Exploring the effect of a new railway on trips and travel as a component of personal mobility in rural West Yorkshire, 1840-1900

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1. Introduction

> John Kettlewell & me set off to Huddersfield Nov 29th and to Wakefield & was at Mr Herons all night the 29th and then to Low Moor and was all night with Dr Whitteron the 30th then home by way of Bradford Leeds & Starbeck & Knaresbro we was off about John Kettlewell's situation at Hopton they agreed Nov 29th that he was to commence on Jan 1st 1850 he came back Jan 29th 1850. (Hibbs, 1990)

While there is a wealth of literature concerning Geographical Information Systems (GIS) in solving current transportation problems, there is only a limited range of publications available on using GIS for historical research and hardly any for railway history (Gregory, 2003; Knowles, 2002). This is surprising as historians frequently use maps as a research resource and railway history draws on discussions of concepts such as space/time, line and connectivity. One obvious reason is that some researchers in the humanities can have a tendency to technophobia, with a fear or disdain of computer technology beyond word processing. It may also arise from a lack of a developed sense of spatial awareness or perhaps a lack of time to focus on learning new skills. While experienced users of GIS declare its facility, it does involve a considerable investment of time, planning and effort to produce useful results. This has clearly alienated most historians, who have featured rarely in previous presentations in the GISRUK conference series. Most historical applications appear to have been from geographers or spatial analysts.

This paper demonstrates a simple GIS application undertaken by an historian, illustrating a nineteenth century study of mobility and the impact of the railway.

There is a view that personal mobilities in rural England in the mid-nineteenth century were a relatively static and localised affair, especially before the railways had fully developed their comprehensive network (Freeman, 1999; Perkin, 1970). However George Whitehead, a wheelwright/joiner and farmer living in the small West Yorkshire village of Little Ouseburn, neatly captured above an example of the complexities of such mobilities in his diary in 1850. Short term components of mobility such as trips, visits and excursions are important, but these have featured rarely in discussions of nineteenth century mobility, which have favoured explorations of residential and social mobility, migration and emigration. While traditional sources such as census enumerators' books and parish registers provide invaluable evidence of mobility components involving permanent moves of residence, marriage and kinship for example, we are reliant on autobiographies, letters and diaries for evidence of short term travel.

Furthermore traditional approaches to railway history have tended to ignore the perceptions of large groups of people such as the rural workers in favour of a wealth of material about

landowners, city dwellers, capitalists and engineers. An analysis of Whitehead's diary offers valuable contemporary evidence on a rural working class family's spatial mobility patterns, including 'hidden' forms of mobility, such as the cart and walking, at a time when the railway was offering a new option.

The focus in this paper is on the period from 1840 until the end of the century, to permit a long term analysis of rural mobility both before and after the railway came, while still unaffected by the development of the motor car or by World War.

2. Sources and methodology

This study uses a GIS tool to examine evidence on places and movements in Whitehead's diary, to allow layers of social activity in the study area to be spatially referenced.

George Whitehead was born in Little Ouseburn, in the West Riding of Yorkshire, in 1824. The village was around five miles south east of Boroughbridge, nine miles NE of Knaresborough and 13 miles NW of York. Whitehead was a joiner, wheelwright and farmer. He was clearly literate and kept a diary for over seventy years, covering the period between 1836 and 1909.

