

Figure 1. Location map of Thorne Moors and Hatfield Moors.

1. INTRODUCTION

1.1 The location and nomenclature of Thorne Moors

Thorne Moors, until recently a peatland exploited over at least eight centuries, is now a part of the Humberhead Peatlands National Nature Reserve. Although originally located wholly in Yorkshire, past boundary changes have dictated that the eastern part is transferred to Lincolnshire. Thorne Moors lies at the heart of the flat, very low-lying region known as the Humberhead Levels, in the southern part of the Vale of York. It is close to the confluence of the rivers Ouse and Trent, in an area at or below the current high water mark in the nearby Humber estuary. The moorland is situated 15km north-east of Doncaster; and lies to the north-east of Thorne and SSW of Goole.

At its maximum, the peat of Thorne Moors probably stretched over c.4000ha, but centuries of reclamation and peat removal have reduced both its extent and the depth of what remains. Casson (1829) described the peat as extending to a maximum depth of 20ft (6.2m). In the following decade, White (1837) characterized Thorne Moors as encompassing c.6800 acres (2720ha), with Thorne's own "watery turf moor" claiming over 70% of that extent. Today, Thorne Moors amounts to 1918ha, and forms the largest surviving area of raised bog or mire [1] in Britain. The relative scale of survival was well expressed by Lindsay (2000):

There is little dispute that the largest surviving lowland raised bog in Britain, by a considerable margin, is Thorne Moors, on the Humberhead Levels, nor that the second-largest such bog is its neighbour, Hatfield Moors. Given the large scale losses of such habitat in other parts of lowland Britain, it is quite remarkable that these two sites should have survived in their present form and extent to the present day.

The depth of the remaining peat rarely exceeds 2.5m, and is frequently much less. A prehistoric forest lies buried beneath the peat, the paludified tree remains being a serious impediment to the peat industry in recent decades. A detailed account of the peat and its formation is inappropriate here. However, in the years since 2000, several excellent summaries have been published, giving a wealth of information. Useful examples for further reading are Bateman et al. (2001), Smith (2002), Buckland and Smith (2003), Boswijk (2003) and Gaunt et al. (2006).

The surviving parts of Thorne Moors still encompass five contiguous parishes. Besides Thorne Waste, these are Snaith & Cowick Moor, Rawcliffe Moor, Goole Moor, all in

Yorkshire, and Crowle Moor in Lincolnshire (Figure 2). The reclaimed parts of the original moor once comprised additional parish shares of the peat, especially the so-called Marshland parishes to the north-east. Accounts of reclamation include Metcalfe (1960), Robinson (1969), Gaunt (1976, 1987) and Byford (2005). Thorne Waste, lying close to Thorne, the largest peripheral settlement, has long been regarded, in size and position, as the leading parochial component. It still extended over 1588ha in 1848, and even now encompasses over 1309ha, which is almost 70% of the entire moorland today. The term Thorne Moors is applied to the aggregated whole, including the Lincolnshire sector.

