie, NY 12604

→ 41.68628, -73.89746

In latipann est per Johanne Schnitzer de Armbheim.



Depiction of the Ecumene, using Ptolemy' gazetteer of coordinates

Johannes Schnitzer, 1482



AFRICA

Pontus extremus

Insulae Calpurnii

GARIA

ARABIA FELIX

AFRICA INTERIOR

Arabicus

Rubrum mare

Ethiopia

Zenobie insule

merces regio

sub egipto

Coccolini

arualtes mos

aranges

Deserta

libia

libia

libia

libia

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arualtes mos

A *basemap* is an image and/or data that forms the background setting for a map.

Tiling a map is a way to render it more quickly at different zoom levels.

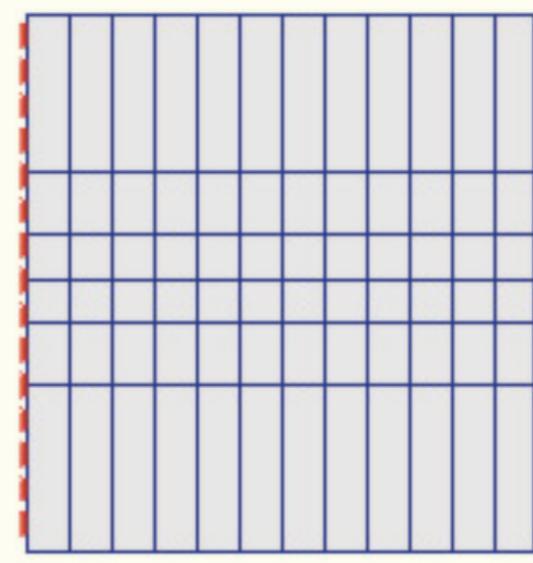
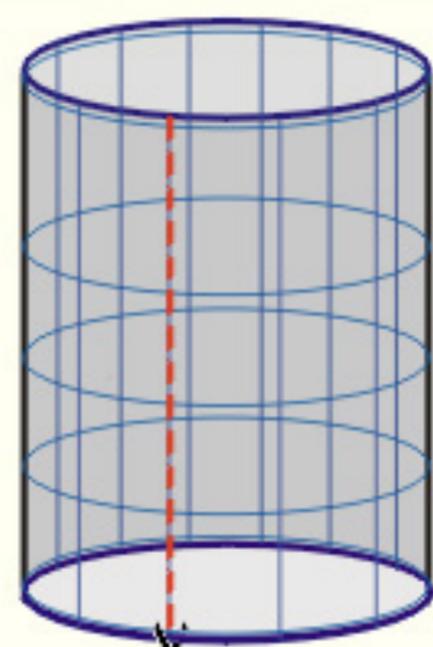
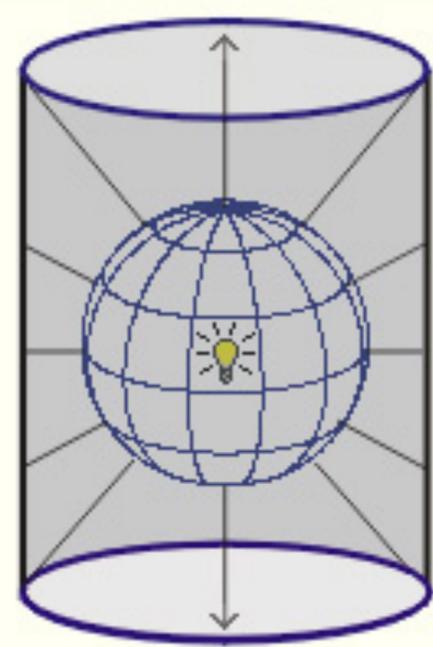
Rather than serve out one giant image, a map server divides a map into many different image files (*tiles*) that are joined together seamlessly.

A *layer* is a graphic representation of data, geocoded and “layered” on top of a basemap.

A *projection* is a method used to represent the three-dimensional surface of the Earth on a two-dimensional plane.

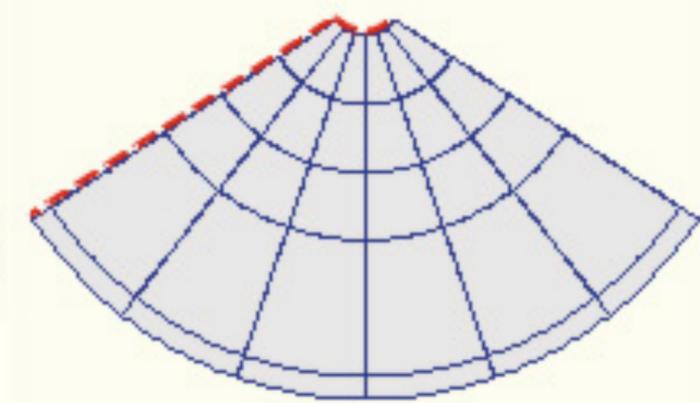
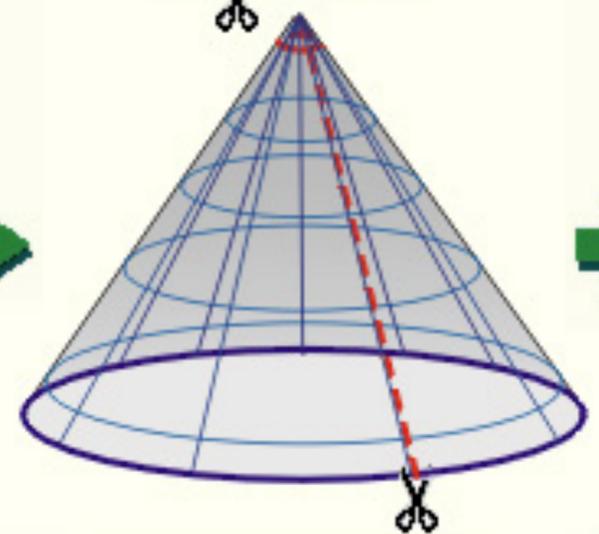
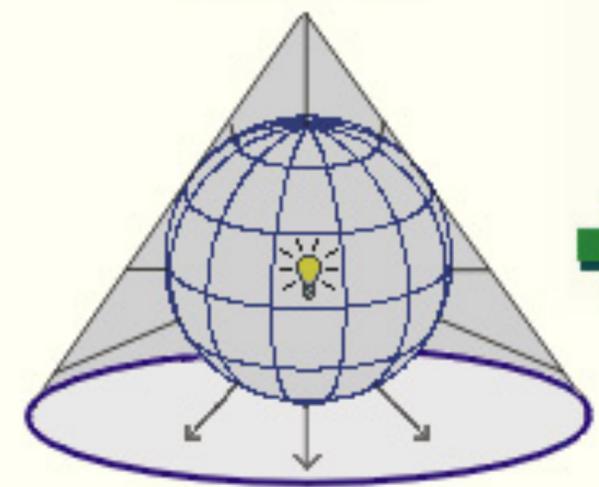
Cylindrical

