

week 2: **geography & gis**

foundations of geospatial analysis

2026.08.26

first:
thank you for
completing the
questionnaire!



I read that you wrote how GIS and maps are not neutral. How should we incorporate that idea into our actual analyses and maps? For example, when we're completing a lab or creating the final project, what kinds of assumptions or biases should we be looking for beyond simply getting the technical analysis correct?

be comfortable w
uncertainty; build it
into your models



For labs, is there any level of personalization/individual exploration possible or is it that everyone follows the exact same steps and produces the exact same map?

yes! always, but esp
with sketches



What category in the grading system for this class does this particular questionnaire assignment go under? And if we have future questionnaires or other assignments that do not immediately seem to fall under a specific category in the grading breakdown where would they fit in?

miscellaneous; we
use a 250 pt scale,
categories are just for
organizing



are labs graded on accuracy or participation?

Are there available revisions on labs or other assignments?

i grade for accuracy
and reasoning

revisions = no



When it comes to using the UR library's subscriptions, how do we use them or sign up for them?

lots of ways to answer
this... for now, just visit:

<https://library.richmond.edu>



**I would like to learn more about GISketch.
What does a GISketch actually look like? Do
you have an example from a previous
semester?**

yes!

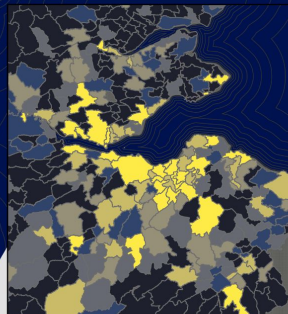
WITCHCRAFT!

sketch 1

The Number of Accused Witches Reported in Each Civil Parish

Something secret and dark is creeping beneath...
Should the people of Scotland be concerned?
Looking at the number of accused witches reported
in each civil parish, can people trust others anymore?

0 30 60 Kilometers



Number of Accused Witches in Each Civil Parish

0
1
2 - 3
3 - 7
8 - 16
17 - 149

Land

Land

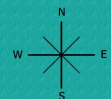
Ocean

Ocean

Suzanne Fox Feb 19, 2024
FAIR 92-04 Geospatial Humanities
Data Source: Accused witches in the Scottish witch trials
(<https://witches.lan.ac.uk/resources/>)
Scotland's civil parishes in 1930 (From NRS)
Base Maps: Natural Earth

Mapping The Number of Accused Witches in Each Civil Parish Across Scotland

Only a limited number of areas have reported accusation
of witchcraft, and these instances are also relatively
sparse. Situation is well-contained and does not pose
a threat to the safety of the populace.



0 40 80
Kilometers



Number of Accused Witches in Each Civil Parish

Up to 4
Up to 17
Up to 38
Up to 77
Up to 149

Land

Ocean

Suzanne Fox Feb 19, 2024
FAIR 92-04 Geospatial Humanities
Data Source: Accused witches in the Scottish witch trials
(<https://witches.lan.ac.uk/resources/>)
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Base Maps: Natural Earth

WITCHES INVADING SCOTLAND AND OUR FAMILIES

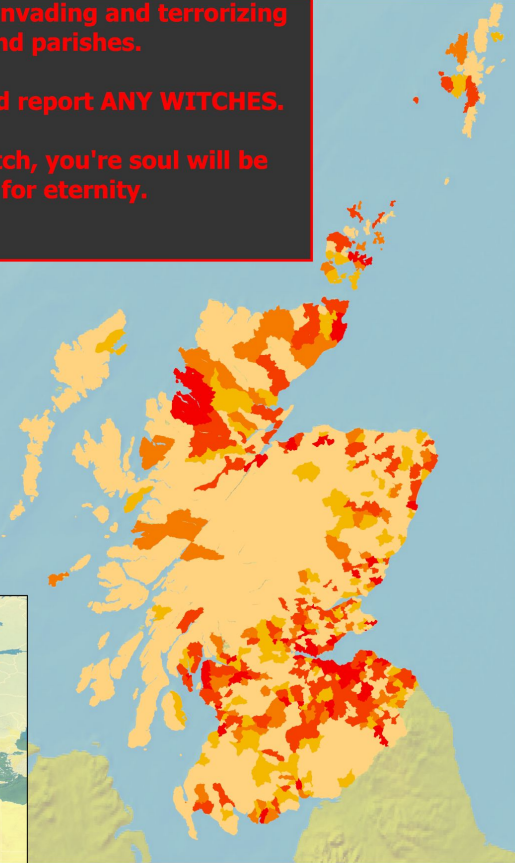
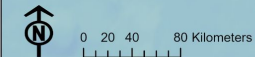
Witches have been invading and terrorizing our kids, families, and parishes.

Spread the word and report ANY WITCHES.

Once you trust a witch, you're soul will be cursed and doomed for eternity.
SAVE YOURSELF!