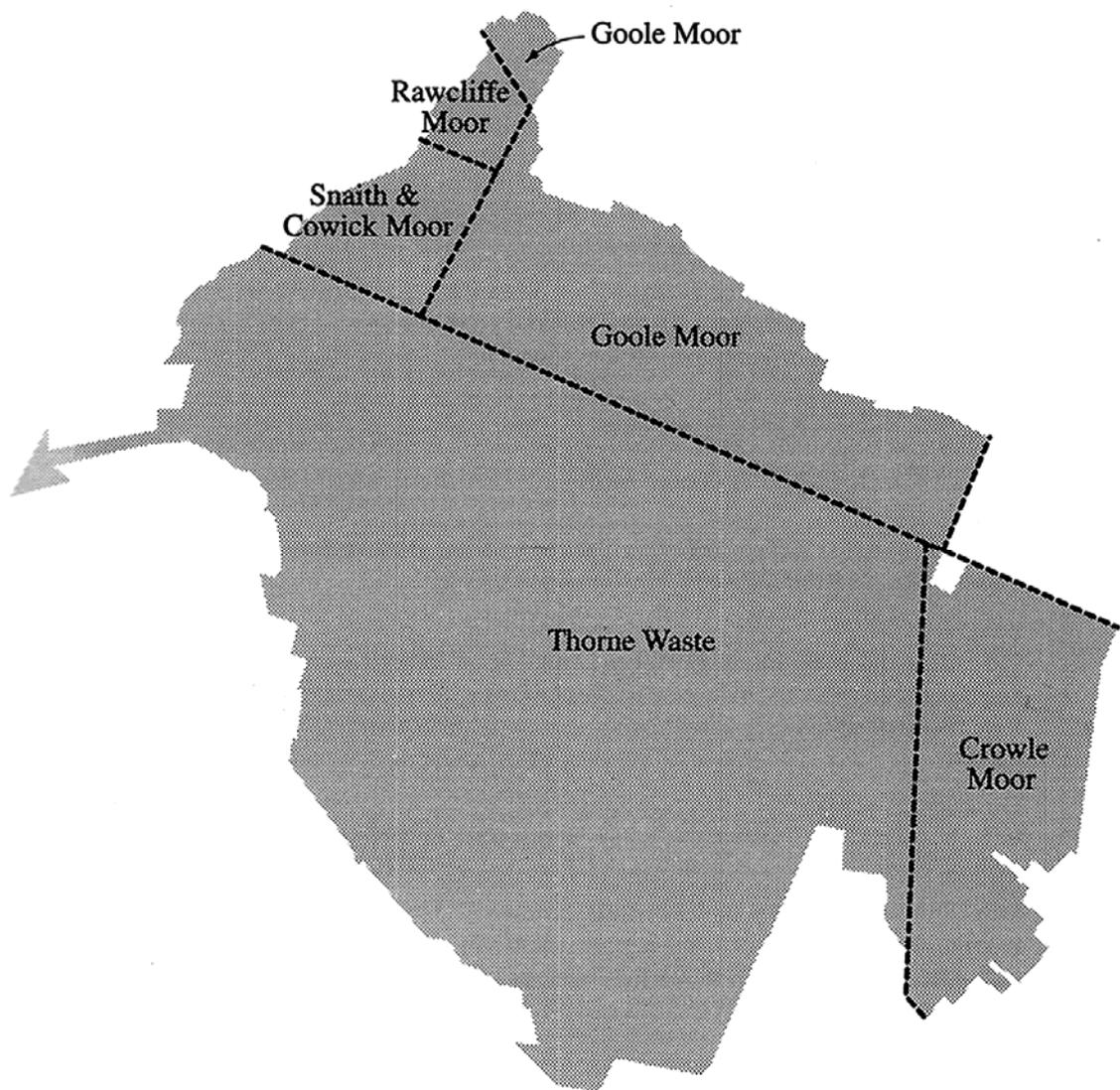


Figure 2. Parish divisions on Thorne Moors, as used in the text.

1.2 Outline of peat exploitation

The oldest evidence of systematic peat cutting in Britain comes from Bronze Age stacked turves on Barra in the Outer Hebrides (Branigan et al. 2002). One of the first references concerns Einar, Earl of Orkney c.890-910, known as Turf-Einar for his use of

peat as a fuel on his treeless archipelago (Panagiotakopulu & Buckland in review). After Barra, the next oldest cut turves in Britain are probably 4th century AD, from a Roman well in York (Hall et al. 1980). It may be speculated whether this peat originated from the York district, or perhaps from Thorne Moors, linked to the city by the River Ouse.

However, like many other peatland areas, there is no firm evidence of peat exploitation on Thorne (or Hatfield) Moors until the medieval period. Here, the earliest evidence concerns a turbary grant on Thorne Moors dated to 1190 (Beresford 1986). The clearance of much woodland in the 12th and 13th centuries increased the importance of peat as a source of heat. Medieval exploitation at Thorne was led by ecclesiastical institutions, and was partly concerned with the export of peat as an unrefined industrial fuel. This was of some regional importance (Beresford 1986, Knowles 1990, Byford 2005). For example, peat was employed to fuel brick kilns in Hull that operated during the period c.1303-1438. On one occasion it was recorded that “three boat-loads of turves” were bought at Ousefleet for firing the kilns (Brooks 1939). The peat was also a domestic fuel, including for monastic use until the dissolution of the monasteries (Beresford 1986). Regrettably, references to early exploitation and usage remain uncollated.

From the 17th century, the trade in Thorne peat as an unrefined fuel became increasingly disadvantaged by the growing availability of coal. Peat had declined to insignificance by the mid-19th century. However, at that time, new usages were emerging, attempting to unlock both the calorific and chemical value of peat.

