



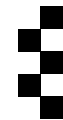
University of Essex

# **Digital Spatial Humanities: Geographic Information Systems in Context**

Dr Justin Colson

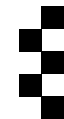
# **THE SPATIAL TURN & THE SPATIAL HUMANITIES?**

- **What is the ‘spatial turn’?**
- **What are the ‘spatial humanities’?**
- **What *is* GIS?**
  - Are they synonymous?
- **How can humanists square the circle of using systems based on Cartesian coordinates subjectively?**
- **Examples of spatial technologies in ‘traditional’ historical work**



# THE SPATIAL TURN

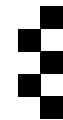
- **Turns:**
  - 1960s: Quantitative
  - 1980s: Linguistic & Cultural
  - 2000s: Emotive; Memory; Spatial?
- **Space can be a causal factor**
  - History within units of space?
  - Spaces themselves have agency?



# THE SPATIAL TURN?

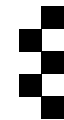
- **Jo Gaudi:**

- *For the broader questions of landscape--worldview, palimpsest, the commons and community, panopticism and territoriality--are older than GIS, their stories rooted in the foundations of the modern disciplines*
- *Modern history started with a landscape. Jules Michelet, Thomas Babington Macaulay, and Ranke forged experiments in applying the critical history of princes to the space of a nation.*



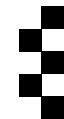
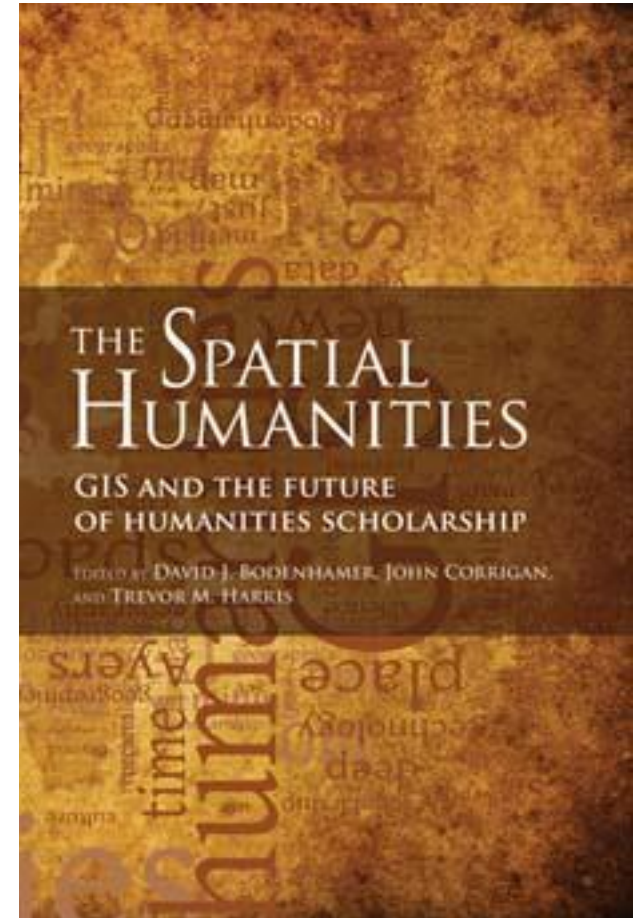
# **SPACE & PLACE**

- **Space as metaphor – gendered space etc**
- **Lefebvre \ Soja \ Knott (etc.):**
  - Spaces = physical
  - Places = experienced
- **Spaces no longer purely passive**
  - Dynamic, relational, agentic
- **But how to observe\measure without implication of determinism?**

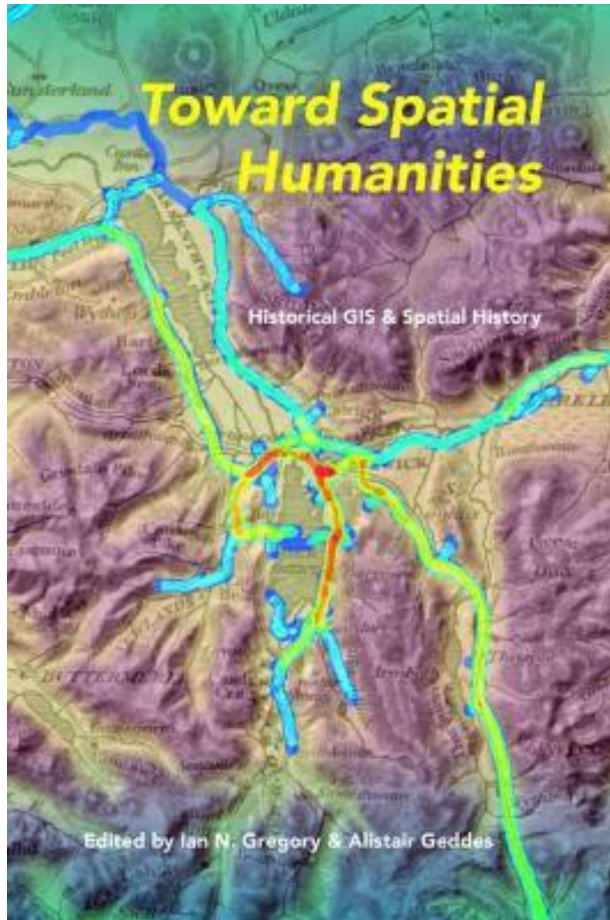


# SPATIAL HUMANITIES

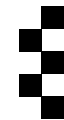
- Applied spatial turn?
- Beyond space as metaphor
  - Boundaries, networks, interactions (not just places)
- ***‘GIS lies at the heart of this so called spatial turn’***