WITCH SIGHTINGS

Witch Sightings by Parish



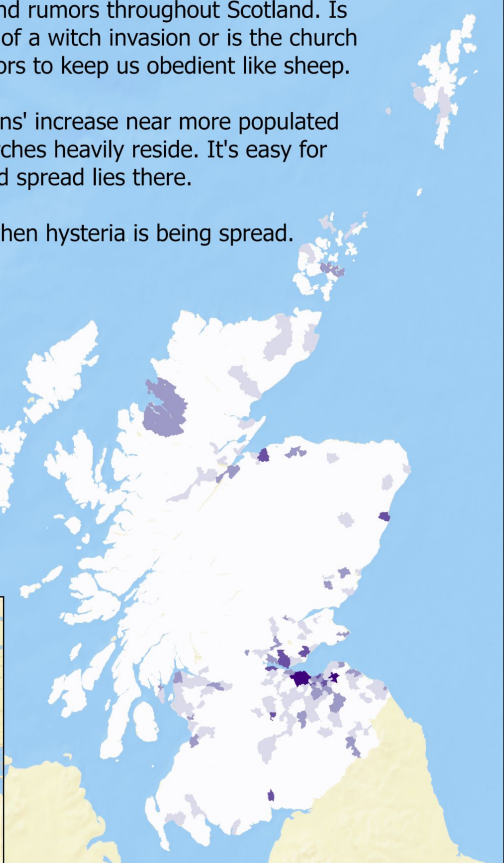
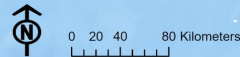
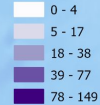
Are Witches Another Lie from the All 'Powerful' and Deceiving Church?

Only a few accusations and rumors throughout Scotland. Is Scotland really in danger of a witch invasion or is the church purposely spreading rumors to keep us obedient like sheep.

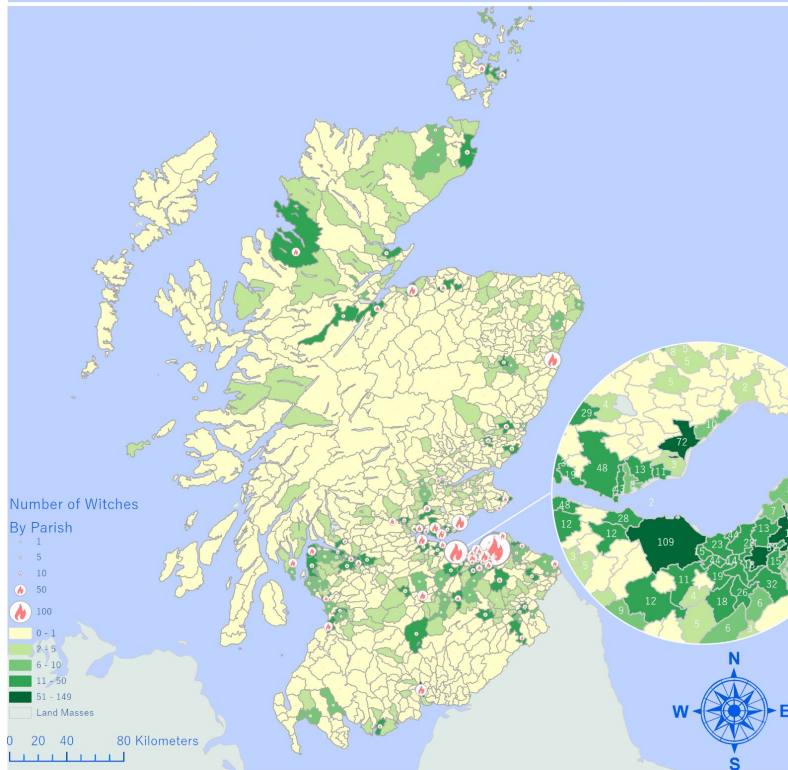
The number of 'accusations' increase near more populated regions where many churches heavily reside. It's easy for them to communicate and spread lies there.

It's hard to see the lies when hysteria is being spread.

Rumors of Witches



3,022 Witches Have Been Brought to Justice Scottish Witches on the Decline!



Is your neighbor a witch? A Plague of Witches Hits Scotland



parking lot cemeteries

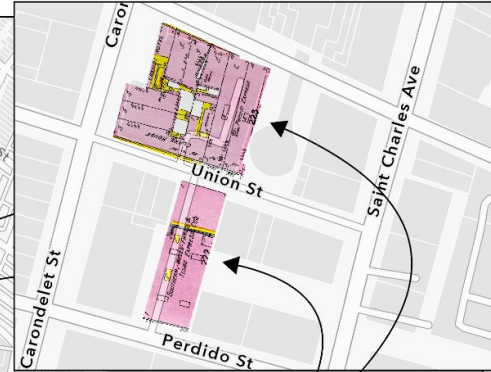
sketch 2

Wheels of Change

New Orleans Parking Lots Covering Its Transportation Past



Carroll Street was once the home of a wagon storage facility, where horse-drawn vehicles were kept and maintained.