Mercator



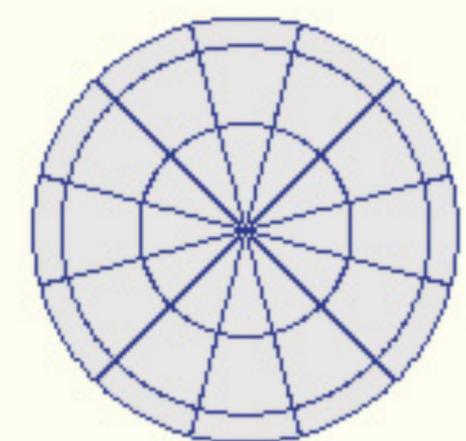
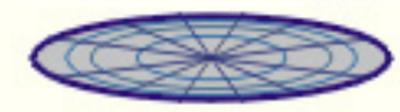
Conical

Perspective Conic

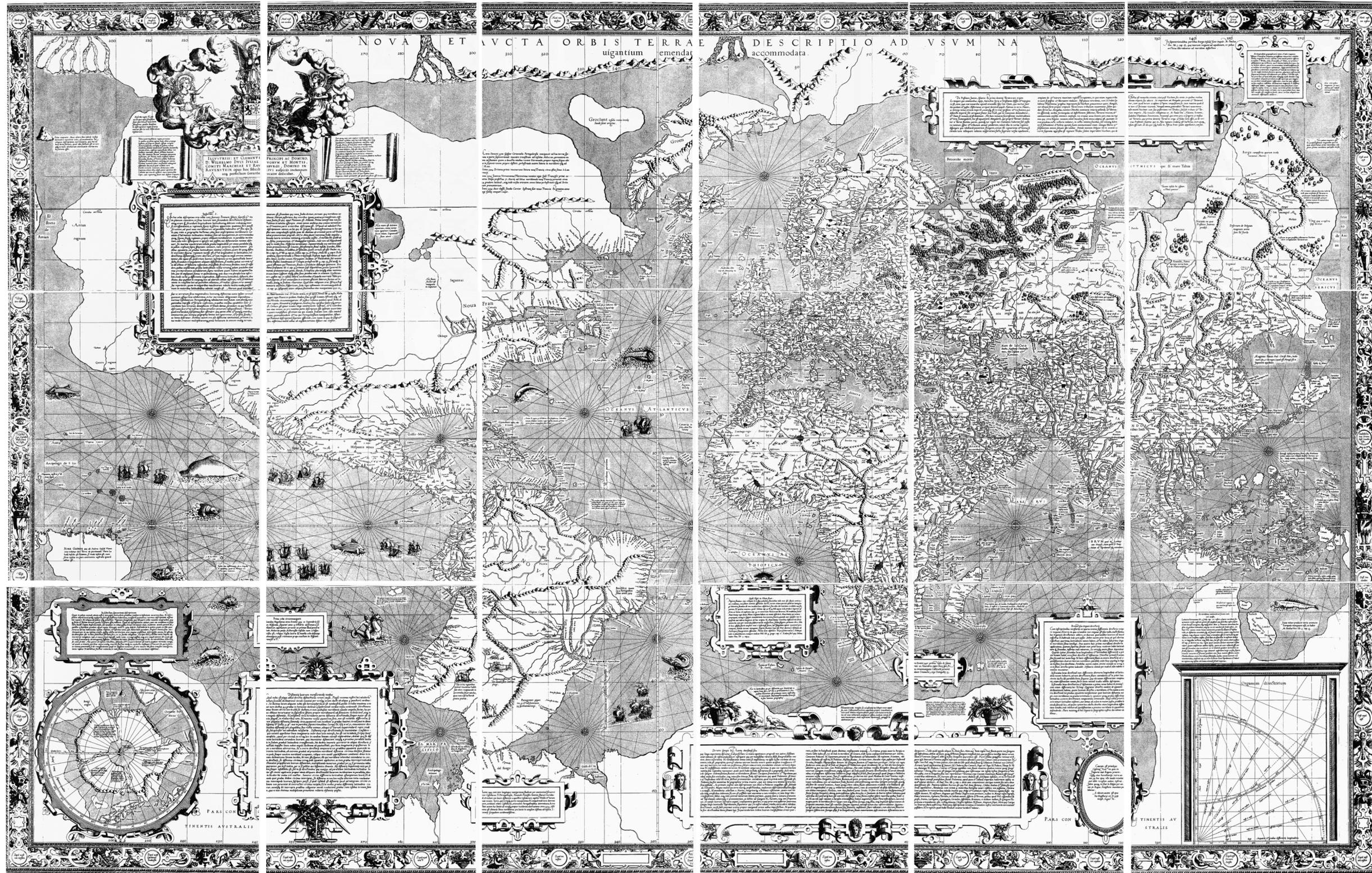


Planar

Orthographic

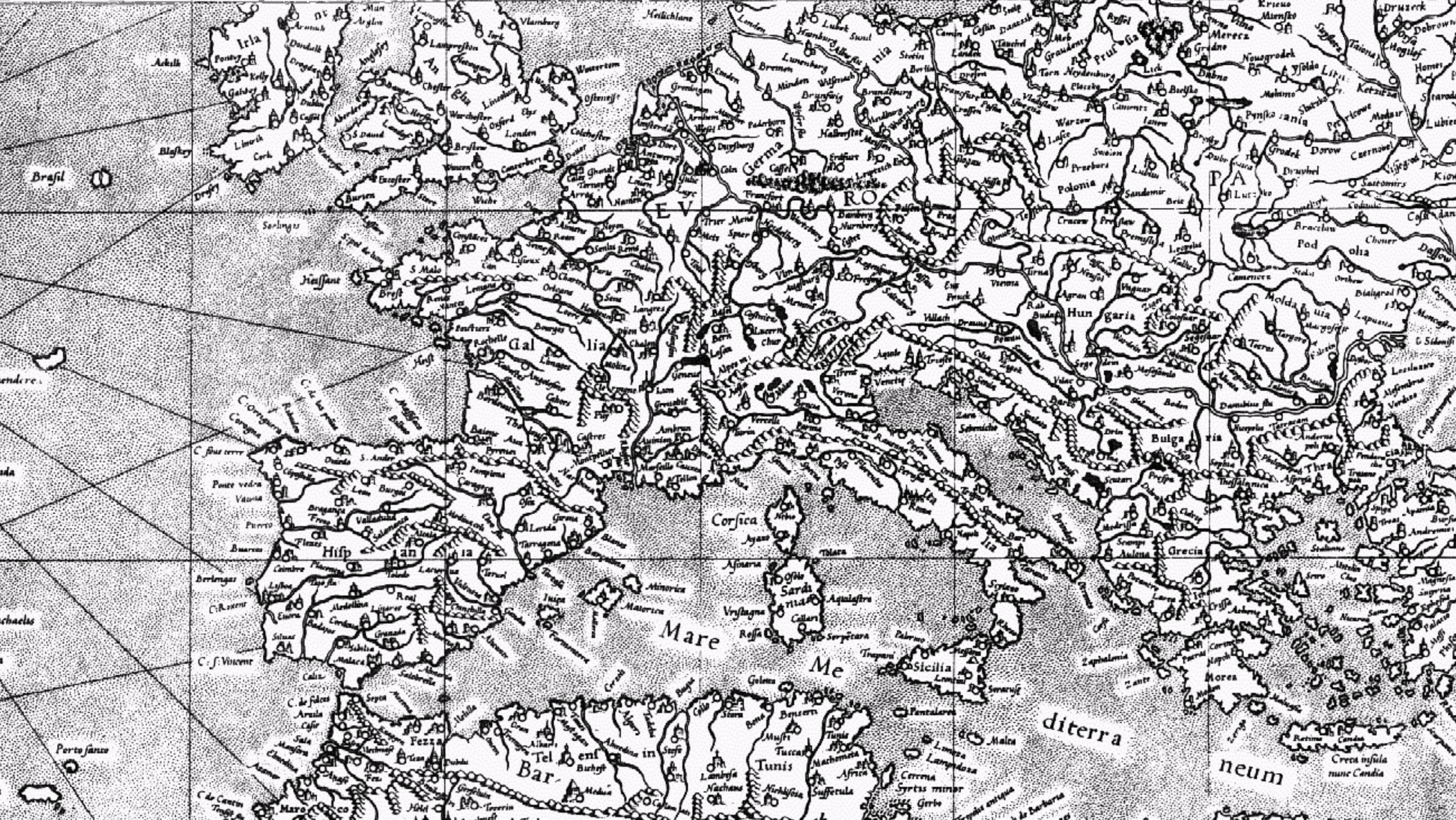


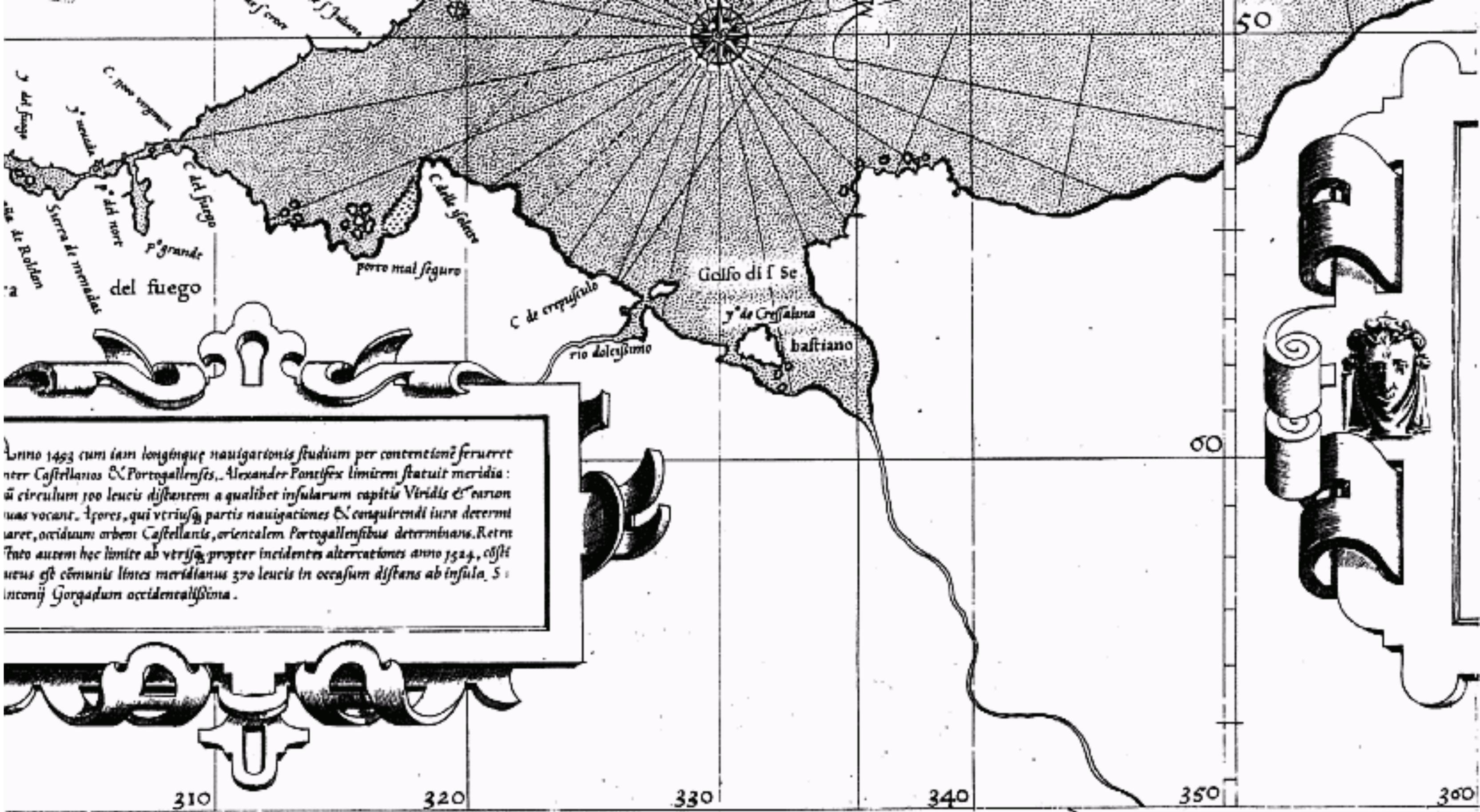
Projection Concepts
Perspective Examples



Gerardus Mercator,
1569

(Basel map copy)





Anno 1493 cum iam longinque navigationis studium per contentione serueret
 inter Castellanos & Portugallenses, Alexander Pontifex limitem statuit meridia:
 ubi circulum 100 leucis distantem a qualibet insularum capitibus Veridis & earum
 uas uocant. Azores, qui utriusque partis navigationes & conquirendi iura determi-
 naret, occidentum orbem Castellanis, orientalem Portugallensibus determinans. Retra-
 hito autem hoc limite ab utrisque propter incidentes altercationes anno 1524, consti-
 tuus est communis limes meridianus 370 leucis in occasum distans ab insula S:
 Antonij Gorgadum occidentalissima.