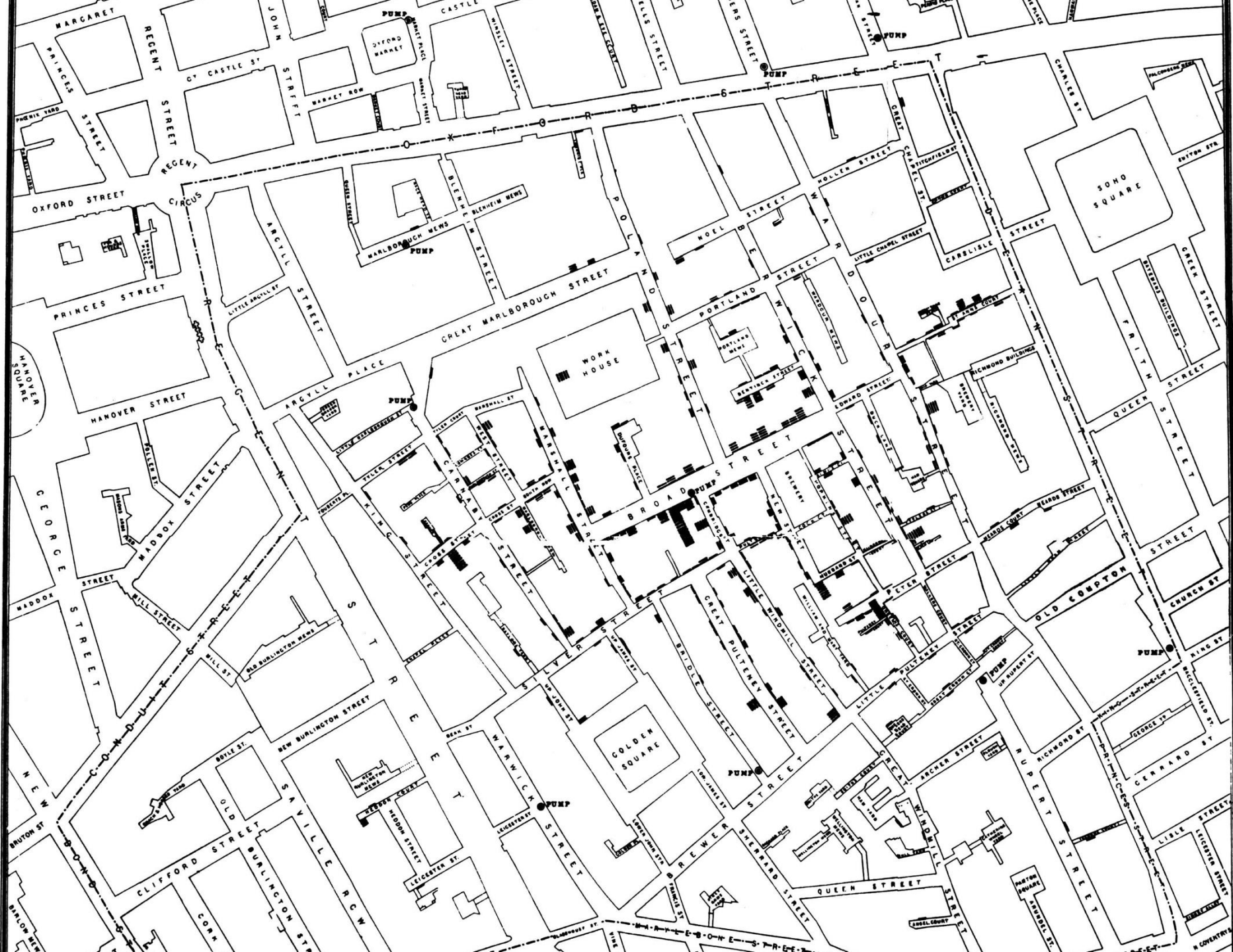


# SPATIAL HUMANITIES



- Railways and Agriculture in France and Great Britain, 1850 to 1914 / Robert M. Schwartz and Thomas Thevenin
- The Development, Persistence and Change of Racial Segregation in United States Urban Areas: 1880 to 2010 / Andrew A. Beveridge
- Troubled Geographies: An Historical GIS of Religion, Society and Conflict in Ireland since the Great Famine / Niall Cunningham
- Applying Historical GIS beyond the Academy: Four Use Cases for the Great Britain HGIS / Humphrey R. Southall
- The Politics of Territory in Song Dynasty China (960-1276 CE) / Elijah Meeks and Ruth Mostern
- Mapping the City in Film / Julia Hallam and Les Roberts









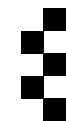


# WHAT IS GIS?

<https://youtu.be/LHDCRjAxpI0>  
<https://youtu.be/XrU8GX7manc>

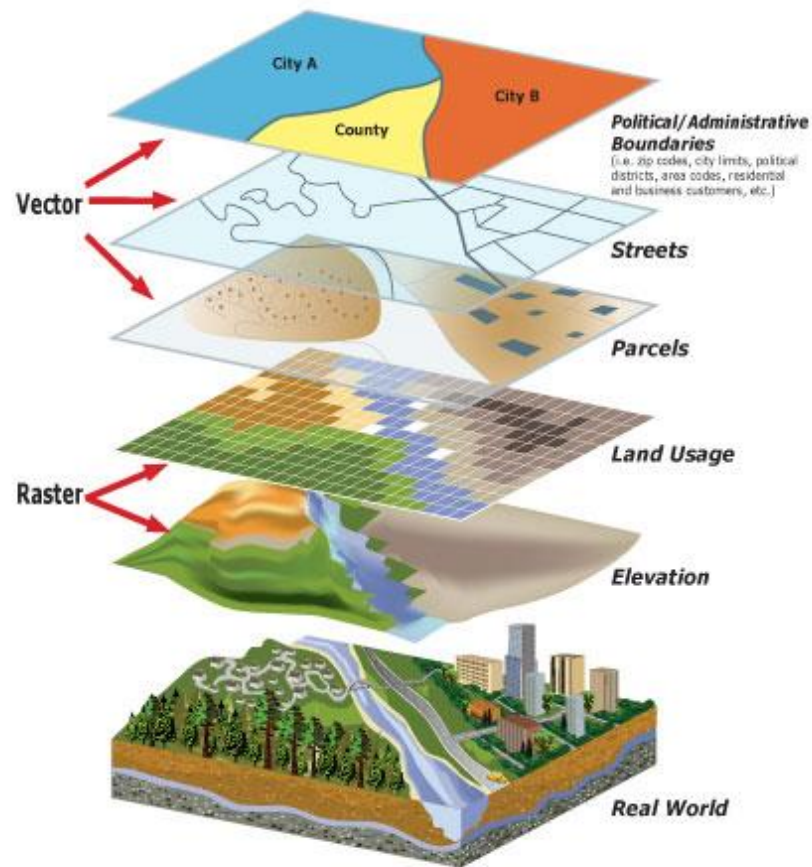


- **Geographic Information Systems**
- OR
- **Geographic Information Science ?**

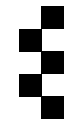


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# FUNDAMENTALS OF GIS

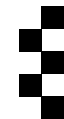
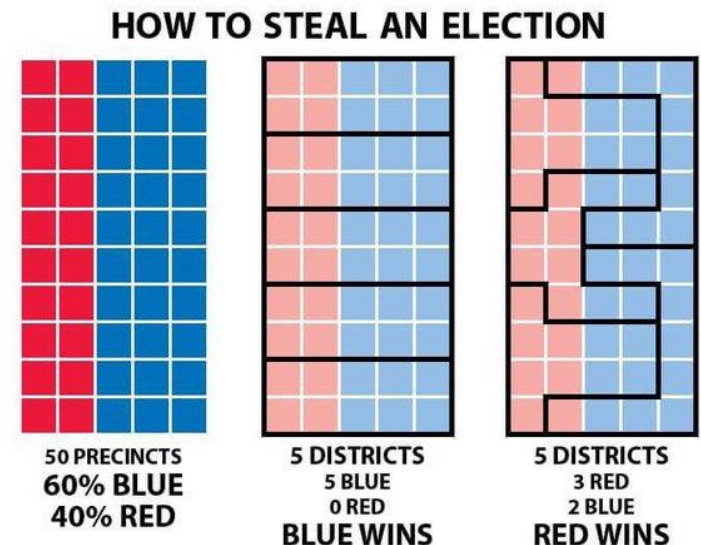