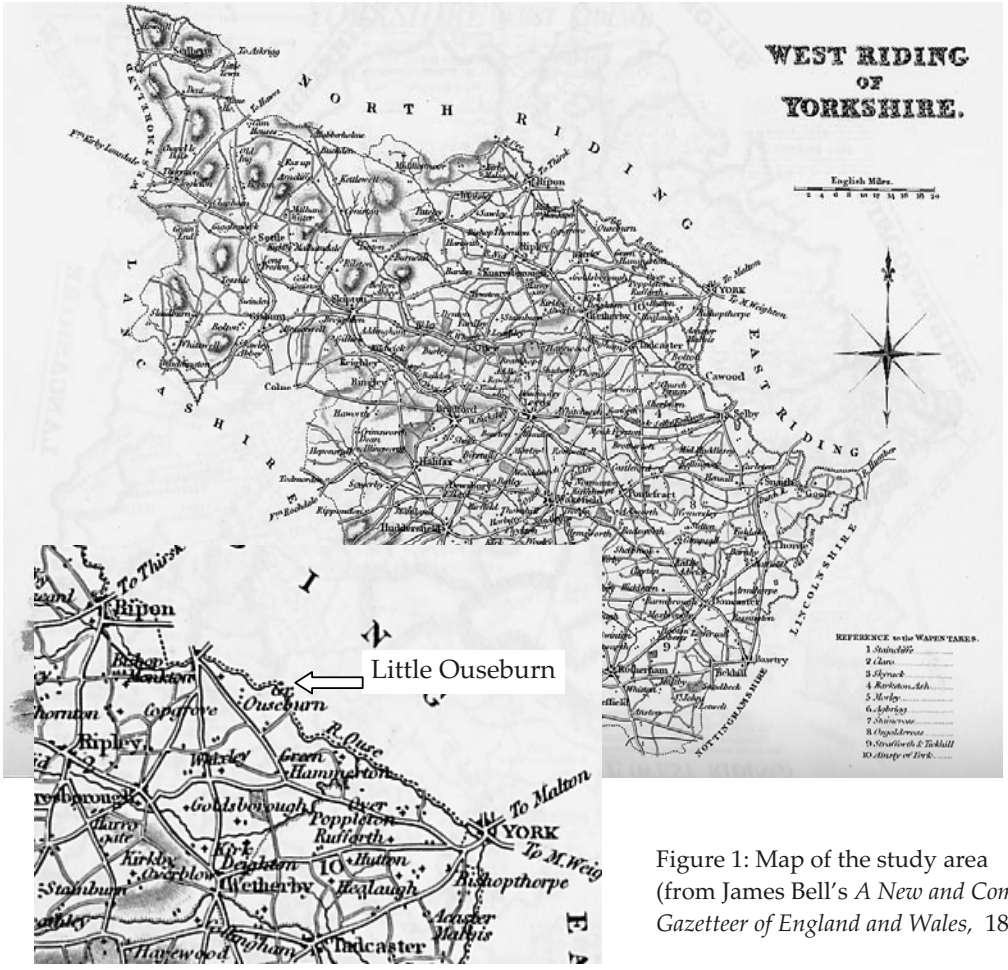


Figure 1: Map of the study area
(from James Bell's *A New and Comprehensive Gazetteer of England and Wales,* 1834.)

ArcInfo/ArcGIS 9.1 was used in this study, as it enables both visualisation and analysis, although this paper mainly demonstrates visualisation. It took advantage of Digimap Historical Ordnance Survey map data, derived from scanned images of the County Series 1:10,560 series 1st Edition 1849 -1899 sheets for Yorkshire (Digimap Historical Ordnance Survey Data, 2005). Relevant features from this base map were then digitised manually using ArcTools, creating a separate coverage for each of main roads, rivers, railway line segments and stations.

Where possible, the locations of places recorded in the diary were obtained from the Bartholomew gazetteer by linking the databases. However, there were issues relating to differences in spelling and multiple instances of some names in the gazetteer. Where a place name had multiple instances in the gazetteer, that which was closest Little Ouseburn was automatically selected, unless context indicated otherwise. Where location could not be determined in this way, other sources were consulted and the points entered manually. It was hoped to include details of trip frequency with the place names, but this proved impractical in the data format adopted. An alternative data structure using Oracle will be adopted for the next phase of this research.