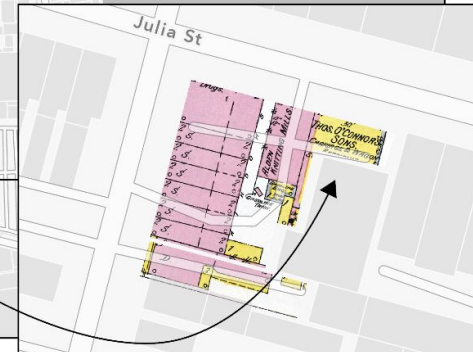


Pacific Express and Southern, Wells-Fargo, and Texas Express Co. facilitated rapid movement of goods, money, and mail across the region.

11.17% of historic area now covered by parking lots!

This map was created by Joel Pomeroy in March 2025 combining an 1895 Sanborn Fire Insurance Map of New Orleans with contemporary parking lot data from OpenStreetMap. It highlights the city's Central Business District following the Civil War, a period marked by rapid economic expansion fueled by its deep-water port. The map shows various industrial centers from grain to knitting to lumber mills, which necessitated extensive transportation infrastructure, including railroads and wagons (Greater New Orleans Community Center).

Thos O'Connor's Sons Carriage & Wagon Repairs serviced horse-drawn vehicles, restoring damaged parts, and keeping from roadworthy for daily use in the city.



Nicole Chai
Data obtained from
OpenStreetMap, United States
Library of Congress, Overpass
Turbo
Projection: WGS 1984 Web
Mercator



Transitions on Telegraph

Mapping Historical Oakland Over Modern Parking Lots

Downtown Oakland, California is 14% off-street parking (compare this to the United States median percentage of 26%), and the area mapped here is less than that, at 9.7%. The Sanborn maps underlying the parking lots on this map are from 1911. Telegraph Avenue, the somewhat inconspicuous street running through the middle of the mapped parking lots, runs in an almost straight line for 4.5 miles from downtown Oakland to Berkeley, terminating at the edge of the University of California Berkeley campus. It is this university connection that makes Telegraph Ave famous – or notorious – for its history within the counterculture movement.

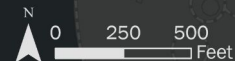
In recent years, UC Berkeley students have pushed for a car-free Telegraph Ave. While this movement is mostly limited to the Berkeley portion of Telegraph Ave, a drive along Telegraph in Oakland reveals narrow streets, wide sidewalks, and protected bike lanes; parking lots along this stretch are small, open, and fairly spread out, making for an overall pedestrian-friendly street. The Sanborn maps here reveal a history of storefronts and homes along this avenue, both stretching back to its conception in the 19th century and continuing today.



Riding schools taught students classical horsemanship; the "X" through the building marks it as a stable. Now, instead of housing horses, this lot provides parking for a family-owned Korean grocery store that originally opened in 1973. KP Asian Market claims to be the first Korean market to open in the East Bay.



In 1911, this corner consisted of shopfronts (S) and dwellings (D). Now, Telegraph Plaza Public Parking takes up most of the space. The brick building (in pink) across Telegraph was reportedly built in 1910, and is still standing! Formerly a YMCA, it is now listed as Hamilton Apartments under Mercy Housing, a California-based nonprofit organization.



WORCESTER UNCOVERED

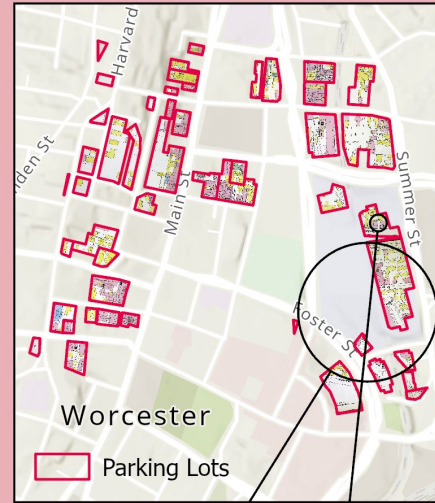
An analysis of 1892 Worcester, MA Sanborn fire insurance maps in comparison to modern day parking lot coverage

In general, this analysis reveals that Worcester's city layout, streets, and street structure remain similar nearly 150 years later. Yet the parking lots that now infest the downtown conceal a history of industrialization, urban dwelling, and local business. Most parking lots were once inhabited by small storefronts or larger workshops, such as wagon building, lumber yards, and stove manufacturing.

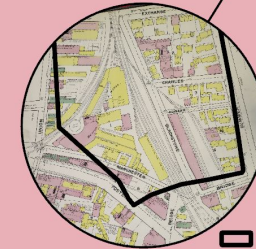
**Total area of
interest covered
by parking lots** = **.026%**

Dahlia Breslow | Geospatial Humanities | Spring 2025

Sources: Library of Congress Sanborn Maps Collection, Overpass, OpenStreetMap



A cluster of tenement buildings, now covered by the hospital parking lot, used to house Worcester's significant population of Irish-Catholic and French workers



The construction of Saint Vincent Hospital (and accompanying parking lots) in downtown Worcester wiped out a railroad company and a web of train tracks, not to mention many small businesses and houses.