- **Cartesian coordinates**
  - Implied precision
- **Structured data**
  - Implied precision



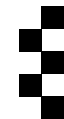
# HUMANITIES GIS CHALLENGES

- **Epistemology of geographic knowledge**
  - Positivist \ conditional?
- **Implied precision**
  - Precision  $\neq$  Accuracy
  - Fuzzy data?
  - Incomplete data
  - Unknowable samples
  - 'Modifiable Area Unit Problem'



# OBJECTS, 'FIELDS', ONTOLOGIES

- **GIS tends to privilege discrete objects**
  - Continuous 'fields' best represented by rasters
- **Is a town an object?**
  - How useful is a centroid point?
  - Does an administrative boundary accurately define?
  - Reality a bit fuzzy?
- **(Primitive) tabular database structure**
  - Demands defined ontology
  - Humanists value variance, GIS demands standardisation



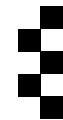
# **HISTORICAL CHALLENGES**

## **Theoretical:**

- **GIS Privileges quantitative data**
  - How to reconcile 'fuzzy' qualitative data?
  - How far to standardise irregular data?

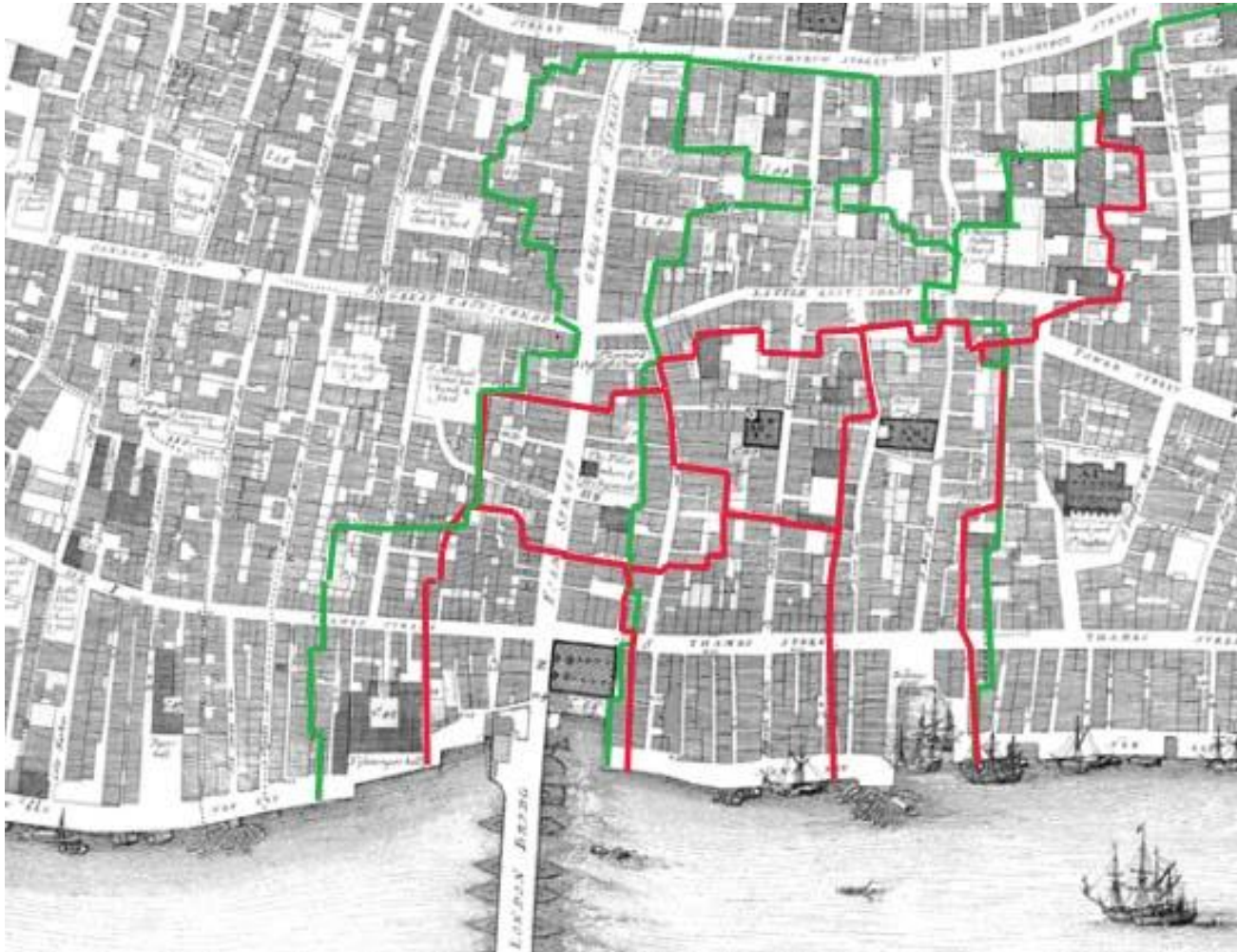
## **Practical:**

- **Availability\suitability of gazetteers**
- **Availability\suitability of basemaps**





# MY SPATIAL TURN

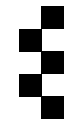




Sciatis presentes & futuri qd Ego Johannes Marston Dni & Distenarius London dedi concessi et hac  
presenti carta mea confirmavi Thome Knepeworth Dni & Distenarius London Edmundo Domesey de  
London Gentilman Johanni Smyth Dni et Stodfishmonger London Willmo Holybrand de London  
cum omnibz suis ptin sitnat in Frobedlane in pochia Sed Margareto de Briggfrote London videlicet inter  
venellam de Frobedlane ibm ex pte bonali et chopam ptinen ealie Sed Margareto pdict in pte ex pte  
Australi ac ten ptinen Gores Georgy lobett que hinc Brand modo tenet & occupat in pte tam ex  
pte Australi qm ex pte occidenti & Rogiam diam ibm vocat Briggfrote ex pte orienti. Que undu  
tenu mansione et chopas cum omnibz suis ptin nup hui usq Gores et assign meis nupm omni cum  
Johanne Frobeche Willmo Wyllson pmbz et Distenarijs London Roberto Doep de Godes in pte pantebrigg  
pouan & Willmo Bodam de villa pantebrigg in deo pte pantebrigg ffiffor sinout ac cum Grgone  
huit Gentilman & Willmo Gromp Dni & Distenarij London defuncti ad osm mei da Johis Marston  
& Gores meoz ex benedico dimissione tradito liberatos & confirmatos Willi Focke Rectoris Ealis  
poehialis Sed Margareto pdict Jacobi Smyth Distenarij et Johannis Whetoloy Groci pmbz London  
nup Gardianoz sine custodiam bonoz opum & ornamentoz eiusdm ealis put p quoddam scriptum  
finno dat est London secundo die mensis decembris Anno Regni Regis Henrici septimi post conqun  
quarto p pdict Rectorem et Gardianos inde usq ac pfat Johanni Frobeche Willmo Wyllson Roberto  
Doep Willmo Bodam Grgoni huit & Willmo Gromp confecto liquet manifeste, hnd & tenens dia  
pda tenementa mansiones et chopas cum omnibz suis ptin pfat Thome Knepeworth Edmundo Domesey  
Johanni Smyth Willmo Holybrand Roberto Porter et Laurencio Wayne Gores et assign suis nupm  
de capitibz Dni foz ill p omnia inde debet et de iure consuet ad osm dicti Thome Knepeworth et  
Gores suoz Et ego vero pdictus Johes Marston et Gores mei omnia pda tenta mansiones et  
chopas cum omnibz suis ptin pfat Thome Knepeworth Edmundo Domesey Johanni Smyth  
Willmo Holybrand Roberto Porter et Laurencio Wayne Gores et assign suis contra omnes gentes  
Barantizabimz et nupm defendimus p pntes ad osm dicti Thome Knepeworth et Gores  
suoz. In finis rei testimonium hinc pnti carta mea sigillum meum apposui Johes pcybale milite  
tunc Mayor Civitatis London Thoma Bradbury et Stephano Jeyn tunc vic eiusdm Civitatis  
ac Johanne ffonbyll milite tunc illius Barde Aldermano dat London octavo die mensis  
Januarii Anno Regni Regis Henrici septimi quartodecimo.