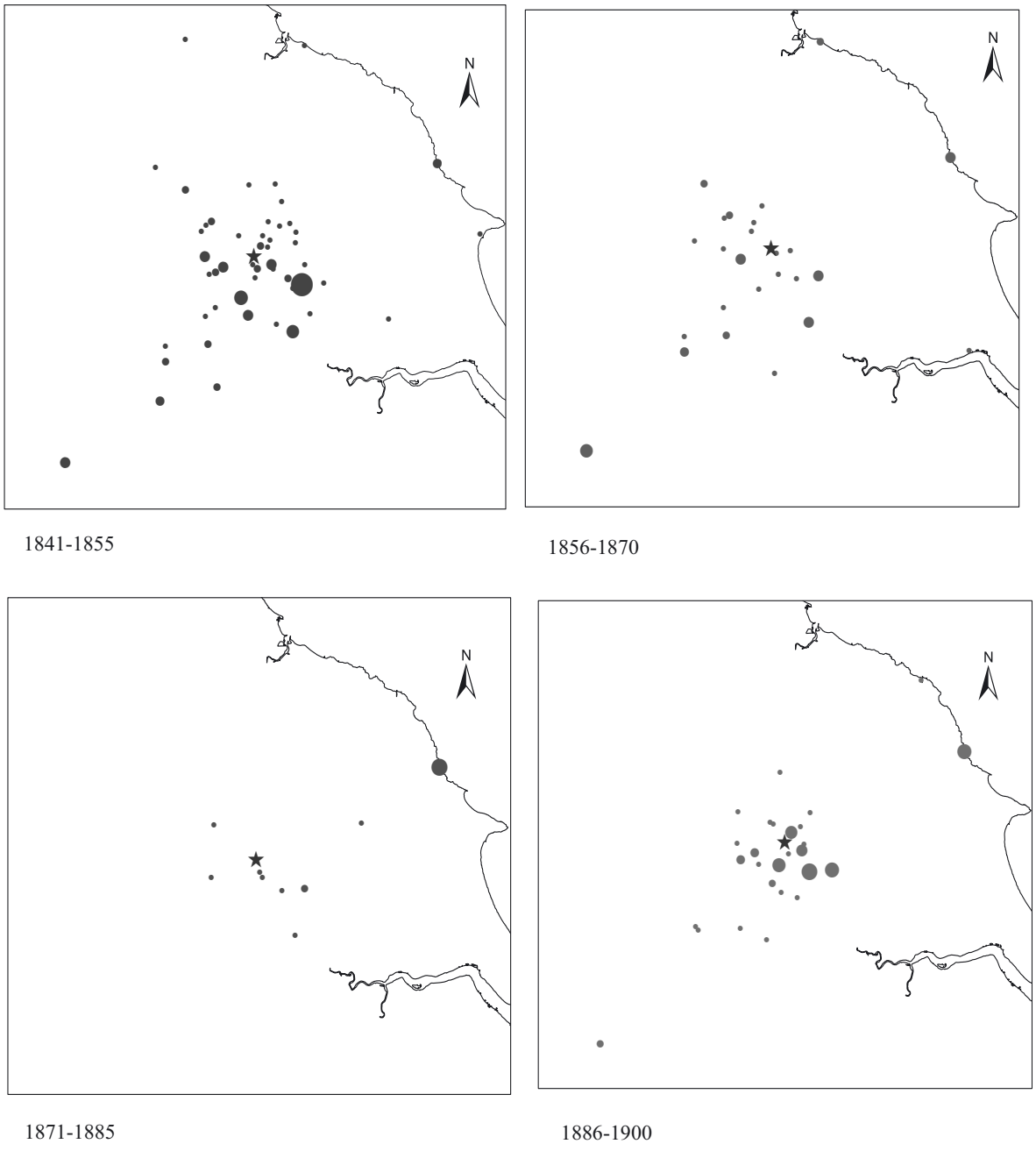
While GIS can include a temporal dimension, it cannot easily analyse or visualise space *and* time. Railway line segments and stations were given attributes in the GIS, showing when they opened to passengers, to help with the visual examination of the relationship between places visited and the availability of transport networks. One of the difficulties which this leads to, however, concerns the use of aggregation in assessing the relationship of groups of journeys by time period to lines available at a particular point in time. Accuracy would improve with increasing reductions in the span of years chosen, but to be completely accurate we would need to use a different map for each individual journey, showing the lines available at that point in time.