**i'm quite curious as to what the midterm will
look like. how is our knowledge tested?
wondering about test structure and whatnot.**

midterm will most
likely be a mix of
mc/short answer

maybe 30-40 mins



You said the SAL lab is the easiest way to access ArcGIS Pro, but do you recommend also getting it on our computers or is that just whatever works best for us?

you can, but it makes
data management
more complex



Could we discuss more about the Group Curation assignment in our next class? Additionally, are those groups to be assigned or will we get to select or group mates?

How long do we have to work on the group curation?

How will groups be decided for the group curation?

groups are
self-selected
in week 4



What are your thoughts on collaborating with other peers in the class (outside of Group Curation)?

very supportive!!!
please work together,
honestly

gis/maps are most fun
when collaborative

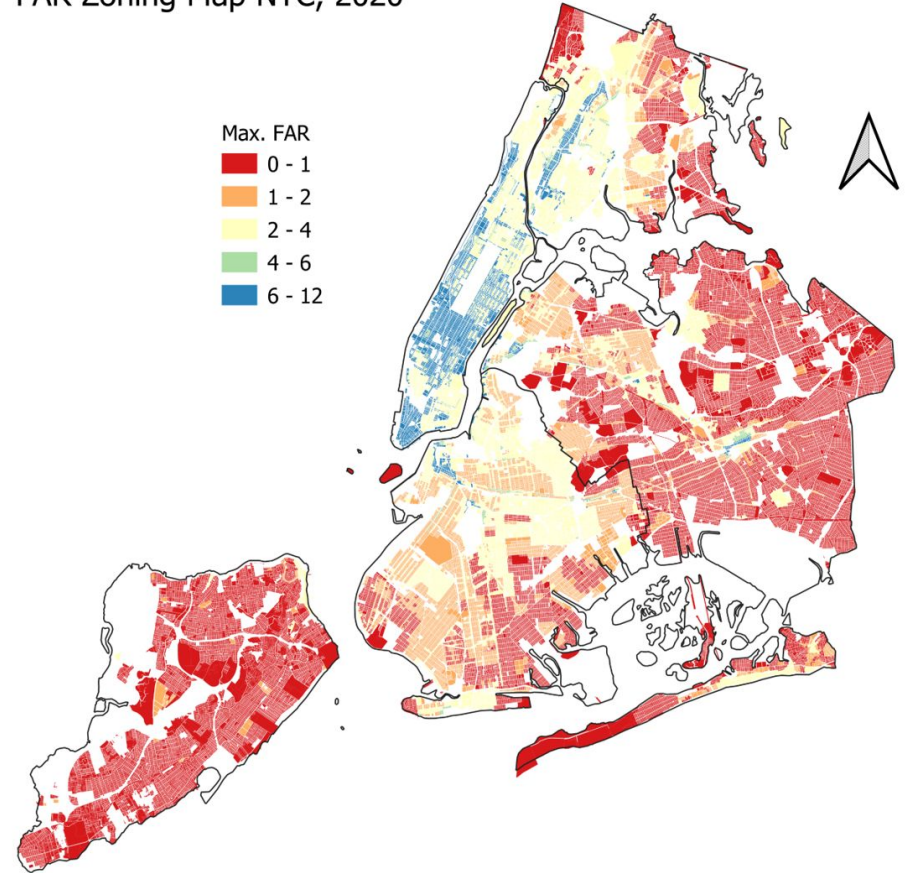
**second:
thank you for
sharing so many
cool maps!**







FAR Zoning Map NYC, 2020

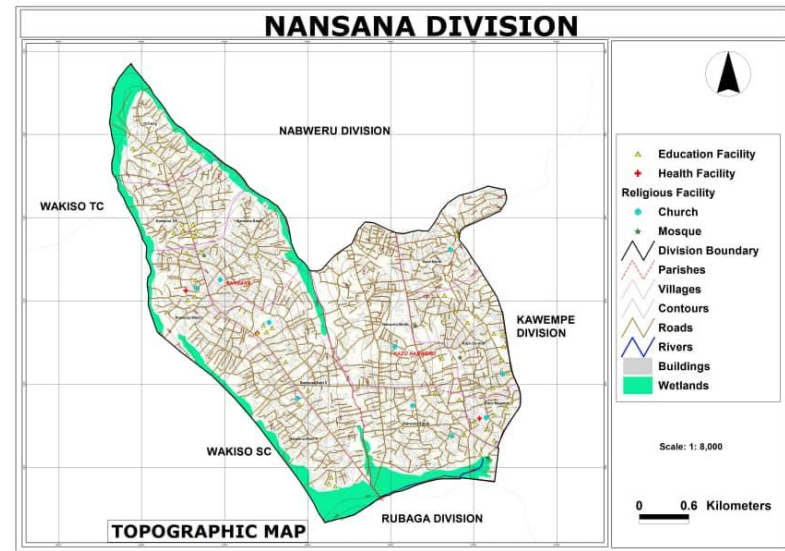


INDIGENOUS PEOPLES OF NORTH AMERICA, 1500 CE



Indigenous Peoples Day is the second Monday of October, first recognized statewide by South Dakota in 1989 and proclaimed a national day for all of the U.S. in 2021. This day celebrates and honors Native American peoples and commemorates their histories and cultures.