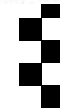
# SPATIAL RECORDS?



### Legend



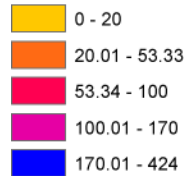
Map Revision: 12/08/2009



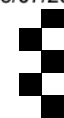
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# DEEDS TO MAPS

## Known and Estimated Values (£)

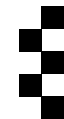
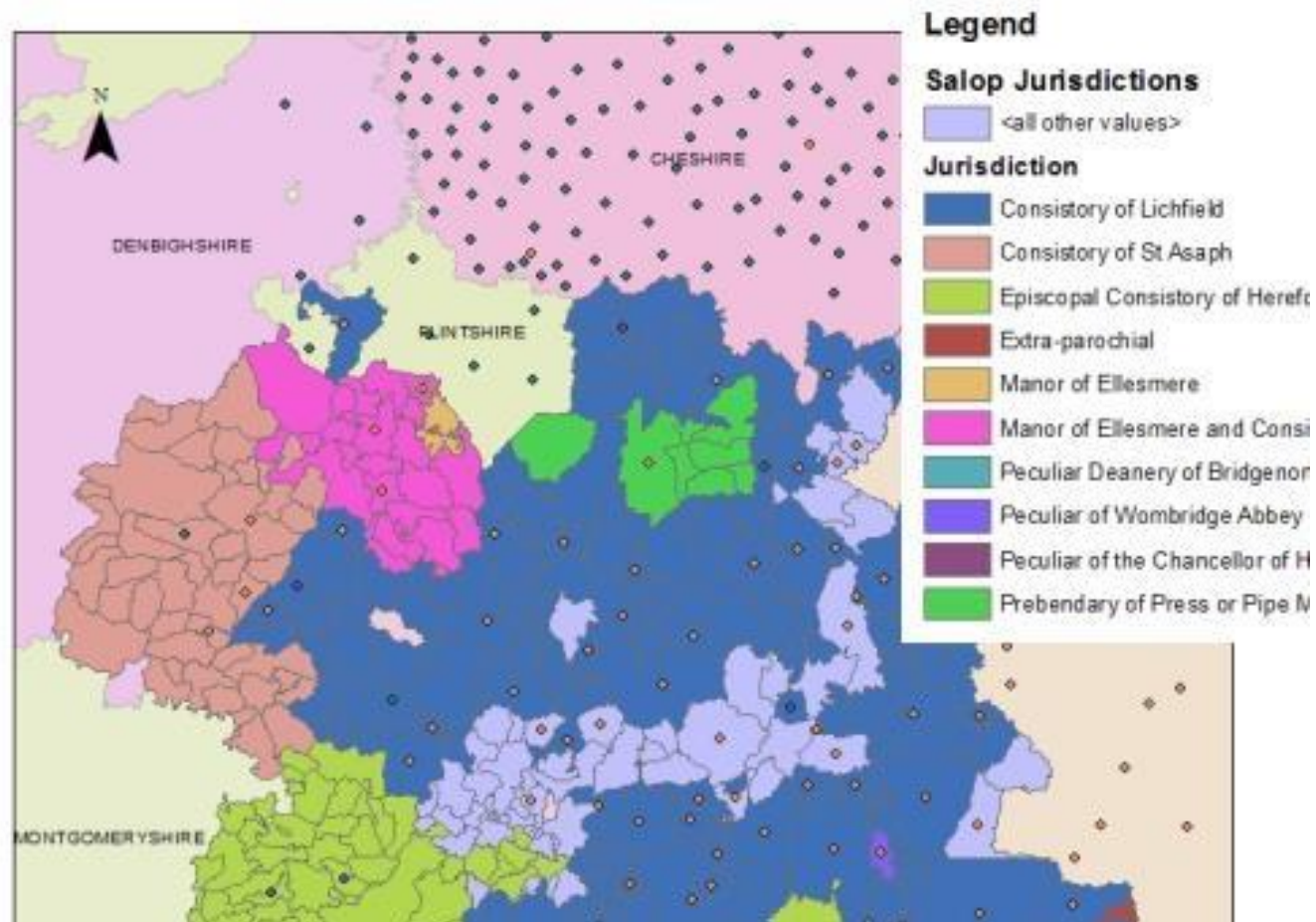