310

320

330

340

350

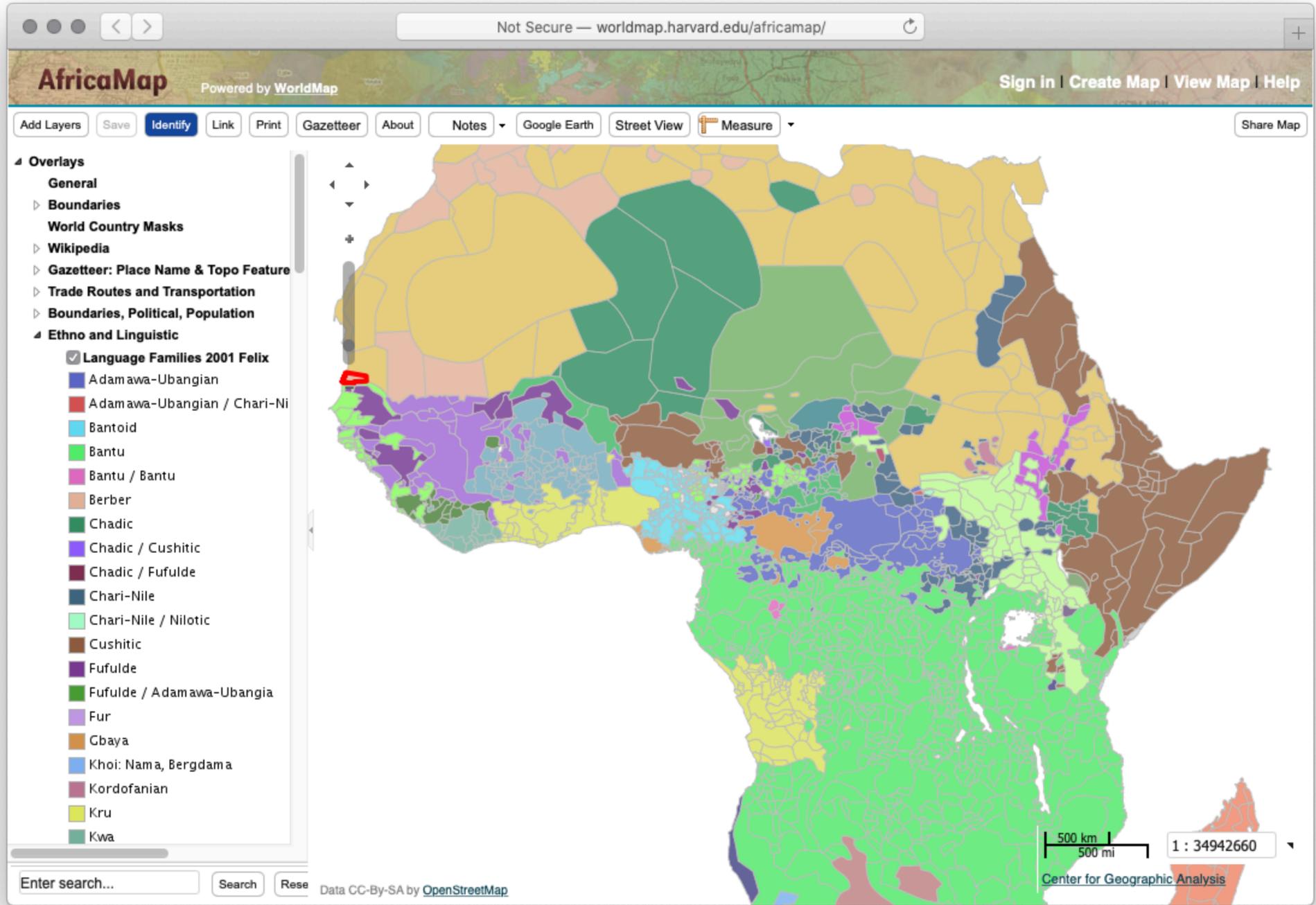
360

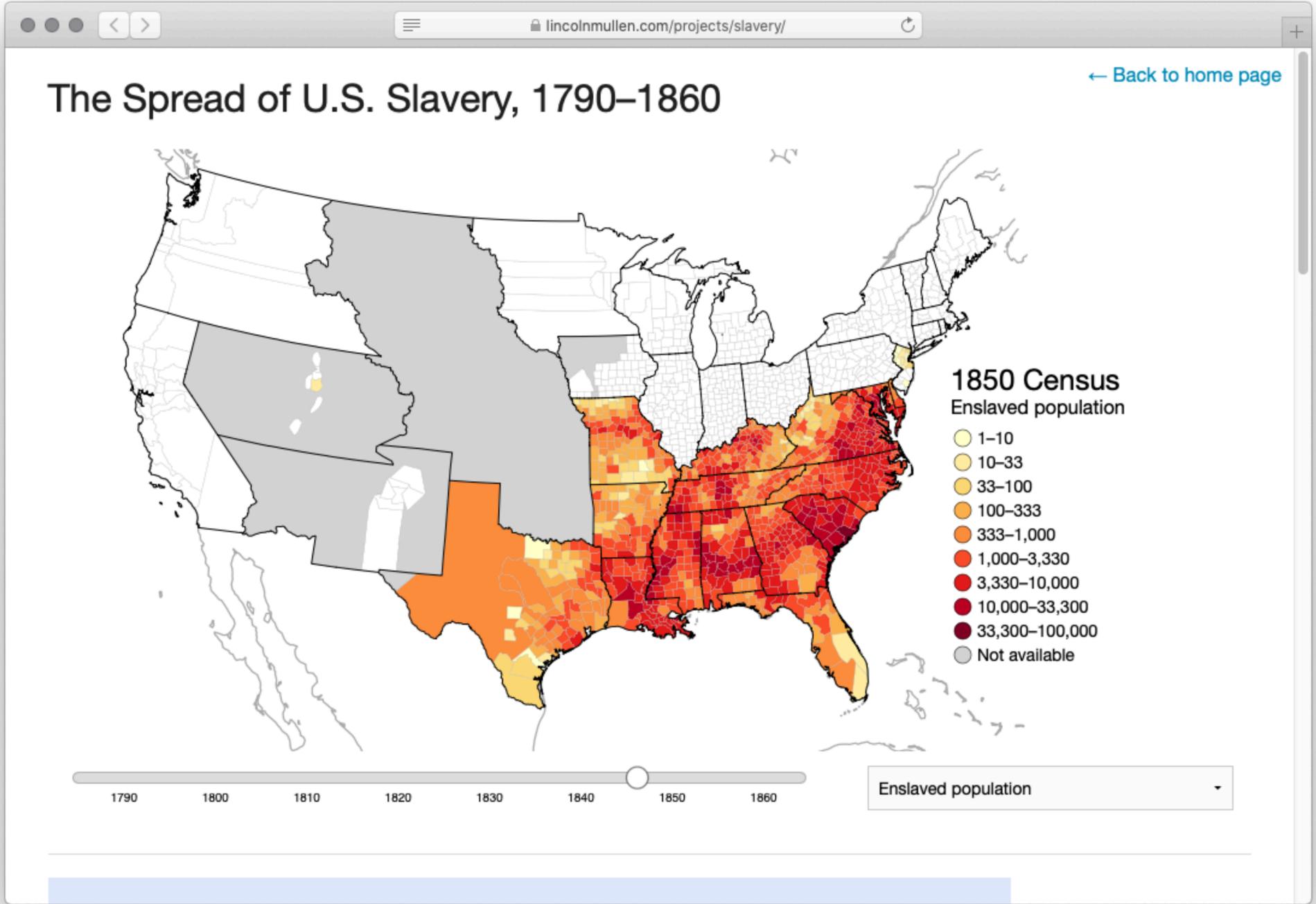
Assigning geographic coordinates to an image is called *georeferencing* it.

Often, we georeference old maps so they can serve as basemaps in GIS software.

A *shapefile* is a file format, developed by ESRI but in wide use, that contains geographic data as points, lines, and polygons.

Projects





Browser address bar: <https://mapoflondon.uvic.ca/map.htm>

MAP of EARLY MODERN LONDON

Map Encyclopedia Library Stow Tools About

Search Go!

Home > [Born-digital Documents](#)

THE AGAS MAP

[✦ List documents mentioning The Agas Map](#)

WHAT IS THE AGAS MAP?