Future stages of this study will include the addition of attributes such as carrier routes, passenger statistics, river ferries and bridges. It might also include parish census enumeration data, using 1851 Historic Parish Boundaries from the AHDS History Data Service (Kain and Oliver, 2001).

3. Analysis

Whitehead was often accompanied by family or friends on his trips and he also records journeys made by other members of his immediate family without him. Their journeys were made for a wide variety of reasons, with many resonances to modern leisure patterns: purchasing stock, clothing and equipment, looking for work, visiting family members and friends, visiting feasts, fairs, shows, the seaside, attractions, sporting events and celebrations and trips for medical reasons.

Figure 2 shows the distribution of the places visited by the Whitehead family, using four periods 1841-55,1856-70, 1871-85 and 1886-1900. During the first period (1841-55), family travel was surprisingly widespread over the region, with a tendency to flow towards the industrial West Riding and to Manchester. This period includes a visit to London and visits to the North East. During the second period (1856-70) the travel pattern reduced very slightly, but Manchester featured slightly more. In the third period (1871-85) there was a substantial reduction in travel, apart from visits to Scarborough, almost certainly due to the lifecycle stage in Whitehead's mobility history. The last period (1886-1900) shows more travel in a closer area around the village, reflecting travel by the next generation and continuing visits to Scarborough.



★Little Ouseburn

(Size of place symbol is proportional to the number of times visited)

Figure 2: Distribution of places visited by the Whitehead family, 1841-1900

Settlements from Bartholomew data, (c)HarperCollins Publishers, used with permission.

Figures 3-6 show the area around Little Ouseburn, with constructed buffer zones indicating radii of 6,12 and 24 miles, visualising in greater detail recorded trips during each of the four time periods. Figure 3 (1841-55) shows a great number of visits, mostly within the 12 mile zone and many noticeably '*against the grain'* of the railway network, apart from York and Knaresborough, which do not feature as much as might be expected if the potential of the rail link was being taken up. Figure 4 (1856-70) shows fewer trips in total, mostly in the 12 mile zone and once again against the grain of the rail network available. Figure 5 (1871-85) shows a much reduced level of travel, at a time when Whitehead was growing older, almost all within 12 miles. Finally Figure 6 (1886-1900) shows an increase in mobility, mostly within 12 miles.

4. Results

This paper has looked at trips and journeys taken by a working class man and his family outside their normal living area. During the period 1841-1900, he recorded a total of 256 visits to places, taken either by himself or by other member of his immediate family, to other locations, covering a range of distances from Little Ouseburn. These reflect differing stages of his family life cycle, which inevitably impact upon travel patterns.

Frustratingly he rarely indicates the mode of travel for journeys, apart from special trips to Scarborough and to the Great Exhibition in 1851in London by train. The example quoted in the introduction to this paper is one of the few entries where rail travel can be directly implied because of the route. Thus the visualisation aspect of the GIS tool is helpful in guiding assumptions of likely modes of travel. His village was three miles north of the railway line between York and Knaresborough, which opened in 1848. The nearest new station was at Cattal, a small village three miles away. This linked Little Ouseburn to lines to York, Scarborough, Leeds, London and Scotland. To the east of the village ran the York, Newcastle and Berwick Railway (which had opened as the Great North of England Railway in 1841). Five miles to the north west of the village lay Boroughbridge, where the railway link to Pilmoor on the York, Newcastle and Berwick Railway line was opened in 1847. A further line from Boroughbridge south west to Knaresborough did not open until 1875.