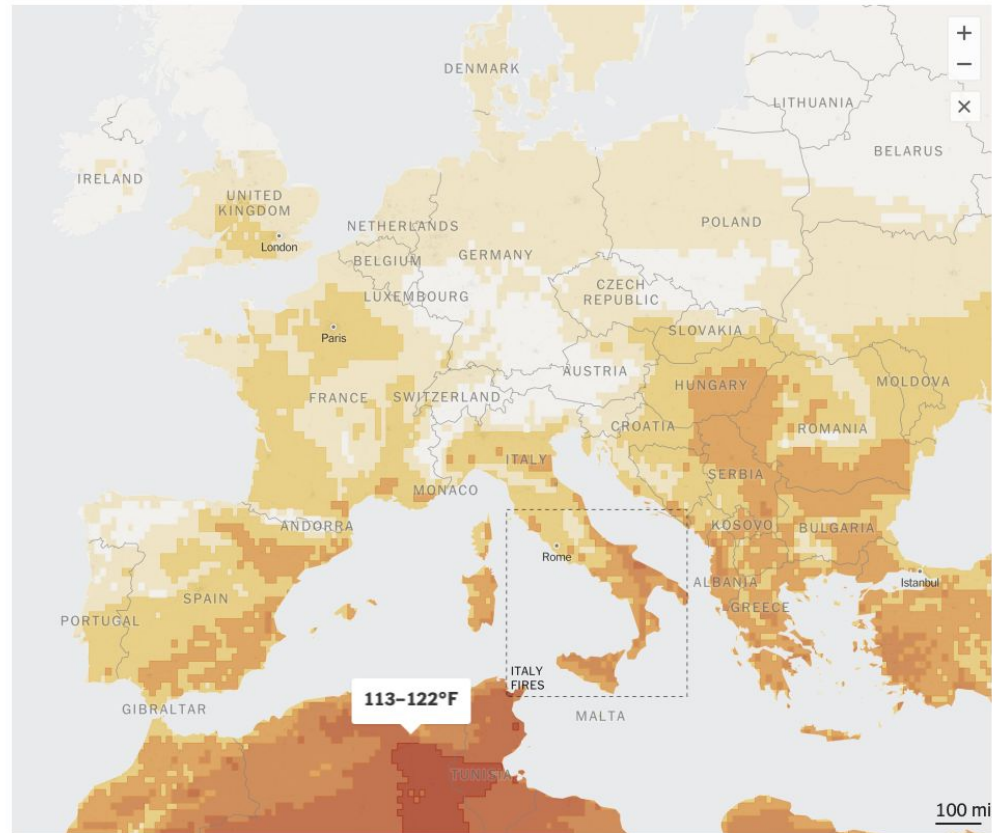


See temperatures as...

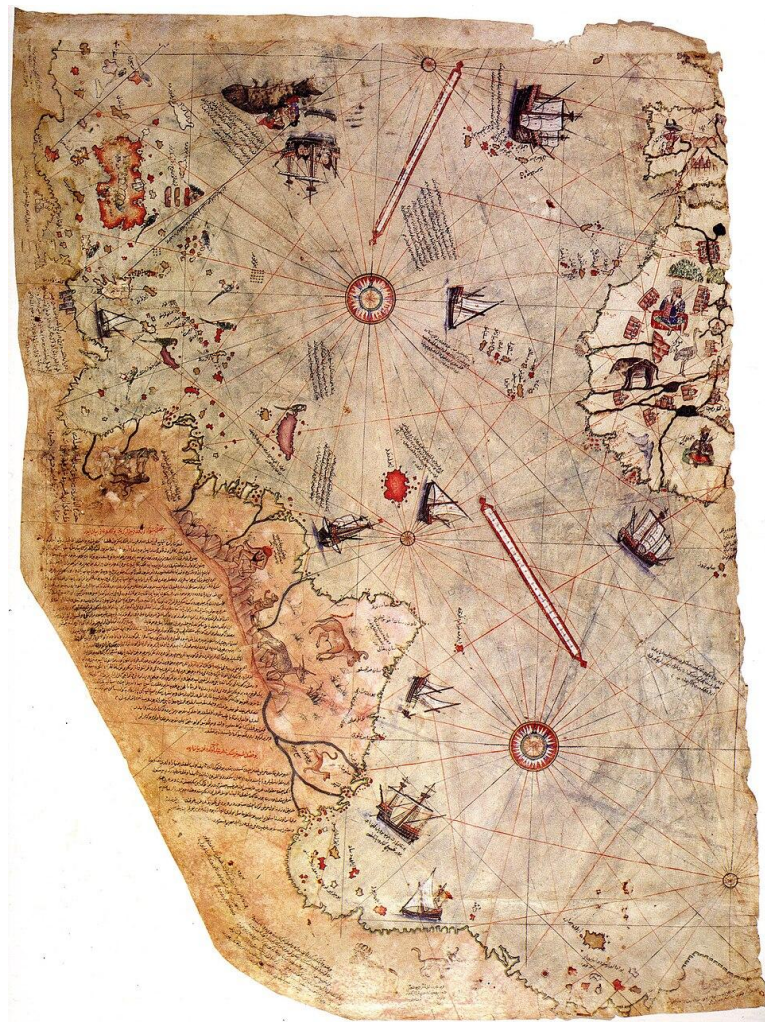


High-temperature forecast for Tuesday

68 77 86 95 104 113°F



Note: All times are Central European time. Data as of 4 p.m. on Aug. 25, 2026. Source: ECMWF. The New York Times



okay, let's pivot to the reading

((free write, 3 mins => discuss 5 mins))

what's this guy's deal?