Map Revision: 15/07/2009



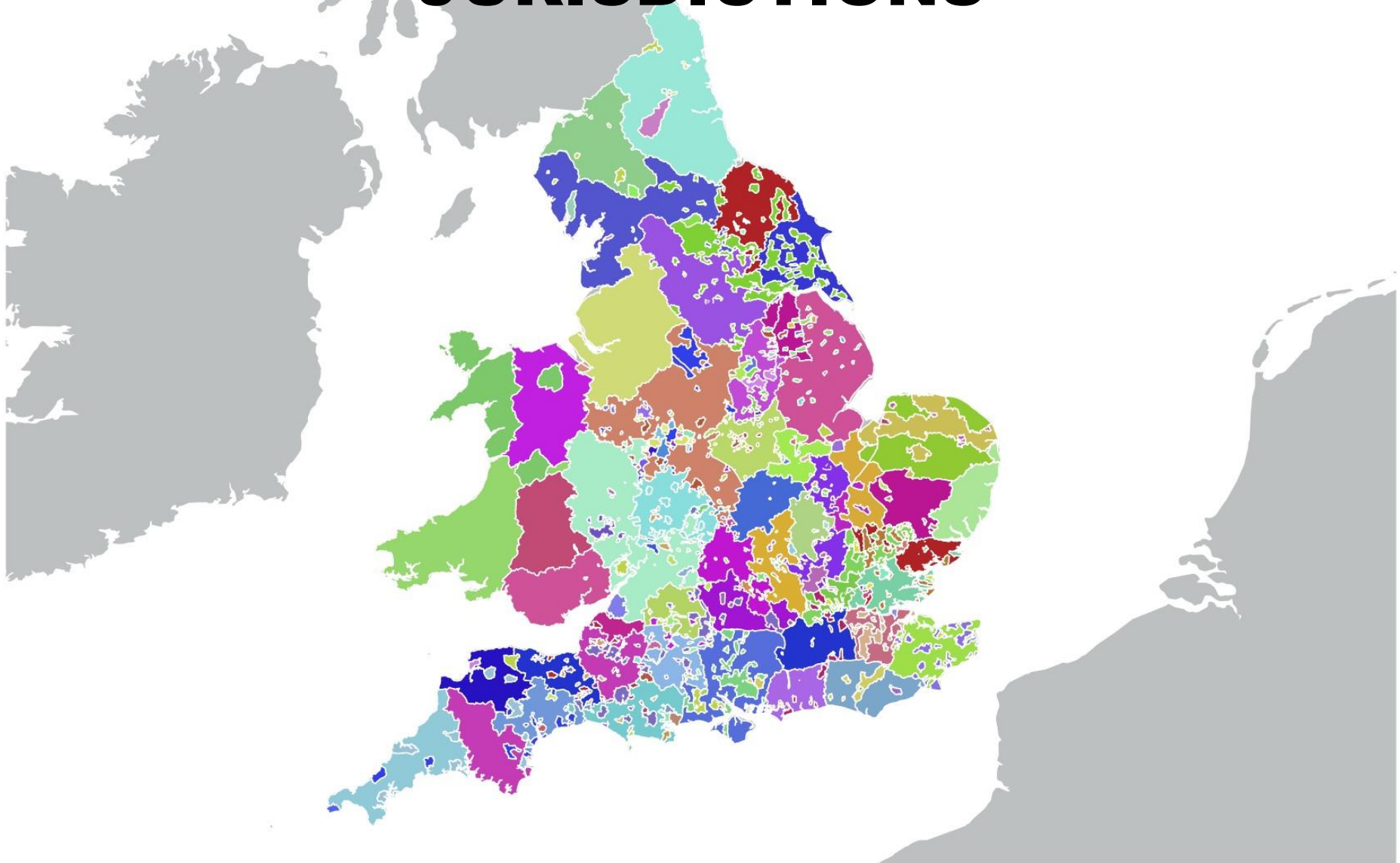
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# MAPPING JURISDICTIONS