From the 1880s, a major revival occurred at Thorne as companies were reformed or created to produce horse bedding – moss litter – and other products mostly based on the physical properties of peat. Amongst those companies, of particular note was the involvement of the Anglo-Dutch Griendtsveen Moss Litter Co. Ltd from 1894. Locally, this led to immigration by Dutch *turfgravers*, the temporary imposition of Dutch methodologies, and the creation of a Dutch type peat canal network with imported barges. By 1896, most of the surviving early companies – including Griendtsveen – had united to form the British Moss Litter Co. Ltd. This was restructured and enlarged as a namesake company three years later. However, in the 20th century, the latter’s fortune

was generally one of decline, primarily caused by the eclipse of horsepower and the growth of motorized transportation.

Ultimately, this trend was arrested in 1963, when Fisons Ltd acquired all the share capital of the British Moss Litter Co., and intended to realise the horticultural potential of Thorne and Hatfield Moors. This change was part of Fisons' national pursuit of growth and intensification in the horticultural peat trade. In 1968, the business was formally assigned from the British Moss Litter Co. to Fisons, though the former was not dissolved until 1999, exactly a century after its formation (Limbert & Roworth 2009). Fisons' eventual successors at Thorne were Levington Horticulture Ltd (from 1994) and The Scotts Company/The Scotts Company (UK) Ltd (from 1997). These latter horticultural companies are beyond the scope of this thesis (Limbert & Roworth 2009).

The earliest known pattern of peat winning on Thorne Moors comprised systems of strip ownership, with peat removal working inwards from the margins. Each system of parallel strips was encompassed by parish boundaries, within which peat was harvested manually. This was almost entirely superseded in the moss litter years, being replaced by a mosaic of much larger, non-linear company territories. They were, however, still defined by former boundaries and still dependent on hand-winning. These territories were extended to the whole of the surface, and each was linked to a peripheral peat works. The formation of the British Moss Litter Co. did not alter this overall pattern. It did, however, permanently unite Thorne Moors with the nearby peatland of Hatfield Moors, where an earlier moss litter company had operated until subsumed into the amalgamated company of 1896. Under the moss litter industry, peat haulage on Thorne Moors, previously peripheral, became based on wide-ranging horse-worked narrow gauge rails and the canal system, though the latter was abandoned in 1922.

Mechanisation of peat winning and transportation made its first tentative appearance in 1947, and under Fisons, mechanisation totally transformed the industry, from being labour intensive to becoming capital intensive. The earlier muscle-powered activity involved indigenous and Dutch methodologies, plant and rolling stock. Mechanisation introduced methodologies and machines originating – directly or indirectly – from Britain, Ireland, Germany, Finland and Russia. However, with the Scotts companies, based in Ohio, the hitherto essentially European character of the Thorne industry became markedly expanded by an American influence. Ultimately, the technological

endgame was total automation, though with an acceptance that climate and circumstance were still major factors in levels of success and profitability.

Scotts' exploitation effectively ended in 2001, with all Thorne activity – Crowle Moor excepted – by then a component of the horticultural industry's leading global marketer of branded products and services for lawns and gardens (Limbert & Roworth 2009). The long established binary system of Thorne and Hatfield Moors was maintained throughout much of the period, even seeing a reversal of fortune in the final decades, as Hatfield, with its ultimately more economical peat, became the dominant of the two sites. It then outlasted the Thorne industry by several years.

The old strip ownerships retained most relevance on Crowle Moor, where individuals and very small companies had greater and more lasting significance. This west-east dichotomy was maintained until the cessation of all exploitation. The Crowle case represents an interesting contrast – in scale and approach – with events over the border in Yorkshire. This juxtaposition therefore forms a useful comparison of widely different ways of exploiting the same resource. In addition, the former strip system of ownership and peat winning over the whole of Thorne Moors ultimately survived only on Crowle Moor. However, it still remains more widely recognizable as a landscape feature in field patterns around the remaining peat. The very last peat exploitation on Thorne Moors ended with the cessation of a small Crowle company in 2003, and its dissolution in 2007 (Limbert & Roworth 2009).