did you enjoy it? hate it??

what is Openshaw's core argument?

how does he make this argument; e.g.,

what's his tone, what's his evidence?

what does it sound like he's responding to?

what's a question that the article raises for you?

where did you see connections to our current moment?

Commentary

A view on the GIS crisis in geography, or, using GIS to put Humpty-Dumpty back together again

This editorial is for those geographers who read this journal and are interested in geographical information systems (GISs) and their relationship with geography. Some things are, I am told, best not discussed because they are potentially divisive and this is one of them. Such a discussion might also be perceived to be relevant to neither GISers or nonGISers as long as they remain separate branches of geography and are not in competition for resources or the high ground. On the other hand, they will not remain separate for long. There is seemingly also much **misinformed speculation about what GIS is and does**, and how it either **fits or does not fit comfortably within geography**; some even think that geography might be better off without it! So something needs to be said. In this commentary, I seek to anticipate the problems before they become critical, and by **airing the debate I seek to divert and diffuse any subsequent impact**.

Some people talk about the 'GIS Revolution' as being the '**quantitative geographer's revenge**' and as a revival of positivism. Yet others are concerned about the extent to which GIS is fact rather than knowledge-based, and fear that this somehow reduces geography to a source of 'facts' and as a 'tool' that others may use rather than as a discipline in its own right. **The argument is that GIS is antigeography**. Knowing little or nothing about what GIS is or does, GIS is somehow viewed as a retreat from knowledge to information. Yet without information how can there be knowledge? Indeed, the problem with much of geography is the extremely fragile nature of its knowledge base and its strong traditions of **untestable theoretical speculation and descriptive storytelling**! Others might well criticise GIS for the lack of any relevant inbuilt notions of the microbehaviour of people or of the social and political processes responsible for the societies that lie behind the map patterns. But how can any of this possibly be a relevant reason for throwing GIS out of geography? Only slightly less ridiculous would be to accuse GIS-literate geographers of following unsound philosophical beliefs they did not even know they possessed (or even what the words meant)! If this process continues and gets completely out of hand, then this mix of genuine ignorance and wilfully misinformed prejudice may even constitute a crisis that could infect a few more generations of young geographers; effectively blinkering their thought processes by engaging them in an essentially irrelevant and spurious philosophical debate as to why GIS is, or is not, geographically relevant. Yet the 'truth' can be quite different. The view may be expressed that the absorption of GIS into geography offers the basis for a long-overdue reconciliation between the 'soft' pseudoscience of the social sciences and the 'hard' spatial science of which GIS is part. **Geography needs both**. The problem is that whereas geography is characterised by pluralistic methodologies it is peopled by geographers who appear not nearly as flexible when it comes to discussing the possible role of GIS within geography or when facing the computer challenges of the 1990s, of which GIS is a manifestation.

Seemingly, revolutions in an Kuhnian sense are not rare events in subjects like geography. The last few decades have seen several 'new' geographies come and go. **Each episode sooner or later creates various antifeelings and is replaced by another fashion**. Although this ability continuously to mutate gives geography

from geography => gis...

late 19th/early 20th century

- Friedrich Ratzel (*Lebensraum*)
- Walter Christaller (central places)

early/early-mid 20th century

- Ellen Semple, Carl Sauer (cultural landscape, environmental determinism)
- William Morris, Derwent Whittlesey (aerial photos, political geography)

