

Where is that place? Modelling spatial footprints for a gazetteer

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Historically gazetteers have been lists of place names which form the index of maps. Thus the classic gazetteer is bound as part of the atlas, sometimes as a single gazetteer for the whole Atlas and sometimes multiple gazetteers are bound in for different parts of the atlas whether single or multiple maps. The gazetteer is the principal means by which users of the atlas conduct guided searches to access the information in the atlas. Clearly another popular method for accessing the information is unguided search where the user has a general idea of the geographical region in which their place of interest is located and they use the map index sheets to find the correct map and then search on that map using local knowledge to assist refining the search. The only notion of space in these historical gazetteers is of a point or grid cell on a particular map; the point where the name of the place occurs or the cell which includes it.

A Gazetteer is becoming a list of the named features on a map and therefore is also an official or semi-official record of “place”. But in society “places” are created and destroyed. I do not mean physically destroyed although that of course can happen but I mean rather erased from the cultural record – the name goes out of use. Indeed physical destruction does not mean that the name goes out of use.

But how are gazetteer entries collected? For example, I know that the Ordnance Survey of Great Britain originally collected names systematically from local worthies who assisted drawing sketch maps of the extent of the features. This information has never been digitised and is now lost to all but researchers. These sketch maps were used in deciding which names to include on maps and the hierarchy. This information is now being stored in the National Archive at Kew.

If the names on maps are an official recognition of places then why do names on maps come and go and come back through multiple editions of maps within a short period of time? Why do different editions of maps have different hierarchies of placenames encoded? Why do the positions of places in that hierarchy vary among maps? How is a particular hierarchy decided? Ultimately why is a particular name on any particular map?

Searching gazetteers can produce ludicrous results for inquirers. If you look for the Marsall Islands in the gazetteer accompanying Google Earth, you do not see islands but an extent of water. If you search for Ilkley Moor in the Ordnance Survey electronic gazetteer, you are offered three different locations all within Ilkley Moor but in most interfaces you have to choose just one of them. Similarly if you search for a particular street in an A-Z atlas for the UK, it is referenced by a single cell on the map even if the street itself crosses multiple cells and even multiple maps. The same thing happens on Multimap.com or Mapquest.com. The same problem was associated with the original GNIS where all rivers were located by a single location.

All these searches have one thing in common. A more flexible and appropriate response would not be to show the one index location for the feature in question, but a map that shows the full spatial extent of the feature. At the simplest the minimum bounding rectangle for the feature will provide this. To achieve this only requires that the every entry has two coordinate pairs instead of one.

I cannot be exhaustive, but I am aware that some modern gazetteers have gone further than this. The Getty Thesaurus of Geographic Names, for example, does not just have the name of inhabited places with a single grid reference but the hierarchy of named places in which they fall is stored.

Further enhancement of the gazetteer would be to have variable interpretations of what is meant by the term. So a query for “I want to see exactly the extent of the City of Leicester” would result in one response from a map server, while “Where is Leicester?” would result in a different map showing a more general context for the city. As long as the city is discernable on the map one that shows anything up to the full extent of the globe provides information to the inquirer. So should an

inquirer be specifying the extent of a context e.g. “where is Leicester in Europe?” What if the context is not known? What other information or locations should be shown on the map?

The question “I want to see exactly the extent of the City of Leicester” refers to a political entity which by fiat has definite boundaries, and so it is possible to define the extent of the political entity “The City of Leicester”. However, does that mean that it corresponds to any individual’s view of the extent of Leicester City or of Leicester? Did the questioner mean to refer to the political entity?

If we move to informally named locations the problem is more acute. Where, for example, is London’s West End? Most people in Britain could give you an idea of where it is, and many Londoners (at least) would agree on a prototype for the West End, but many would not, and many would certainly not agree on were it extended to in any particular direction. How do we capture the extent of such poorly defined locations? Is Oxford Street in London more than the extent of the tarmac road which bears that name or does it include the shops which line it or even some number of the surrounding roads and the houses and shops along them?

Mountains and similar landform features are also poorly defined spatial entities about which I have written in the past (Fisher et al., 2004; Fisher et al., in press). Where is Helvellyn or Ben Nevis or Everest? The summit of each is clearly one definition of where it is, but the catchment area for it is another (upper and lower bounds?), but within that broad extent places nearer the summit are more on the mountain than others – and what about constituent named parts – South Col on Everest, or Striding Edge on Helvellyn – when are you on the one and when on the other, and does the one become part of the main peak at some scale or distance of viewing?

For me advances in gazetteers will only come when they can answer the more subtle queries with appropriate maps, and that is only possible when some serious consideration is given to integrating the spatial footprint of the features with the gazetteer.

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B.Sc. (1977, Environmental Sciences, Lancaster), **M.Sc.** (1978, Pedology and Soil Survey, Reading), **Ph.D.** (1982, Physical Geography, Kingston)

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P.F.Fisher, T.Cheng and J.Wood, in press. Higher order vagueness in geographical information: Empirical geographical population of Type n fuzzy sets. *GeoInformatica*

C.N.W.Arnot and P.F.Fisher, in press. Fuzzy mapping of ecotones. In *Vagueness and Uncertainty in Geographical Information* Edited by A.Morris. NATO ARW Series, Springer, New York.

P.F.Fisher and N.J.Tate, 2006. Causes and Consequences of Error in Digital Elevation Models. *Progress in Physical Geography* 30 (4), 467-489.

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A.J.Comber, P.Fisher, and R.Wadsworth, 2005. What is Land Cover? *Environment and Planning B* 32, 199-209.

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