1.3 Industrial archaeology

With the demise of the Thorne peat industry, its entire range of surviving evidence is now finite. This includes contemporary published references, archives, photographs and other media, oral history and the physical remains. Evidence on the ground, of any date, has comprised peat workings, transport webs, buildings, plant, rolling stock and artefacts. Apart from some archives/photographs, there has been only fitful interest in deliberate preservation, and the evidence on the ground in particular can quickly disappear or be destroyed. With the above exclusion, known preservation amounts to a number of locomotives [2], some manual tools [3], and the results of the Thorne & Hatfield Moors Oral History Project [4]. Railway specialists had an interest in the Thorne Moors narrow gauge whilst an active system, culminating in the book by Booth (1998). However, with this exception, the site has had a relatively low profile for

industrial historians. A recent guide to industrial history in South Yorkshire, published by the Association for Industrial Archaeology (Bayliss 1995), failed even to mention peat. A good example of such neglect is the minimal amount of interest shown in the former Dutch canal system, despite its uniqueness in Britain. Although very occasionally referred to in print (e.g. Goodchild 1969, 1971-73, Hadfield 1973, Marren 1994), long after the demise of the network, the significance of the canals and their barges in Britain was not stressed. Much of the overgrown system survived intact through the 1980s, but only sections of it remain today.

Some industrial activities and crafts produce a wide range of waste materials that survive well in the archaeological record. Others often leave very few traces apart from the finished artefacts, and are consequently rather difficult to interpret. Peat cutting hardly figures at all, leaving no waste, or artefacts that will survive except by chance. The survivals, if at all, comprise tools, plant, routeways and, significantly, like other extractive industries, an impression on the landscape. However, with peat cutting this latter may be relatively ephemeral and subtle, and even overlooked.

It is important to recognize the effects of peat exploitation, and that “abandoned areas may have positive value as a derelict industrial landscape” (Wheeler & Shaw 1995). It has been noted that “hand graving (extraction) of peat is as much a part of the industrial heritage as coal mining and its last traces are rapidly being destroyed, unrecorded, by surface milling” (Eversham et al. 1995). These same authors contrasted the recording of surviving remains in Somerset with the lack of such treatment in the Humberhead Levels. The evidence of industrial premises represents an important adjunct to the linked workings on a bog. On peatlands, the interface between nature conservation, palaeoecology and archaeology can present potential conflicts, which may require liaison, cooperation and compromise (Johnson 1995, Middleton 1995). A case-study from Thorne in the 1990s provides a wide-ranging example (Whitehouse et al. 1998).

Throughout Britain, the demise of peat exploitation, at all levels from subsistence to industrial, is leading to the loss of knowledge, techniques and skills. Documentation of all possible aspects may be seen as a current priority for industrial archaeologists and social historians.

The industrial legacy of Thorne Moors represents the outcome of an economic activity fixed by its concentrated raw material and adapted to local circumstances. This, as an integral part of the landscape and of site/regional history, deserves to be recognized and considered. There is no reference to industrial archaeology in the *Thorne Moors Draft Archaeological Management Plan*, compiled in 2003 [5]. The *NNR Management Plan 2007-11* [6] includes industrial archaeology, briefly addressing both peat workings and artefacts/buildings. Under ‘1.6 Cultural Features’, following the somewhat alarming statement that “all recent archaeology has been removed by peat cutting”, it is noted that “remaining examples of...different types of [peat] exploitation are an important part of the historical record of the area”. Section ‘2.4.2 Landscape and Cultural Objectives’ includes amongst its targets: “21. To determine the value of retaining for industrial archaeology examples of artefacts demonstrating earlier uses of the NNR, including (in the short-medium term) a representative area of cut-over raised mire”. In section 3.1, Objective 8 includes the following details:

- “The industrial archaeology value of the NNR will be reviewed in conjunction with English Heritage, and a plan for its conservation developed. Appropriate actions will be taken to ensure the conservation by appropriate bodies of any historic objects found”
- “Built structures remaining from earlier land uses will be identified and catalogued. Locations of such structures will be mapped and the map made available for informative and educational purposes”
- “Examples of the different peat-cutting patterns used on the NNR will be identified and catalogued in suitable locations for study. Good examples of the different peat-cutting patterns of the NNR will be mapped”

In the absence of a response from Natural England, it has to be assumed that none of these three aspirations had been achieved by the end of 2010.

Thorne Moors can contribute to the wider documentation of peat exploitation, and be placed within a British context. The present thesis, and the modern study by Limbert and Roworth (2009), provide a Thorne summary available to researchers attempting a national synthesis. Similarly, those with a thematic interest in the British peat industry – an approach previously only taken up by railway specialists (Hall et al. 2001) – now have usable Thorne information suitable for a range of subjects.

1.4 Future work

The purpose in writing this thesis has been to present methodologies of peat winning/transportation from Thorne Moors during 1626-1963. These have been written against a contextual history of peat exploitation on Thorne Moors. Realistically, there is little that can be done to extend the documentation of methodologies. Archives and published items may add extra detail, and there is still some scope for the interviewing of former employees.