Civitas Londinum is a bird's-eye view of [London](#) first printed from woodblocks in about [1561](#). Widely known as the "[Agas map](#)," from a spurious attribution to surveyor [Ralph Agas](#) (c.[1540-1621](#)), the map offers a richly detailed view both of the buildings and streets of the city and of its environment. No copies survive from [1561](#), but a modified version was printed in [1633](#). In the later version of the map, the Stuart coat of arms replaces the Elizabethan arms, and the [Royal Exchange](#), which opened in [1571](#), occupies the triangle created by the convergence of [Threadneedle](#) and [Cornhill](#) Streets.

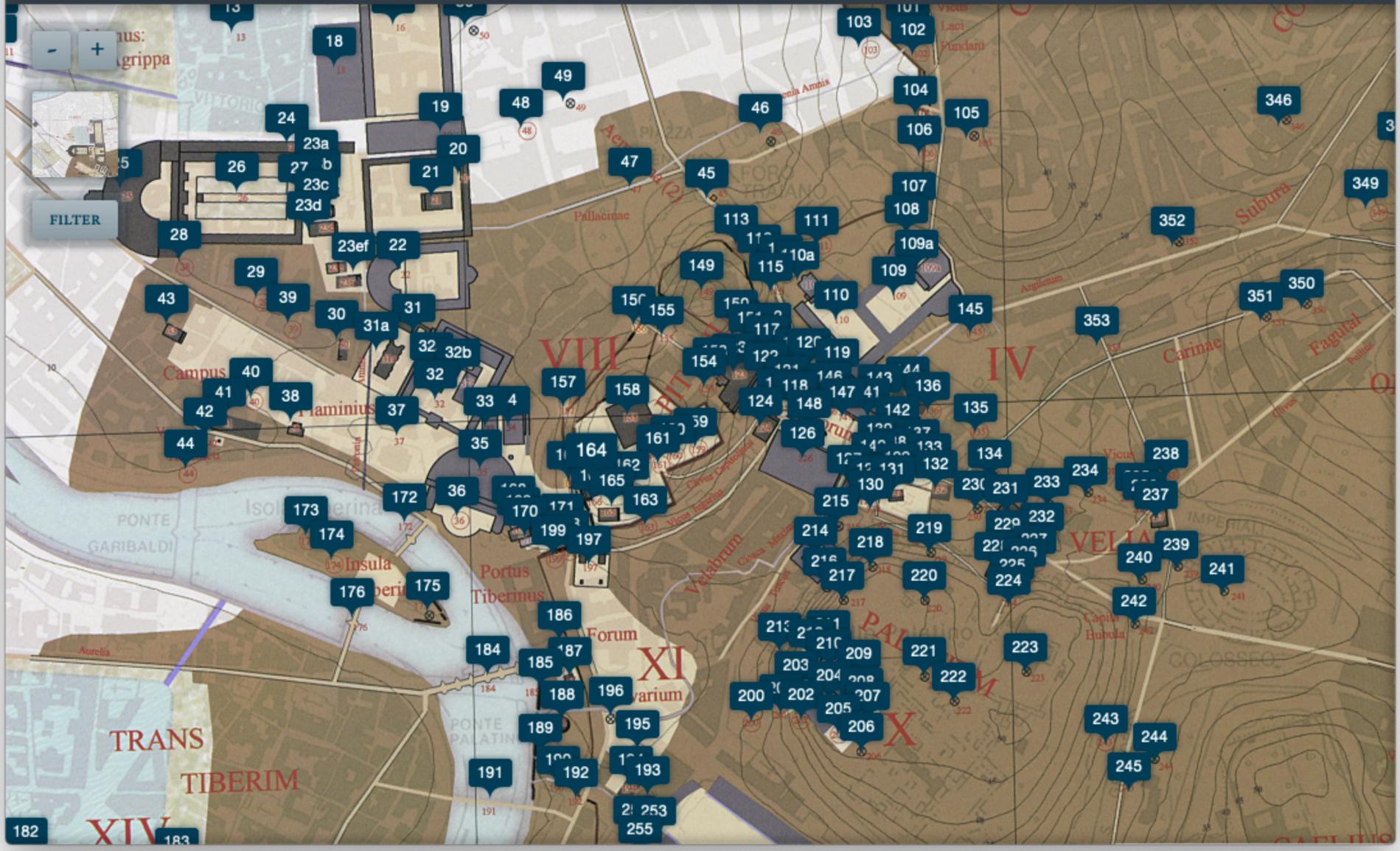
[View the full map.](#)