Despite the above network of rail links developing around Whitehead's village, there is little evidence of a developing relationship between family travel and rail links. Figures 3-6 clearly show that his journeys were more efficiently made by road. As Whitehead was a wheelwright and part-time farmer the family had access to wheeled transport and horses which afforded carrying capacity for complex journeys. Interestingly there is little evidence that rivers were a barrier to mobility. The use of the GIS helps to illustrate that the places the family visited were directed by family links or were to events in rural places. Importantly these were usually 'against the grain' of the railway network, which generally linked larger market towns and cities, stopping at villages en route if they were on the line. This inevitably made train travel uneconomic in time and expense for many regional journeys.

5. Conclusions

The Whitehead family were surprisingly mobile even in the 1840s. Their level of travel mobility appeared to decrease with age rather than increasing with new forms of transport. From the evidence it appears that the family made use of the developing train network on very few occasions, favouring roads and wheeled transport.

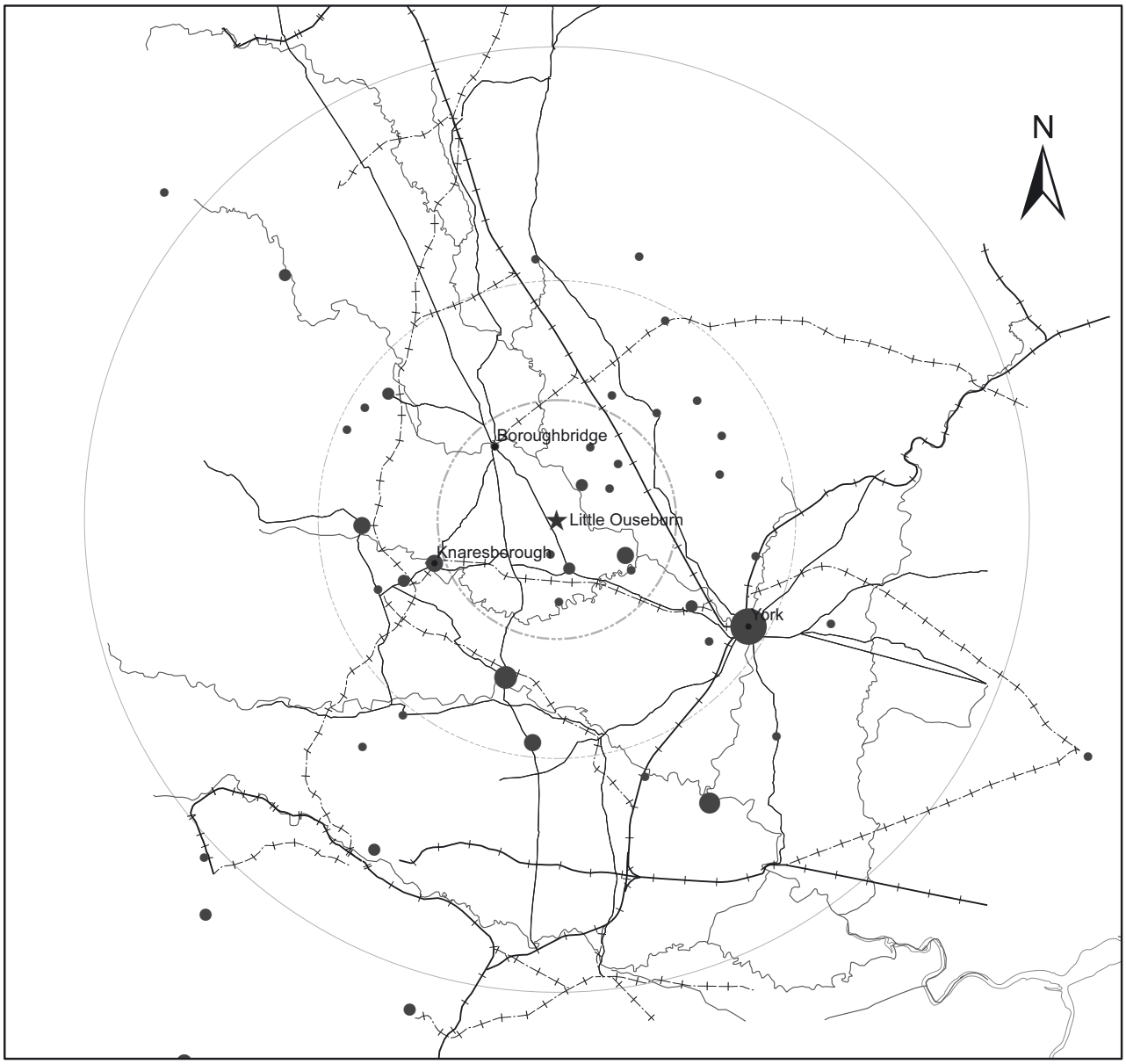


Figure 3. Places visited by the Whitehead family within a 24 mile radius of Little Ouseburn, 1841-55

Key

Rivers

Main roads

6 mile zone around Liitle Ouseburn

12 mile zone around Little Ouseburn

24 mile zone around Little Ouseburn

Places visited 1841-55

1 5 10

railwaylines open by 1846

railwaylines open 1846-55

0 3 6 12 Miles

Settlements from Bartholomew data, (c)HarperCollins Publishers, used with permission. Railway lines, roads, rivers and stations are digitised from the AHDS HDS Historic Parish Boundaries data: Roger J. P. Kain and Richard R. Oliver, 2001, Historic Parishes of England and Wales, Colchester, History Data Service.