However, in looking at the Thorne example more widely, and over a longer time-frame, the opportunities for future work are much greater. There are several basic elements to an outline of future research needs for Thorne Moors, as follows:

1. Information about peat exploitation before the regional drainage of the 1620-30s remains uncollated, except for the influential study by Beresford (1986). An account of surviving evidence of the medieval and post-medieval peat trade would be a valuable contribution to site, regional and economic history.
2. For the period from the 1620s onwards, increased understanding of peat exploitation is to be encouraged. For the years before the establishment of the moss litter industry, there is potentially much unexploited or under-exploited information in archives, these as varied as probate inventories and enclosure awards. Thus investigation is possible of ownership/usage of moorland allotments and turvings, both spatially and in time.
3. There has been recent research by specialists into aspects of the Boating Dike, and also other 'boating dikes' in the Thorne district. Peat conveyance was integral to these waterways. In time, a much better understanding of their origins, and usage as navigable waterways, will become available. New information will contribute to the ongoing work of interested specialists.
4. For the moss litter industry, a fuller appraisal of surviving company archives is required. In parallel, much greater use of newspaper references is desirable (see 6 below). In this thesis, the historical account of the moss litter companies must be regarded as only interim and incomplete, with the above and other sources exploited in only a preliminary way. This is because research continues by the writer on the moss litter industry (and also on the linked subject of local peat coke and distillates).
5. The social history of peat workers and their families during the final decades remains a wide open, but diminishing, field. Additionally, interest from The Netherlands will add new information about the immigrant *turfgravers*. Archival

sources include parish registers e.g. the Whitgift registers are said to contain references to peat cutters (Richardson 1981). Similarly, census returns remain to be examined e.g. from Thorne, the 1851 census includes a 13 year old boy listed as a “Turf Brarer [Bearer]” (Doncaster Society for Family History 1985). The census returns for 1901 and 1911, coinciding with the Dutch immigration, would benefit from detailed examination.

6. A specific information source is local newspaper files. Although the *Doncaster Gazette* and *Goole Times* have been looked at in some detail by the writer and others, the latter has not been checked for 1920-63. Similarly, the *Doncaster Chronicle* has only been perused up to 1903. Other local newspapers have been visually scanned to varying degrees. The *Goole & Marshland Gazette* (1854-73) and *Goole Telegraph* (1875-79) have been examined in their entirety. Conversely, the *Crowle Advertiser* and the *Epworth Bells* remain totally unexploited.

1.5 Notes

[1] A raised bog or mire is a dome shaped peatland that has its water level above that of the surrounding mineral soil due to its moisture being fed only by the atmosphere

[2] Cliff and Doreen Lawson of Tring have preserved nine of the locomotives formerly employed on Thorne and Hatfield Moors (*Industrial Railway Bulletin* 574: 3; 666: 4; Industrial Railway Society 2000). All have been repainted, regauged and put in full working order

[3] There are several owners of manual tools, but the only collection is that of Doncaster Museum Service, with the following held:

Dutch type: graving barrow (plus replica), stikker (plus replica), stikker (no shaft), oplegger (three?), oplegger ‘bit’

English: graving knife (two), fork (no shaft)

[4] The idea of the Thorne & Hatfield Moors Oral History Project was born from the work of the Humberhead Levels & Moors Partnership; it was led by English Nature/Natural England, and paid for by the Heritage Lottery Fund (£41,200). The Project itself coincided with the cessation of local peat extraction by The Scotts Company (UK) Ltd. A promotional leaflet observed that it was intended to “help to celebrate and understand the heritage that has developed from the peat mining and other activities in the area and preserve it as a permanent record”. The resultant compact disk was published in June 2007, together with an illustrated booklet of extracts from some of the contributors. The full archive of voice recordings and transcripts is deposited in local libraries (including the Local Studies Library, Central Library, Doncaster), and in the North Lincolnshire Sound Archive, North Lincolnshire Museum, Scunthorpe

[5] One of a number of such plans originating from the 'Heritage Management of England's Wetlands' project at the Department of Archaeology, University of Exeter. It was produced for the former English Nature, and can be accessed at <http://www.sogaer.ex.ac.uk/archaeology/research/hmew/Thorne.pdf>

[6] Natural England Humberhead Peatlands NNR Management Plan Disc V1.0, the text document being 'TK 07-09-11 NNR Management Plan', dated 11 September 2007