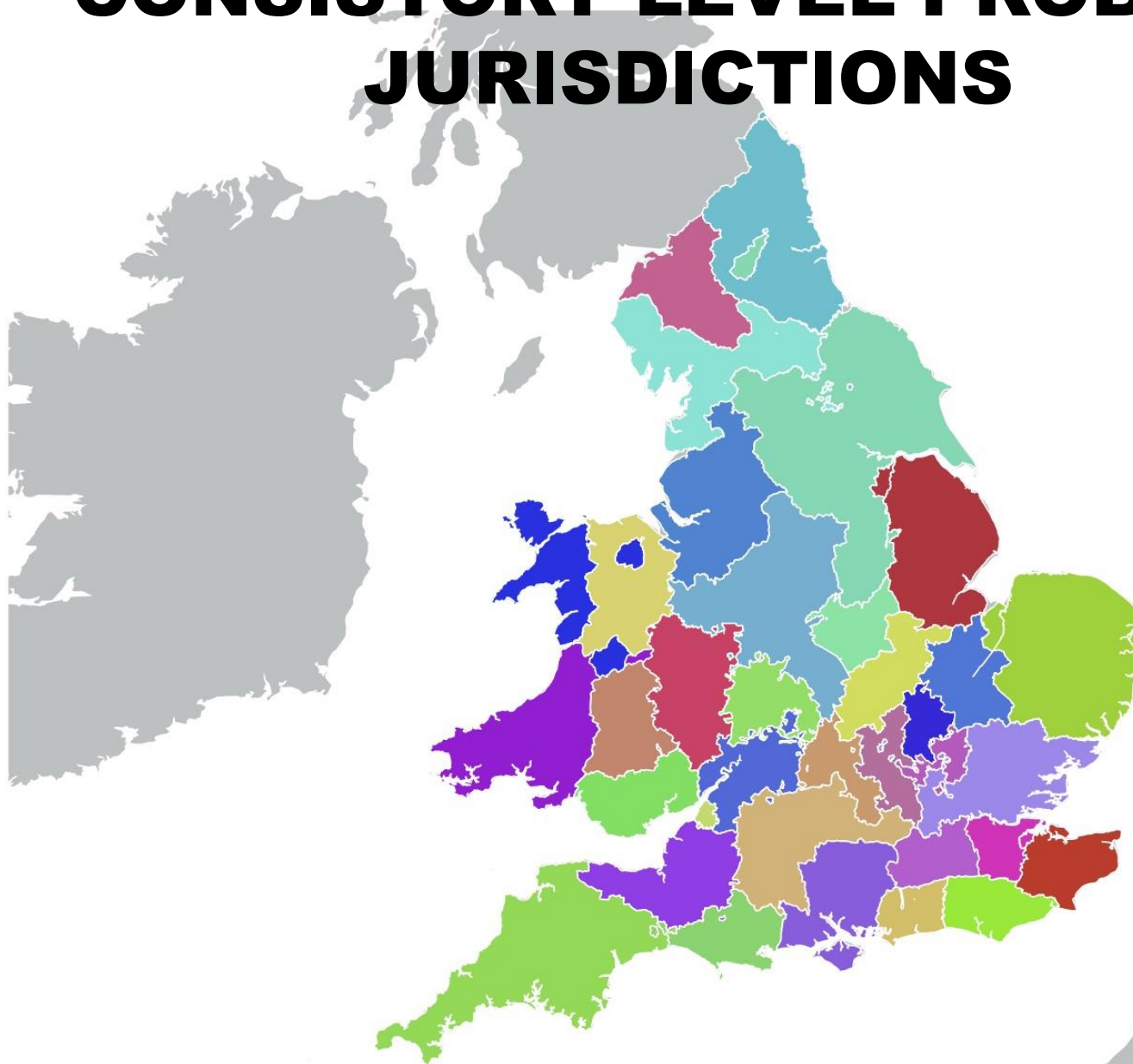




# ARCHDEACONRY LEVEL PROBATE JURISDICTIONS



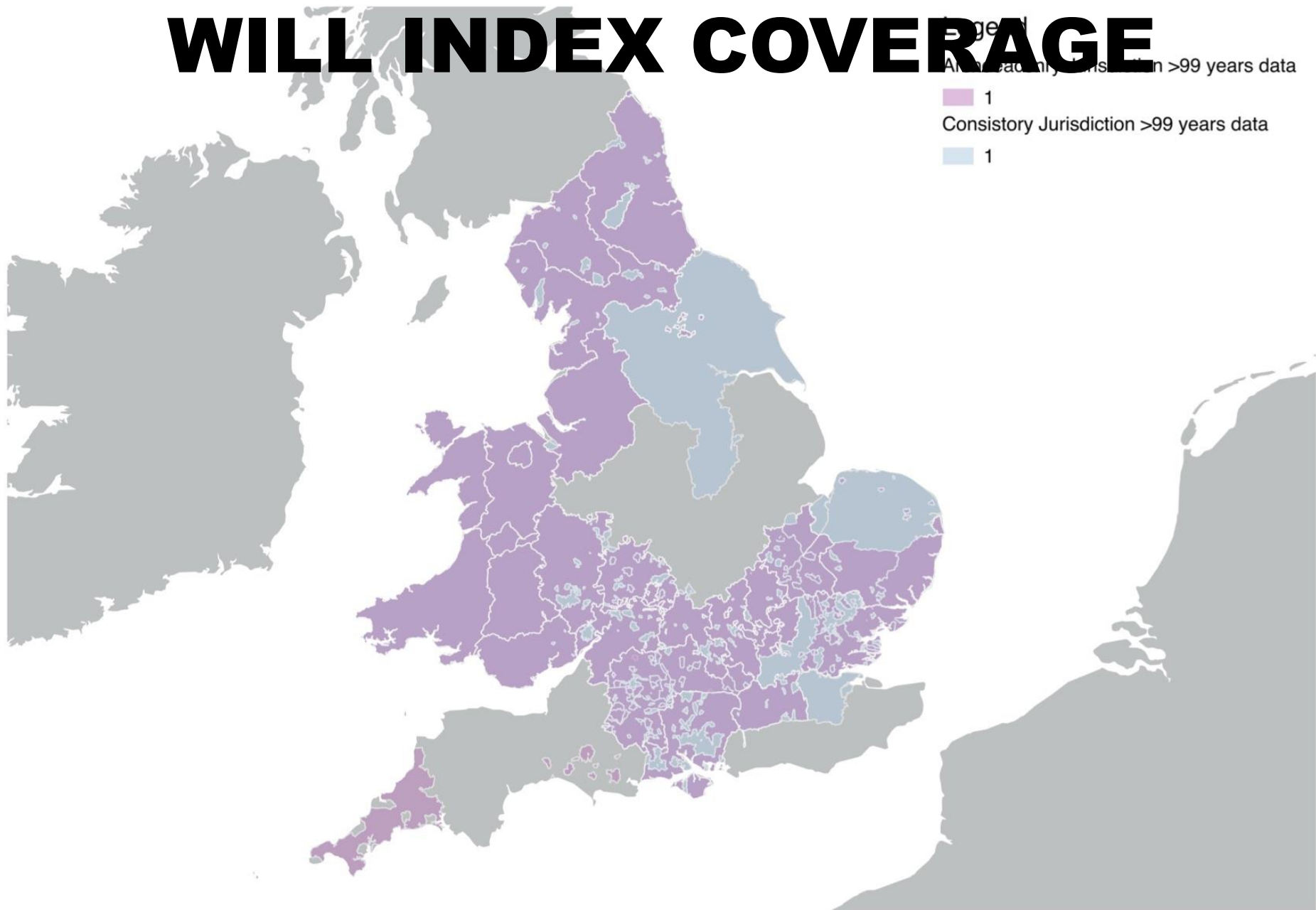
# CONSISTORY LEVEL PROBATE JURISDICTIONS