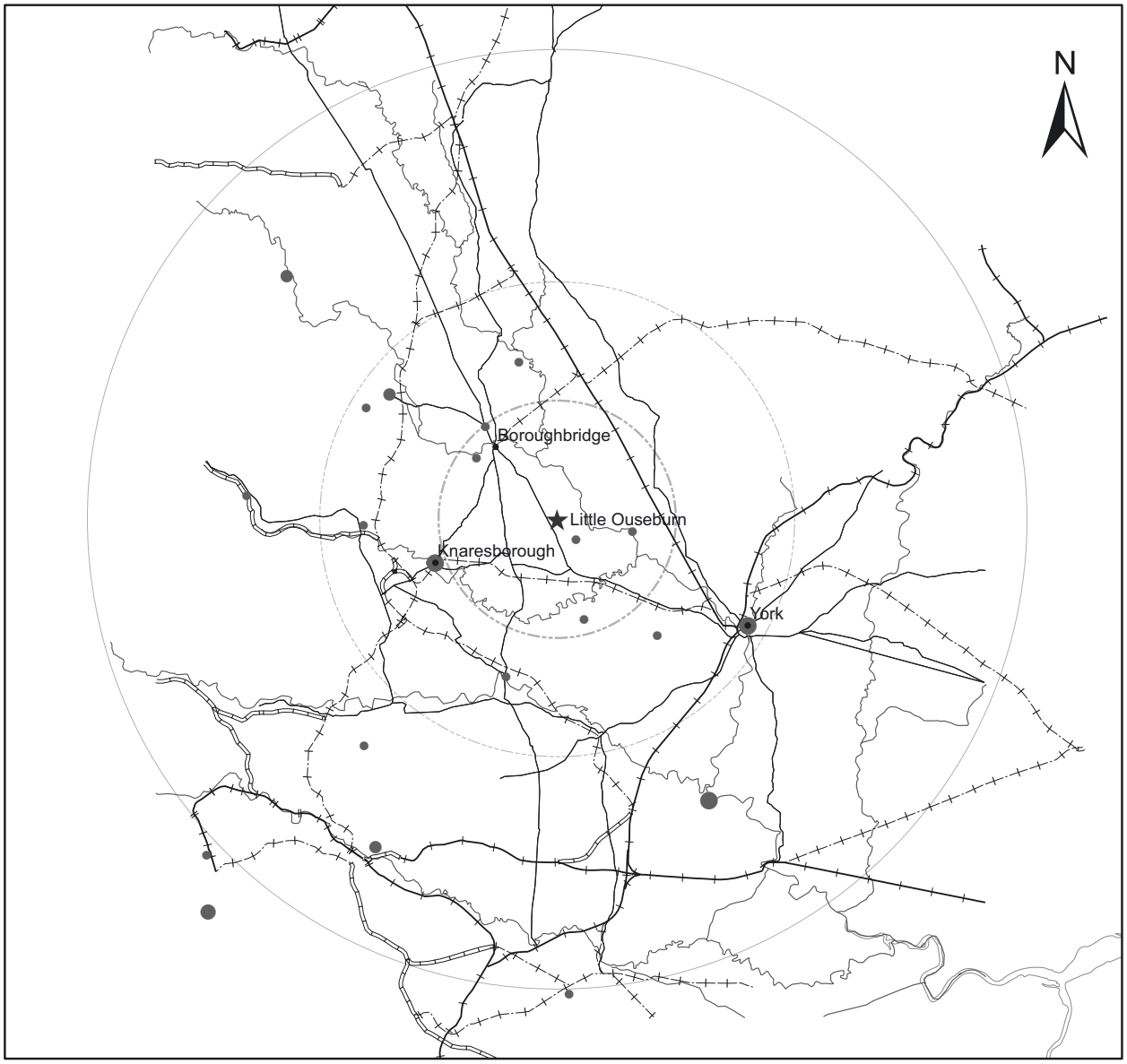


Figure 4. Places visited by the Whitehead family within a 24 mile radius of Little Ouseburn, 1856-70

Key

Rivers

Main roads

6 mile zone around Liitle Ouseburn

12 mile zone around Little Ouseburn

24 mile zone around Little Ouseburn

Places visited 1856-70

1 5 10

railwaylines open by 1846

railwaylines open 1846-55

railwaylines open 1856-70

0 3 6 12 Miles

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Figure 5. Places visited by the Whitehead family within a 24 mile radius of Little Ouseburn, 1871-1885