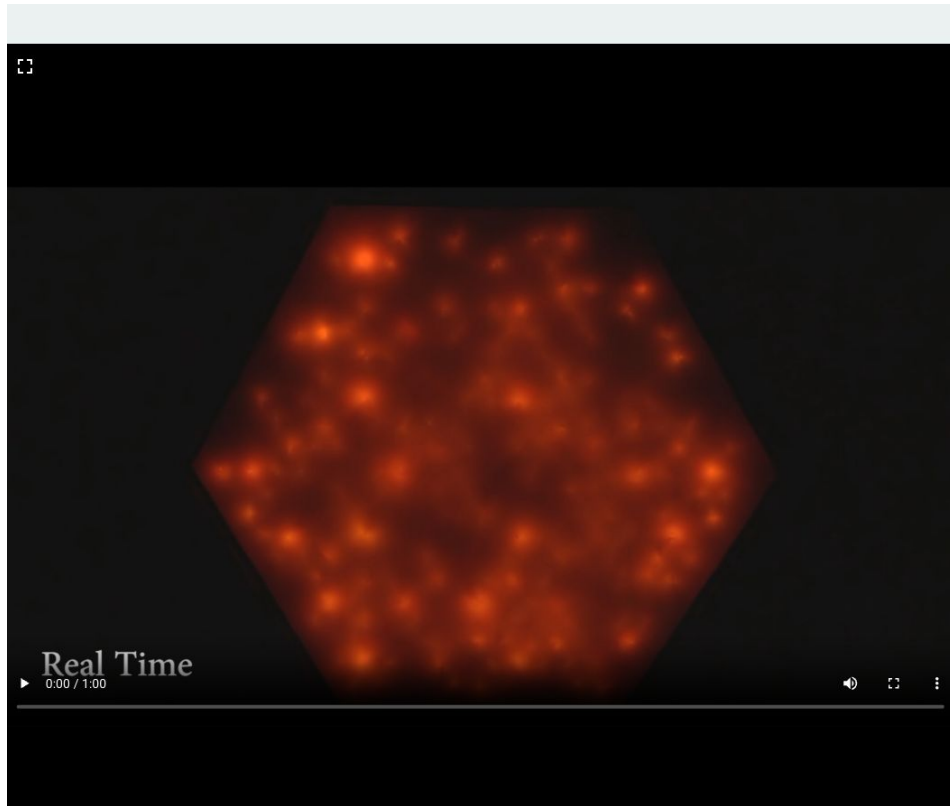
mid-20th century

- Bill Bunge, David Harvey, Waldo Tobler ("quant revolution")
- SYMAP, Canada Land Inventory (very early GISs)

late 20th century

- Furious debates over geography & GIS
- Openshaw et al. vs. human geographers

from geography => gis...



Hexagonia

Title	Hexagonia
Creator	Geoffrey Dutton
Year	1969
Location	Loeb Library, Harvard Graduate School of Design

The piece of electronic cartographic art depicted in this video, *Hexagonia*, acts as a visual representation of one of geography's most famous models: central place theory (or CPT). First theorized in the late-nineteenth century by German geographer Walter Christaller, CPT posits that the essential function of cities is to provide services for their surrounding regions. In *Hexagonia*, the blinking lights of different sizes symbolize differently sized settlements in this urban hierarchy.

When Geoffrey Dutton created *Hexagonia* in 1969, he was enrolled as a student in Harvard's Graduate School of Design and worked as a research assistant at the Laboratory for Computer Graphics and Spatial Analysis. The *Hexagonia* device itself consists of lamps in small glass tubes which are spaced about 1.5 inches apart in a triangular grid. The lamps blink out nearly 400 distinct configurations every second, which take on a mesmerizing, nearly hypnotic quality when slowed down by 95%.

In his book *New Lines*, Matthew Wilson reflects on *Hexagonia* as an early form of "animated" cartography. What can Dutton's analog experiment exploring "the beauty of the science of place," Wilson asks, reveal about the modern impulse to make maps that move?



The analog Hexagonia device, photographed in 2015 by its creator, Geoffrey Dutton.

... to gis => geography?

feminist gis

Geographical (2015) 70(1): 106
DOI: 10.1080/00141801.2014.940212

Gender and the GeoWeb: divisions in the production of user-generated cartographic information

Nicola Stephens

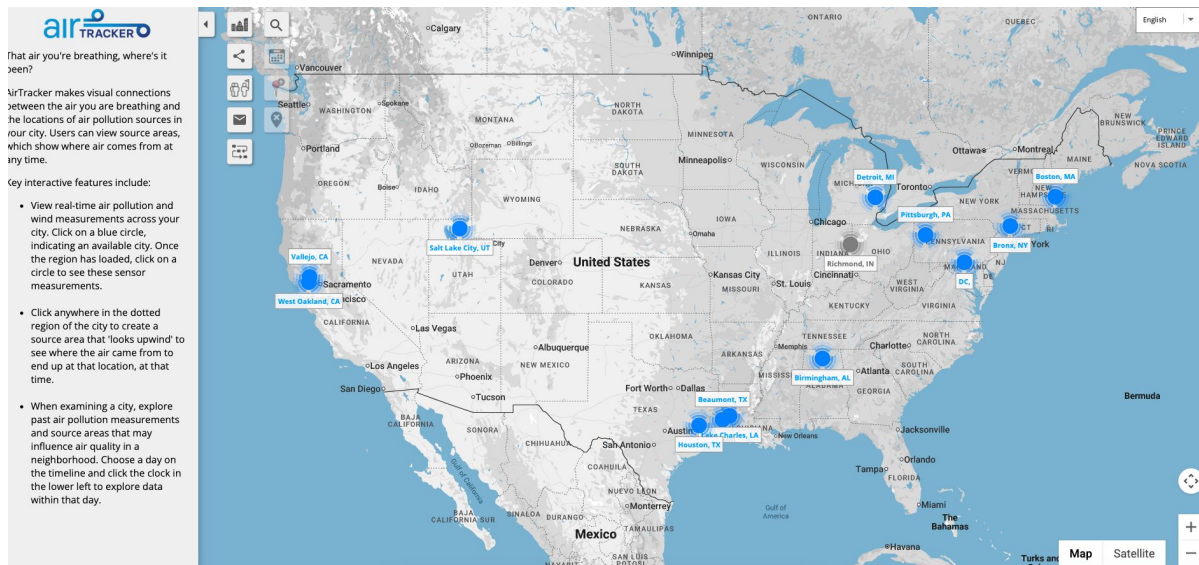
Table 5 Frequency of cartographic contributions across gender and platform