www.digitalaugustanrome.org/#/filter:null

Digital Augustan Rome  Dr. David Gilman Romano

DIRECTORY ARTICLES AUTHORS CREDITS



The map displays the city of Rome during the Augustan era, overlaid on a modern topographic map. Numerous blue numbered markers are scattered across the city, representing specific archaeological sites or locations. Key geographical features and landmarks are labeled in red, including the Tiber River, the Forum, the Palatine Hill, and various temples and structures. The map is divided into regions labeled with Roman numerals: VIII, IV, XI, X, and XIV. A search bar at the top left contains the text "us: grippa" and a "FILTER" button. The browser address bar shows the URL "www.digitalaugustanrome.org/#/filter:null".



www.artistsinparis.org/#@261897.360002244,6252111.38301850

ARTISTS IN PARIS
 MAPPING THE 18TH CENTURY
 ART WORLD

About the Project

Year **Artist** Your Data

1717

Type of Artist	Addresses
<input checked="" type="checkbox"/> Sculptor	23
<input checked="" type="checkbox"/> History Painter	41
<input checked="" type="checkbox"/> Portraitist	11
<input checked="" type="checkbox"/> Landscapist	10
<input checked="" type="checkbox"/> Still Life Painter	1
<input checked="" type="checkbox"/> Engraver	11
<input checked="" type="checkbox"/> Other	3

Explore Settings Cite & Save

François Dumont
 (1687-1726)

Dumont was a Sculptor. He was received at the academy in 1712.

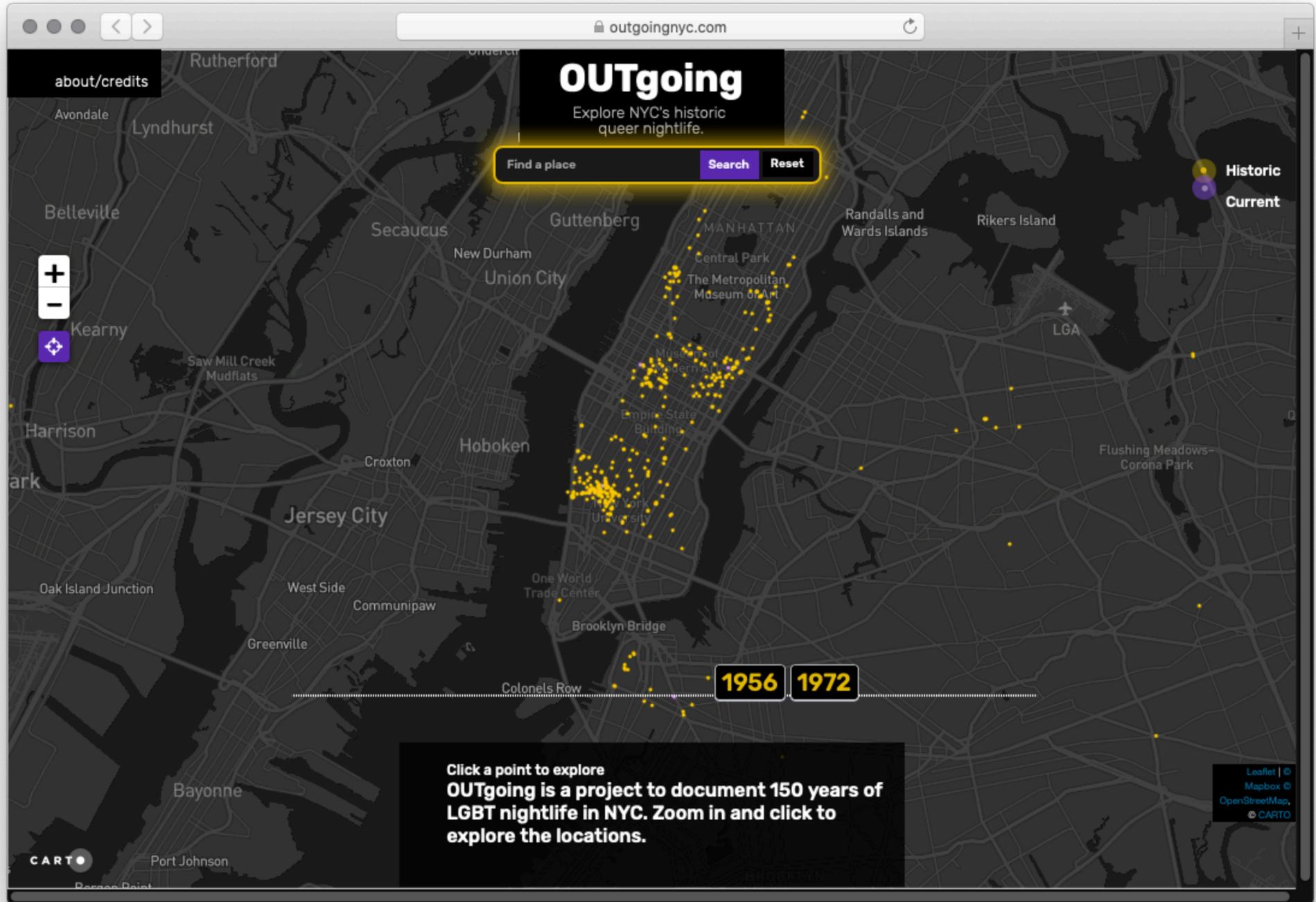
In 1717 he lived at Cour du vieux Louvre