Key

Rivers

Main roads

6 mile zone around Liitle Ouseburn

12 mile zone around Little Ouseburn

24 mile zone around Little Ouseburn

Places visited 1871-85

1

5

10

railwaylines open by 1846

railwaylines open 1846-55

railwaylines open 1856-70

railwaylines open 1871-85

0 3 6 12 Miles

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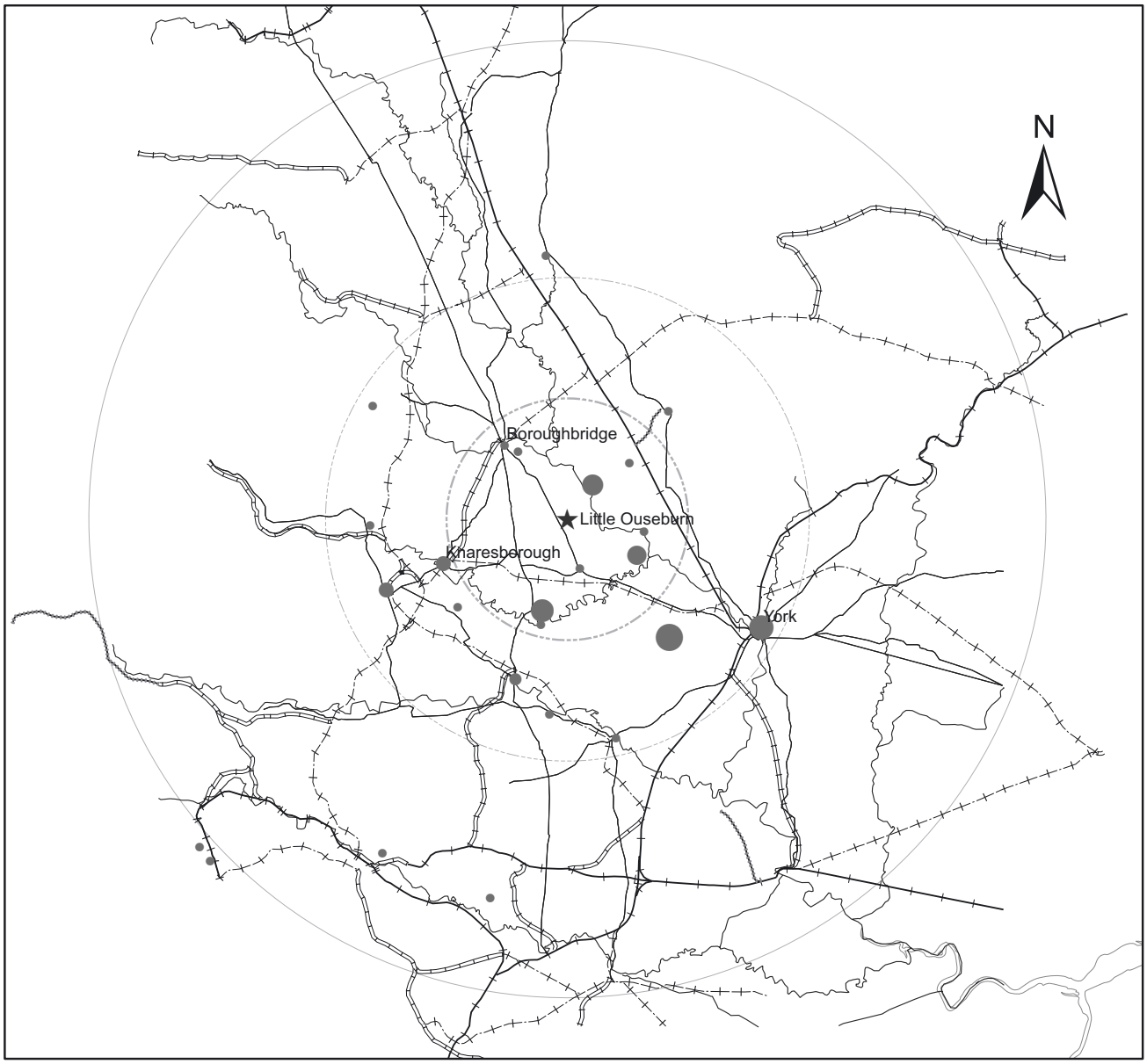

Figure 6. Places visited by the Whitehead family within a 24 mile radius of Little Ouseburn, 1886-1900

Key

Rivers

Main roads

6 mile zone around Liitle Ouseburn

12 mile zone around Little Ouseburn

24 mile zone around Little Ouseburn

Places visited 1886-1900

1

5

10

railwaylines open by 1846

railwaylines open 1846-55

railwaylines open 1856-70

railwaylines open 1871-85

railwaylines open 1886-1900

0 3 6 12 Miles

Settlements from Bartholomew data, (c)HarperCollins Publishers, used with permission. Railway lines, roads, rivers and stations are digitised from the AHDS HDS Historic Parish Boundaries data: Roger J. P. Kain and Richard R. Oliver, 2001, Historic Parishes of England and Wales, Colchester, History Data Service.

This study has been able to take advantage of an unusual source to shed light on a topic which features rarely in mobility literature, for lack of evidence. The use of the GIS tool for this small scale localised historical study has given the research a perspective which clearly shows the relationship of a component of mobility activity to transport networks available at the time. It demonstrates the utility of a GIS tool for a historian, with appropriate support and guidance. Once the data is in place then many further questions can be asked, using the analytical tools available in the GIS.

Acknowledgements

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Biography

Susan Major is in her first year as a part-time PhD student with the Institute of Railway Studies and Transport History at the University of York, having recently completed a research masters there.