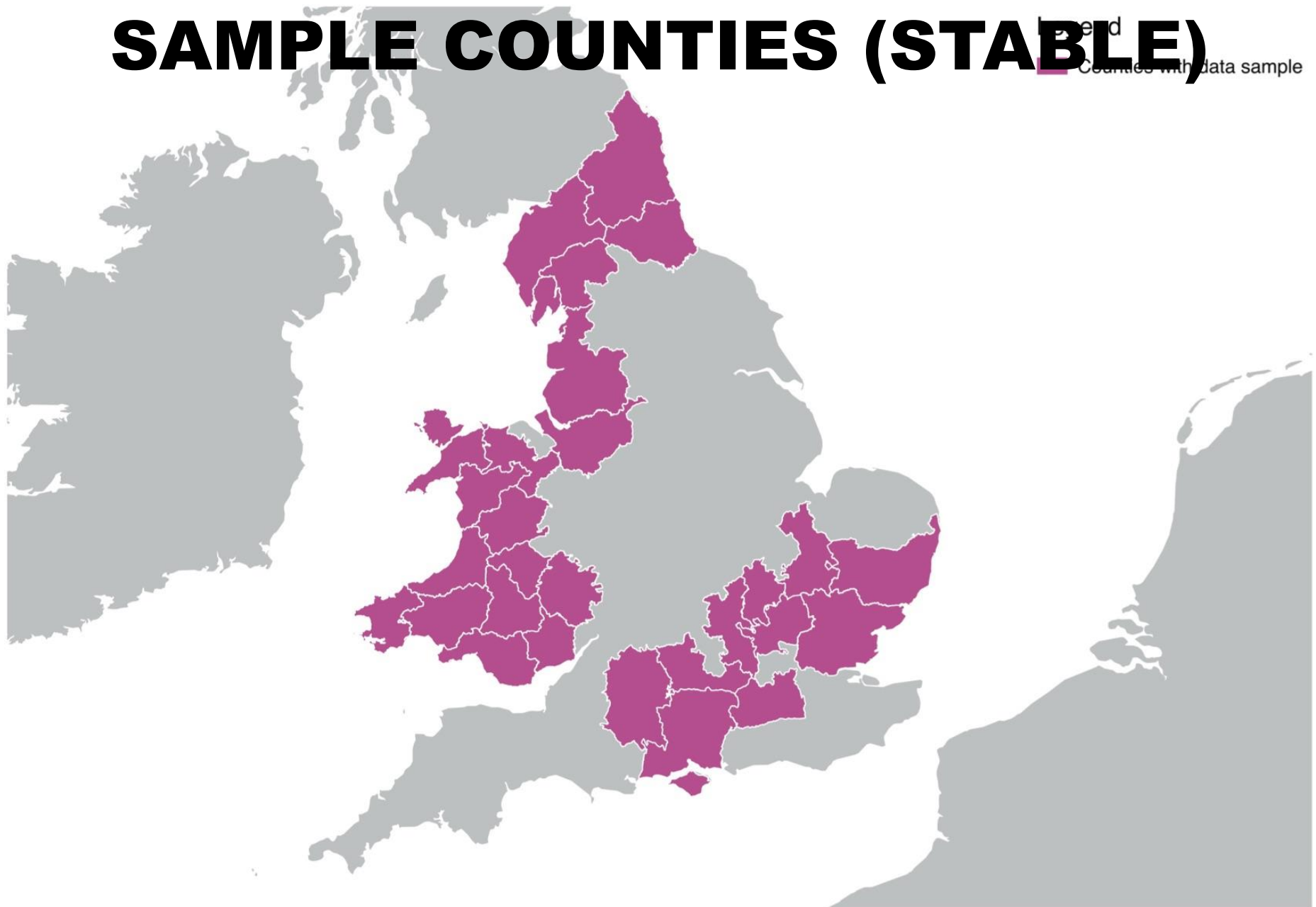
## Consistory Jurisdictions

- Archdeaconry of Bedford
- Archdeaconry of Buckingham
- Archdeaconry of Huntingdon
- Archdeaconry of Leicester
- Archdeaconry of Richmond
- Commissary of Winchester in Surrey
- Consistory and Archdeaconry of Brecon
- Consistory and Archdeaconry of Oxford
- Consistory for the Archdeaconry of Chichester
- Consistory for the Archdeaconry of Lewes
- Consistory of Bangor
- Consistory of Bath and Wells
- Consistory of Bristol
- Consistory of Bristol (Dorset Division)
- Consistory of Canterbury
- Consistory of Carlisle
- Consistory of Chester
- Consistory of Durham
- Consistory of Ely
- Consistory of Exeter
- Consistory of Gloucester
- Consistory of Hereford
- Consistory of Lichfield
- Consistory of Lincoln
- Consistory of Llandaff
- Consistory of London
- Consistory of Norwich
- Consistory of Peterborough
- Consistory of Rochester
- Consistory of Salisbury
- Consistory of St Asaph
- Consistory of St Davids
- Consistory of Winchester
- Consistory of Worcester
- Prerogative and Exchequer Courts of York

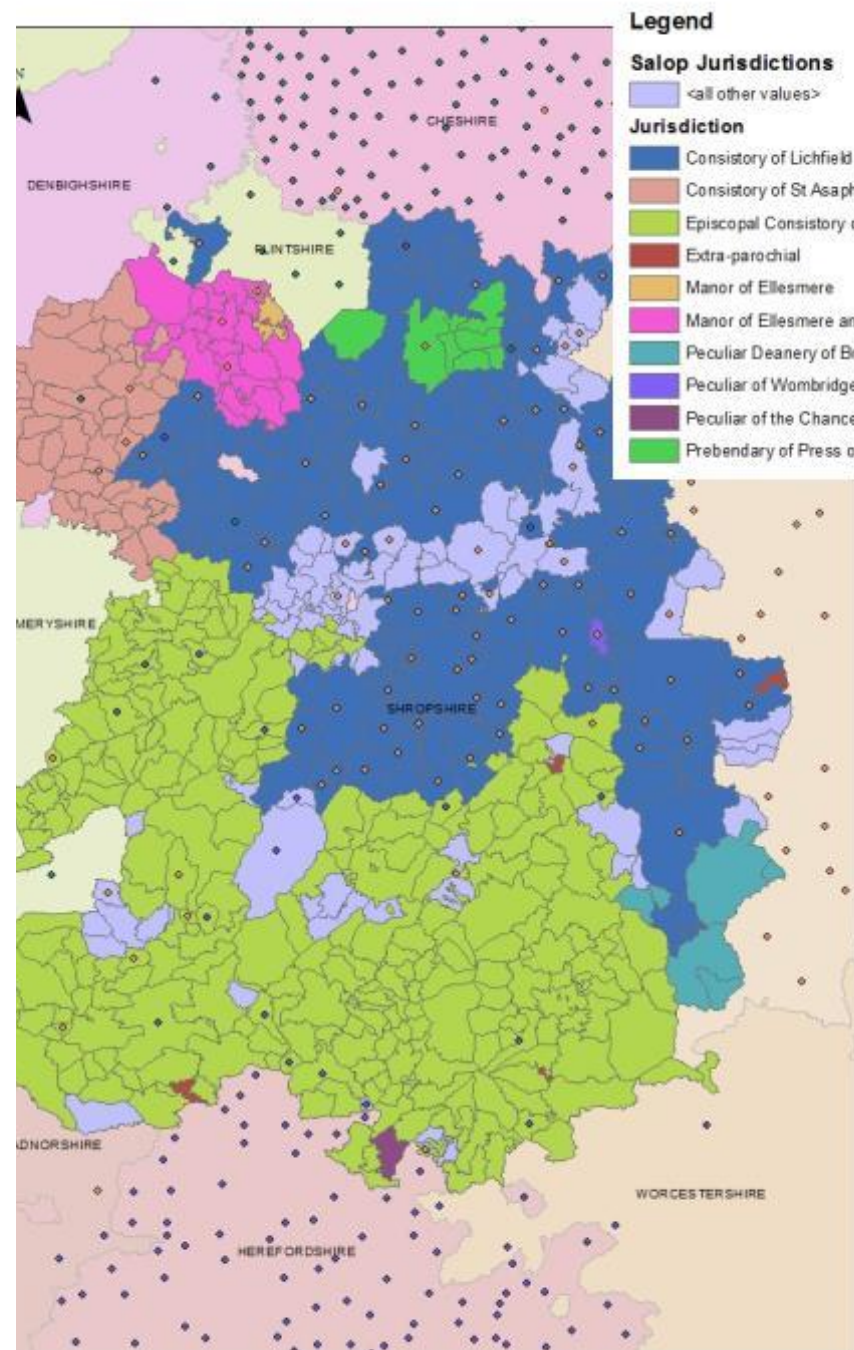
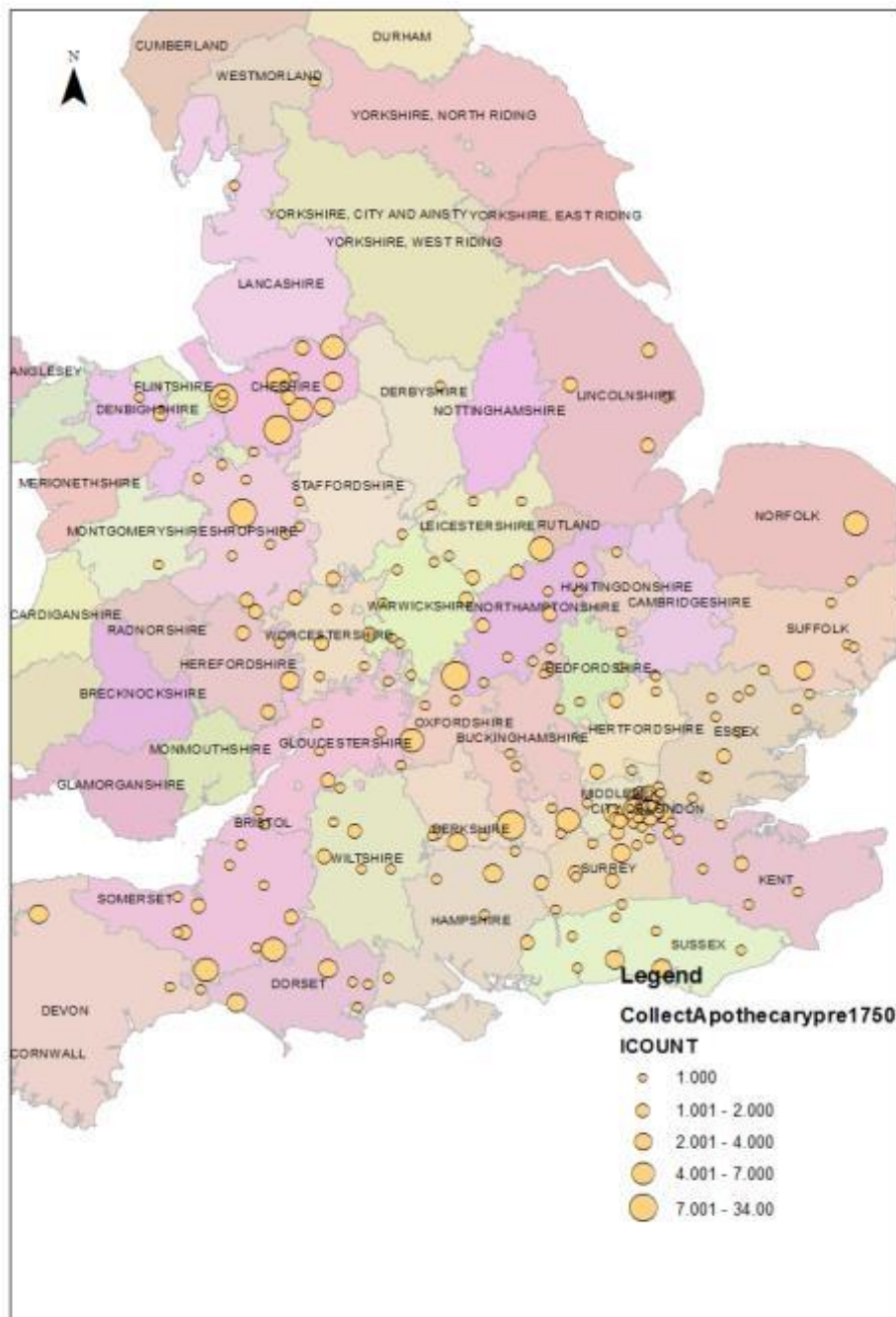
# WILL INDEX COVERAGE



