Mapping Edinburgh's Social History

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MESH objectives

- An **online Atlas of Edinburgh** based on new, thematic maps
- An **open digital data resource** for historians and the general public
- **Accessible, free online tools** to allow anyone to create historical maps
Atlas themes

1. Living and dying (population dynamics)
2. Making, selling and earning (local economy)
3. Teaching and learning (knowledge, innovation)
4. Worshipping (belief and belonging)
5. Feeding and drinking
6. Moving and communicating (streets, goods, utilities)
7. Socialising (leisure pursuits)
8. Managing and administering (power: the state, civil society)
9. Building and owning (property)
10. Imagining (representations)
MESH Mapping Edinburgh’s Social History – Urban mapping

[Diagram showing MESH as the central node with arrows pointing to ECC data, RCAHMS data, NLS maps, Simpson & Brown architects, and EWH data]
MESH constraints

- Robust historical GIS essential

- Open source tools available online as well as desktop software

- Open data

- Sustainability of at least 5 years (10 years is the goal)
  Hosting provided NLS
Building the MESH HGIS
Main possible solutions to build the MESH HGIS

- Google Maps (API)
- Ordnance Survey
- OpenStreetMap
<table>
<thead>
<tr>
<th></th>
<th>GOOGLE</th>
<th>ORDNANCE SURVEY</th>
<th>MAPPING FROM SCRATCH</th>
<th>OSM</th>
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<td>Images only</td>
<td>Raster and Vector</td>
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<td>Vector</td>
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<tr>
<td>COPYRIGHT</td>
<td>Yes</td>
<td>Yes</td>
<td>Our choice</td>
<td>No</td>
</tr>
<tr>
<td>OPEN LICENCE</td>
<td>No</td>
<td>Only OpenData (poor quality)</td>
<td>Our choice</td>
<td>Yes (ODbL)</td>
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<tr>
<td>DATA REDISTRIBUTION</td>
<td>No</td>
<td>No</td>
<td>Our choice</td>
<td>Yes (ODbL)</td>
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<tr>
<td>QUALITY</td>
<td>Relatively good (depends where)</td>
<td>Very good</td>
<td>Very poor</td>
<td>Good (3-5m)</td>
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<td>DATABASE QUERY</td>
<td>Only through Google APIs</td>
<td>Yes but tools need to be developed</td>
<td>Yes but tools need to be developed</td>
<td>Yes with some already existing tools</td>
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Improvement of OpenStreetMap

State of the map, January 2014

MESI Mapping Edinburgh’s Social History – RDMS August 2014
Improvement of OpenStreetMap

State of the map, April 2014
MESH improvements to OSM
Geocoding tools

And what about the quality of the results? (test: advocates, 1861)

Google geocoder  OSM geocoder  City of Edinburgh Council geocoder
And what about the quality of the results? (test: advocates, 1861)

Google geocoder

OSM geocoder

City of Edinburgh Council geocoder
From resources to HGIS

John Wood map, 1831 (NLS)
Scottish Post Office Directories (NLS)

Georeferencing (image) and Vectorisation (DB)

Optical Character Recognition (OCR) and Geocoding

Historical Geographic Information System
Resources: historical maps

National Library of Scotland

John Wood map, 1831
OS town plan, 1876-1877
OS town plan, 1893-1894

Bartholomew plan, 1912
Bartholomew plan, 1919
Bartholomew Post Office map, 1939-1940
Resources: historical maps

National Library of Scotland: maps comparison
Other resources

- Data from the Archives
- Example: Scottish Post Office Directories (NLS) – around 130 in Edinburgh

![Image of old document]

- From academic: books, articles, etc.
- Other sources, e.g. census data
From resources to HGIS: OCR

- Problems with the OCR: old typography, quality of the resources, old letters (e.g. 'f'treet > street), etc.

Scottish Post Office Directories (NLS)
From resources to HGIS: vectorisation

John Wood map, 1831

Bartholomew plan, 1912

Superimposition...
## Mapping Framework

<table>
<thead>
<tr>
<th>1647 Gordon</th>
<th>1893 OS</th>
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<tr>
<td>1765 Edgar</td>
<td>1910 Johnston PO</td>
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<tr>
<td>1780 John Ainslie</td>
<td>1939 Bartholomew PO</td>
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<td>1817 Robert Kirkwood</td>
<td>1947 OS</td>
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<td>1849 OS</td>
<td>2012 Open Street Maps</td>
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<td>1876 OS</td>
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From resources to HGIS: vectorisation

OpenStreetMap

http://www.openstreetmap.org

OSM 1767  OSM 1821  OSM 1856  OSM 1883  OSM 1920  OSM 1949  OSM 2013

D  Derivation
Outputs of the project

- Historical frameworks and tools to display it on top of a server
- Database of addresses (current and historical) and tools to geocode these addresses
- Historical layers including many boundaries
- All outputs will be under Open Data Commons Open Database License (OdbL) – Attribution and Share-Alike for Data/Databases
Geocoding

- Geocoding at a house number level in Edinburgh possible until 1811 (nearly the same numbers)

- Before 1800, geocoding at a street level

Robert Kirkwood map (1817)
Evolution of the Edinburgh markets (1477-1825), Michael Lynch
Boundary Complexities in Edinburgh before 1856

After the Police Commissioners and the Town Council were merged in 1856, the municipal boundary was extended to coincide with the parliamentary boundary and 13 wards were created. Before the new arrangement, elections and administration were based on a confusion of ancient burgh boundaries (left) and police wards (right) revised periodically by local Police Acts.

[Source: There is no surviving map of the police boundaries so they are here based on the description of wards in the Edinburgh Police Act 1848, section 6.]
Examples
Mapping examples

Membership in 1875
Mapping examples

Membership in 1877
Mapping examples

Membership: changes
Use cases

Use case 1: geocoding data using addresses

- Advocates in Edinburgh, 1861

http://www.mesh.ed.ac.uk/meeting/geocoder-comparison2/
Use cases

Use case 2: display data using a classification
Example of the cholera patients
Using Boundaries

Cow byres (171)

Dairy cows (2085)

Edinburgh Byres and Dairy Cows 1864 (sanitary districts)
Use cases

Use case 3: compute statistics and map it

● Statistics can be:
  – the areas of some boundaries,
  – the number of individuals in a given boundary,
  – the average of this number,
  – their density,
  – etc.

● In what format? Text, spreadsheet, spatial file, etc.
Use case 3: compute statistics and map it
Use cases

Use case 4: cross analysis

- Examples:
  - What are the urban blocks in Edinburgh containing at least 1 shoemaker, 2 smiths and 3 bakers?
  - What is the distance between an individual and the sea front, or between some patients and the closest hospital?
Use cases

Use case 5: pick up some data, display it and play with it

- Choose an historical framework to display as background
- Choose one or more boundaries available online
- Choose one or more historical data available online
- Choose the legend you want
- Add some of you data, spatial or not (if not, use the geocoding tool)
- Do the computation you want
- Play with it, export it in any spatial format to be able to use offline or just print your map
Mapping Edinburgh's Social History

Mapping Edinburgh's Social History (MESH) is an AHRC funded project which will provide, and facilitate, new visions of historical space. The project team will deploy digital technologies to develop new types of historical maps based on social, cultural, political, religious, military, environmental, architectural and economic information.