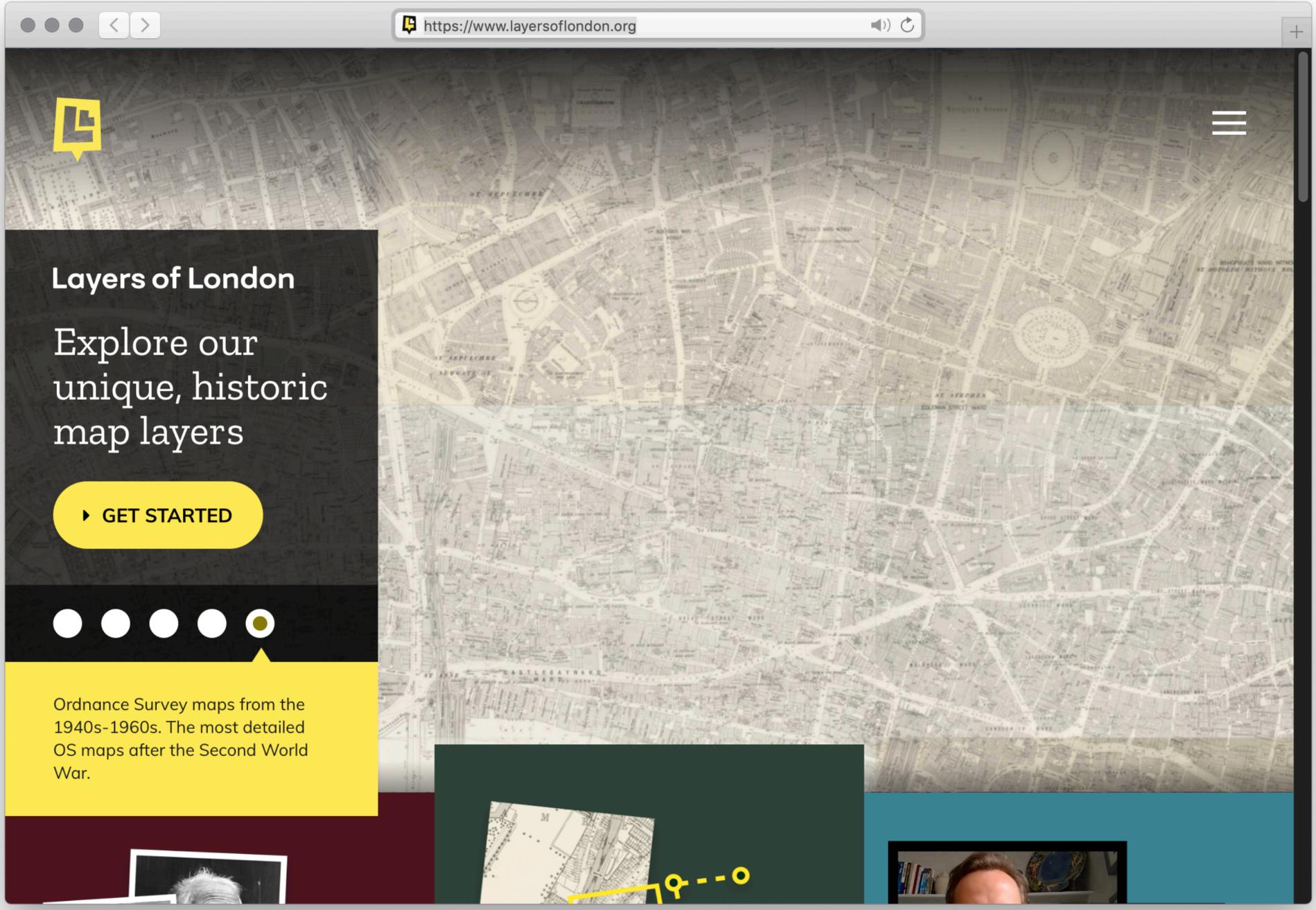
Image: [\[+\]](#)

Address Source: [ENSBA Ms 21](#)

[All Dumont's Addresses](#)

Fit All Fit Paris





Layers of London

Explore our unique, historic map layers

▶ GET STARTED

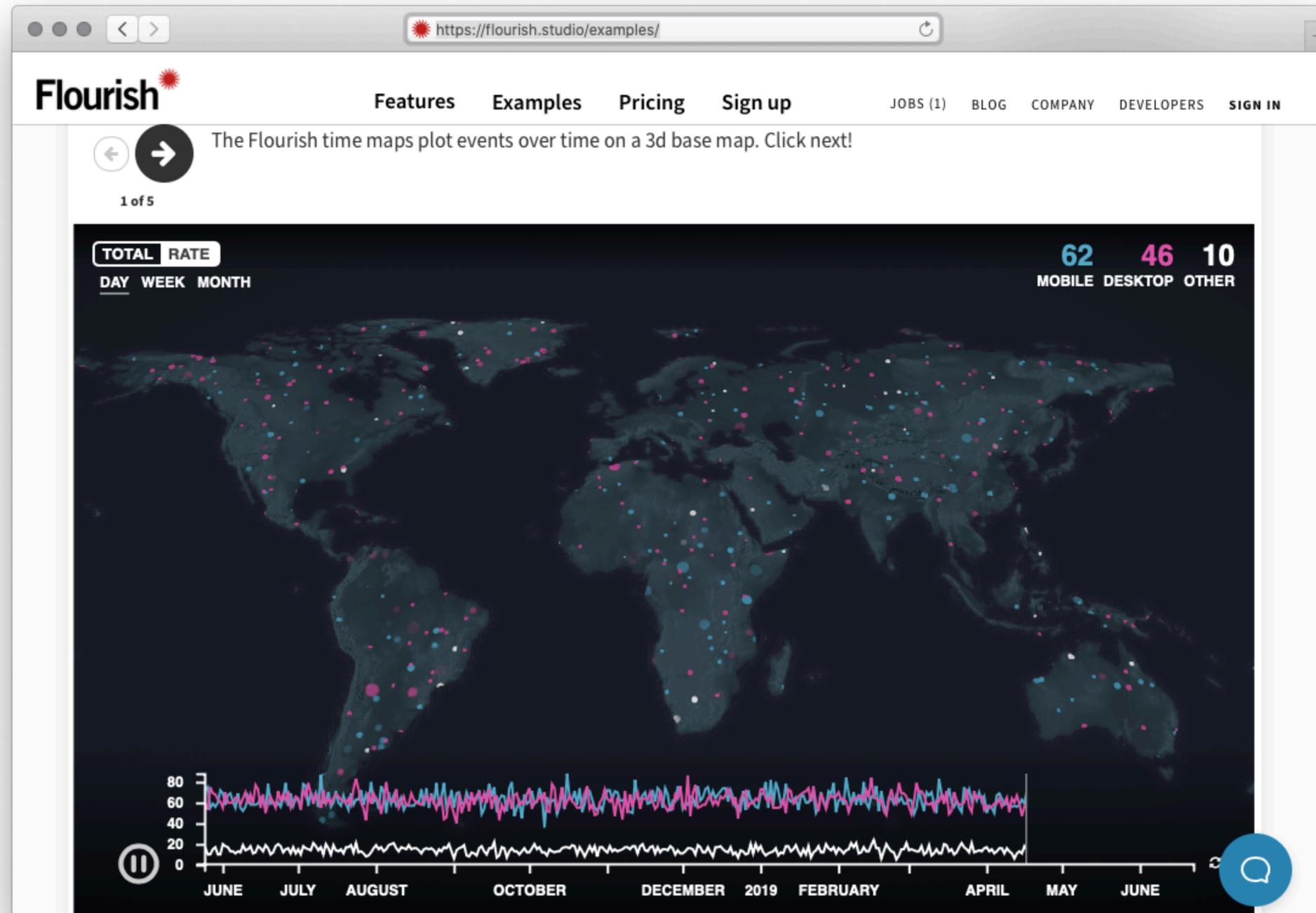


Ordnance Survey maps from the 1940s-1960s. The most detailed OS maps after the Second World War.