# SAMPLE COUNTIES (STABLE)

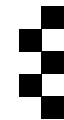






# SPACE SYNTAX

## Tenement Area (Square Meters)



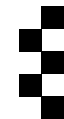






# MULTIMEDIA MAPPING

- **‘Experiential Mapping’?**
- **Can images, audio, and video add back in the subjectivity that GIS removes?**
- <http://uniofessex.maps.arcgis.com/apps/Cascade/index.html?appid=29c457b331004357897b6b0718686414>
- <http://uniofessex.maps.arcgis.com/apps/Cascade/index.html?appid=7e09da7dbb1f45ac8e4142bc20b6b73c>





# SOCIAL NETWORK 'MAPS'?

Gephi 0.8.2 - Arnold.gephi

Overview Data Laboratory Preview

Data Table

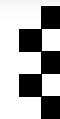
Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter: Nodes

Nodes	Id	Label	Name	Occ	Location	Mod...
TW, mercer of London	44	TW, mercer of London	TW	merc	London	1
NA, mercer of London	45	NA, mercer of London	NA	merc	London	1
John Mighels, Ship owner of Biscay of Castile	7	John Mighels, Ship owner of Biscay of Castile	John Mighels	Ship owner of Biscay	Castile	1
Edward Stone, ironmonger of London	33	Edward Stone, ironmonger of London	Edward Stone	ironmonger	London	7
Thomas Marnott, stainer of London	32	Thomas Marnott, stainer of London	Thomas Marnott	stainer	London	7
JT, skinner of London	21	JT, skinner of London	JT	skinner	London	2
RS, taylor of London	20	RS, taylor of London	RS	taylor	London	2
Thomas D, alderman of Oxford	22	Thomas D, alderman of Oxford	Thomas D	alderman	Oxford	5
John Telme, brewer of Oxford	43	John Telme, brewer of Oxford	John Telme	brewer	Oxford	5
John Waren elder, armourer of London	28	John Waren elder, armourer of London	John Waren elder	armourer	London	6
Hans van Alton, Hanseatic Pirate of Hamburg	46	Hans van Alton, Hanseatic Pirate of Hamburg	Hans van Alton	Hanseatic Pirate	Hamburg	0
William Nightingale, of London	4	William Nightingale, of London	William Nightingale		London	1
Johanne Payne, of London	39	Johanne Payne, of London	Johanne Payne		London	1
Nicholas Warboys, of London	6	Nicholas Warboys, of London	Nicholas Warboys		London	1
John Benson, Haberdasher of London	40	John Benson, Haberdasher of London	John Benson	Haberdasher	London	2
John Waren, Armourer of London	47	John Waren, Armourer of London	John Waren	Armourer	London	0
John B, draper of London	23	John B, draper of London	John B	draper	London	1
William Bolles, of London	34	William Bolles, of London	William Bolles		London	7
W. Leyfeld, Cutler of London	25	W. Leyfeld, Cutler of London	W. Leyfeld	Cutler	London	8
William Holibrande, Tallowchandler of London	8	William Holibrande, Tallowchandler of London	William Holibrande	Tallowchandler	London	1
Nicholas Arnold, of London	5	Nicholas Arnold, of London	Nicholas Arnold		London	1

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups

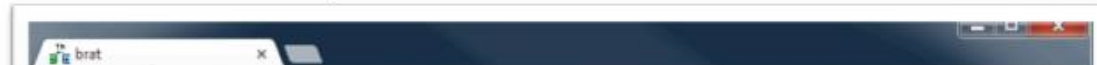
Workspace 0

John Weston (id:1382) William Cresseyk  
Margery Brath Thomas Thornburgh  
Robert Hugh



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# COMBINING WITH NLP: CHARTEX



Document

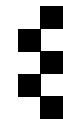
1 vicars-choral-408

2 Grant by Thomas son of Josce goldsmith and citizen of York to his younger son Jeremy of half his land lying in length from Petergate at the prebend of Ampleford and in breadth from Steyngate to land which

Property: word = josce  
form = Josce  
stem = josce  
mform = count  
mnum = sing  
pos = n  
casetype = capitalised  
soundex = J200

# **SPATIAL HISTORICAL DATA?**

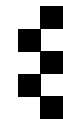
- **Think broadly about how data might be spatial**
- **Who, What, Where, When?**
- **Precision?**
  - 'Vernacular GIS'
  - Suited to GIS?
  - Topographical or topological?





# **SPATIAL RESEARCH STAGES**

- **Understand historical descriptions of space**
- **Rendering spatial descriptions**
- **Looking for spatial patterns**
- **Consider space and place as actors**
- **Mixed methods research strategy!**



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## **QGIS Tutorials (for historians):**

- <http://programminghistorian.org>

## **QGIS and ArcGIS Training Sessions for historians:**

- <http://www.history.ac.uk/research-training>