		Gender		Total
		Female	Male	
<i>Frequency of Google Maps use^a</i>				
Yearly or less	Count	22	9	31
	% of Gender	7.4	3.0	5.1
Monthly	Count	88	71	159
	% of Gender	29.5	23.3	26.4
Weekly or more	Count	188	225	413
	% of Gender	63.1	73.8	68.5
Total number of responses		298	305	603
<i>Frequency of OSM use^b</i>				
Yearly or less	Count	15	31	46
	% of Gender	34.9	19.3	22.5
Monthly	Count	17	56	73
	% of Gender	39.5	34.8	35.8
Weekly or more	Count	11	74	85
	% of Gender	25.6	46.0	41.7
Total number of responses		43	161	204

Men are more frequent users of OpenStreetMap

Bold indicates significant results

environmental justice



... to gis => geography?

housing studies

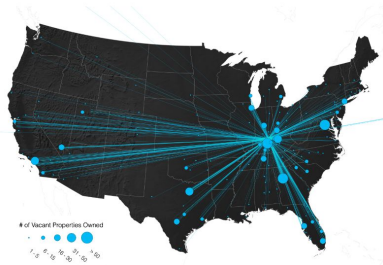


Figure 3. Relational Geographies of Vacant Property Ownership Across the United States



strategic positivism

Strategic Positivism*

Elvin Wyly

The University of British Columbia

Since the early 1970s, critical theorists in geography and other social sciences have worked to build what Steinmetz (2005) calls a “pluralistic postpositivist counterworld.” Postpositivist intellectual currents emerged in the shadow of, and in opposition to, mainstream science at a time when positivist epistemology, quantitative methodology, and conservative political ideology seemed always to go hand in hand. This neat alignment was contingent and contextual, but every postpositivist movement committed to progressive or radical politics has portrayed the nexus as essential and immutable. Over time this caricature has been reinforced and reproduced, as strident postpositivists and defensive spatial scientists pursue ever more sophisticated, challenging specializations that make it harder to bridge the binaries of our field. In this article, I suggest that the presumed linkages between epistemology, methodology, and politics were never fundamental or immutable—and that recent years have brought significant realignments. Right-wing political operatives have coopted many of the epistemologies and methods traditionally associated with the postpositivist academic left. A new generation of progressive, critical geographers is doing first-rate work—like that appearing in this Focus Section—that is revitalizing the scientific rigor, policy relevance, and political power of the left. I analyze how this movement of strategic positivism is an integral (but single) element of a pluralist geography that mobilizes trust and deference to synthesize individual specialization and collective goals to build emancipatory geographies.

Key Words: history of geography, methodology, policy, positivism, postpositivism.

**now we might
return to the
article with a
*little more clarity***

"turns" in geog

the computer challenges of the 1990s, of which GIS is a manifestation.

Seemingly, revolutions in an Kuhnian sense are not rare events in subjects like geography. The last few decades have seen several 'new' geographies come and go. Each episode sooner or later creates various antifeelings and is replaced by another fashion. Although this ability continuously to mutate gives geography

quant “revenge”

to anticipate the problems before they become critical, and by airing the debate I seek to divert and diffuse any subsequent impact.

Some people talk about the ‘GIS Revolution’ as being the ‘quantitative geographer’s revenge’ and as a revival of positivism. Yet others are concerned about the extent to which GIS is fact rather than knowledge-based, and fear that

the “real crisis”

technologies that are being developed to cope with it. GIS is useful as a tool kit, even if it never amounts to anything much more than a computerisation of previously traditional geographic map skills. However, the real crisis in geography has probably little to do with GIS. Faced with an exponential growth in available geographic information, the utility of soft and the so-called intensive and squelchy-soft qualitative research paradigms could fade into insignificance if they cannot be

technophobia

The GIS revolution can be viewed, therefore, as encompassing ongoing computer hardware and information developments and because of this may well become a major cause of **technophobia**. GIS seems to epitomise a revolution that most geographers probably think they cannot easily cope with and thus it acts as a harbinger that their worst fears about the impact of a new geography based around computer hardware and computer technologies is soon to be realised. Nothing of the old

the future?

intradisciplinary boundaries. A geographer of the impending new order may well be able to analyse river networks on Mars on Monday, study cancer in Bristol on Tuesday, map the underclass of London on Wednesday, analyse groundwater flow in the Amazon basin on Thursday, and end the week by modelling retail shoppers in Los Angeles on Friday. What of it? Indeed, this is only the beginning.

There is a tool kit emerging of generic computer analysis methods based on

lab 01!