Mapping tools

Flourish



Palladio

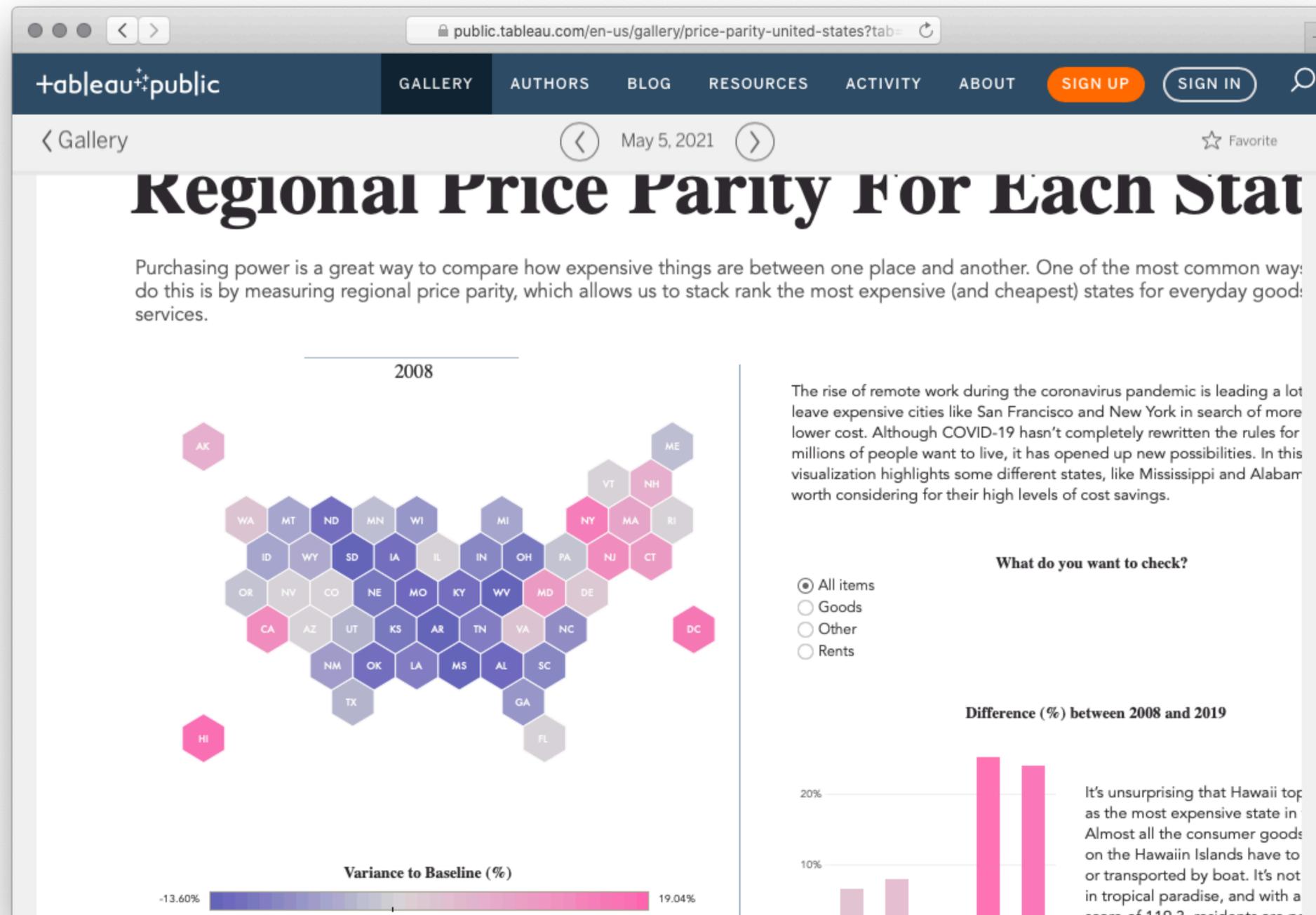
The screenshot displays the Palladio web application interface. The browser address bar shows `hdlab.stanford.edu/palladio/`. The application has a dark sidebar on the left with a hamburger menu icon and the text "Visualize your data". The main content area features a map of Europe with a network of data points and connections. A tooltip for "London (2)" is visible. A "Map layers" configuration panel is open on the right, showing settings for a layer named "Visits". The panel includes options for "Type" (Data, Tiles, Polygons), "Map type" (Points, Point to point), "Source Places" (Birthplace), "Target Places" (Arrival Point), "Tooltip label" (Place), "Color" (#666), "Show links" (checked), and "Size points" (unchecked). The bottom of the interface has a navigation bar with "Facet", "Timeline", and "Timespan" buttons, and a status message "You have no active filters".

Visualize your data

In the Map view, you can see any coordinates data as points on a map. Relationships between distinct points can be connected by lines, with the arc of the line representing the flow of the relationship.

Points on the map can be sized to represent their relative magnitude within your data. With the map's tooltip function you can select which information will be displayed when hovering over a specific point on the map. Zoom in and out using the + and - buttons. Export the nodes and links of Map visualizations (though not the Map background itself) as .svg files.

Tableau (Public)



Let's try it out

First we need some data. There's a lot of data out there with geographic information.

Some is already geocoded; others you'll need to run through a geocoder like geocode.localfocus.nl – or rely on Tableau's geocoding.

The [Survey of Scottish Witchcraft](#) gives us information about people accused of witchcraft in Scotland in the late 16th through mid-18th centuries.

You need to register for the data, but – shh – [here's a CSV file](#).

More resources

Basemaps

Stanford University map collection

Many have WMSes available

For historic maps, search for “Rumsey”

NYPL maps

Click on a map then “export” to view the WMS URL

data.gov.uk

