

Warping and parliamentary enclosure: the example of north-west Lindsey, Lincolnshire*

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Abstract

Warping was the practice of letting turbid river water flood onto arable land, so that its suspended sediment could settle to form a fertile layer, before letting the water drain away. In this way poor soils were covered with fine silt, and their rentable value was increased. A necessary precursor to warping was enclosure by private or parliamentary means, as this would establish ownership of land, enable its demarcation into 'warpable' areas and provide the opportunity to make space for warping drains. Little has been written on warping and enclosure but this article suggests that in areas of poor low-lying land adjacent to the Trent in north-west Lindsey, the desire to use the technique was a principal driver to parliamentary enclosure.

The spur to parliamentary enclosure, while normally including an expectation of increased rents, usually embraced a combination of one or more additional reasons, which depended on local circumstances. The catalyst to action was sometimes a change in ownership and the arrival on the scene of a fresh personality who was more open to the idea of change. Perhaps a reason for an act was to make legally secure schemes involving the swapping of lands and the abolition of tithe. In some places enclosure may have been seen as a good way to mitigate the cost of the poor to the parish, by arranging allotments of land which would fund the poor rate; in others the requirement to preserve mineral rights, or have them confirmed, may have been a significant motive.

Because of its geographical rarity, however, the notion of warping being the reason for parliamentary enclosure has been overlooked by agricultural historians.¹ Warping, the technique of agricultural improvement where river water is allowed to flood onto land so that its suspended sediment might settle and form a layer of silt, before letting the water drain away, is only appropriate for certain terrains, but is particularly suitable for the area of low-lying land where the rivers Trent and Ouse fall into the Humber estuary.²

This article suggests that warping was a principal driver of parliamentary enclosure in

* I am grateful to Professor J. V. Beckett for his constructive comments on an early draft of this article.

¹ But see David Hey, 'Yorkshire and Lancashire', 1850–1914 (2 vols, 2000), I, p. 387. In J. Thirsk (ed.), *The Agrarian History of England and Wales*, V, 1640–1750 (2 vols, 1984), I, p. 79; B. A. Holderness, 'East Anglia and the Fenlands', in E. J. T. Collins (ed.), *The Agrarian History of England and Wales*, VII,

² Warping was also carried out in the Somerset Levels from about 1780. M. Williams, *The draining of the Somerset Levels* (1970), pp. 176–7.

some of the parishes bordering the Trent in north-west Lindsey and, in doing so, adds to the multiplicity of motives for enclosure in different areas of the country.

I

The canalization of the old river Ancholme, the draining of its valley and the consequent enclosure of some of the townships along its banks, can perhaps be attributed to lessons learned while watching, across the river Trent, the transformation of the Isle of Axholme by Vermuyden and the Dutch adventurers.³ The influence of the Dutch on English farming had been long-lasting and extensive, from the design of windmills and barns to that of agricultural drainage systems. Arguably their most important innovation was the introduction of turnips and clover into the arable rotation, but there were other novelties as well; fodder carrots, cole and madder were introduced, with varying degrees of success.⁴ It does *not* seem however that warping can be included in the list, and the technique does not appear to have been practised anywhere in the Low Countries. This is not too surprising since, because of the topography, Dutch engineers were constructing embankments and great sea-dikes and sluices and, in general, pumping water by one means or another from one level *to a higher level*. Warping would have seemed alien to them.

Thirsk stated that 'Dutch and Flemish settlers had improved much of the new land of the Levels [of Hatfield Chase in the 1620s] by warping'.⁵ It is not certain however that the word is being used, at this early time, in its later sense, and it may simply mean that the settlers had discovered that the land was more fertile after a winter flood had deposited sediment. Lord Ernle asserted that 'warping was brought from Italy to the Isle of Axholme in the eighteenth century, and by its means the deposits at the estuary of the Humber were converted into "polders"', using the Dutch word for land reclaimed from the sea.⁶ In 1831 J. C. Loudon described a similar process that had been seen in Tuscany:

The Italian process called *colmata* is nothing more than a variety of the British process called warping. In the Val di Chiana in Tuscany, fields which are too low are raised and fertilized by the process called *colmata* which is done in the following manner: The field is surrounded by an embankment to confine the water, the dike of the rivulet is broken down so as to admit the muddy water of the high floods ... This water is allowed to settle and deposit its mud on the field. The water is then let out into the river at the lower end of the field by a discharging course called *scolo* and in French, *canal d'écoulement*.⁷

Rather than try to ascribe a foreign origin to the practice of warping, it seems more likely that it was founded on the repeated observations of a natural occurrence. The spring tides regularly

³ For a recent study of Vermuyden's work in the Isle of Axholme, D. Byford, 'Agricultural change in the lowlands of south Yorkshire with special reference to the manor of Hatfield, 1600–c.1875' (Unpublished PhD thesis, University of Sheffield, 2005), I, ch. 3.

⁴ G. E. Fussell, 'Low Countries' influence on English farming', *English Historical Rev.* 74 (1959), pp. 611–22; D. Neave, *The Dutch connection: The Anglo-Dutch*

heritage of Hull and Humberside (1988), *passim*.

⁵ Hey, 'Yorkshire and Lancashire', p. 79; For a chronology of warping around Hatfield, see Byford, 'Agricultural change', II, ch. 8

⁶ Lord Ernle, *English farming: Past and present* (1912), p. 114.

⁷ J. C. Loudon, *An encyclopædia of agriculture* (1831), p. 330.

overflowed the banks of the rivers, and deposited rich, fertile sediment or 'warp', and this led in time to warping being done in a controlled manner with embankments and sluice gates.

Some credit for this should be assigned to the Dutch. The inhabitants of the Ancholme and lower Trent wetlands will have seen the methods of Vermuyden's adventurers and learned how to make effective banks and sluices and generally manage the hydrology of the landscape in a much better way than their ancestors. There was no need to search for a name for the new technique; 'warp' was already used, in local dialect, to mean an accumulation of mud, or the silt that blocked ditches and drains, a sand bank in the river or even a portion of raised ground between two furrows.⁸

The first reliable report of warping, in its modern sense, seems to come in the 1730s from Rawcliffe, about four miles west of the confluence of the Ouse and Trent, where a small farmer called Barker used the technique. A few years later, in 1743, Richard Jennings, from the neighbouring village of Airmyn, was warping on a greater scale.⁹ Further references to the practice cannot be found until George Rennie's *General view of the agriculture of the West Riding of Yorkshire* in 1793, and other reports to the Board of Agriculture.¹⁰ By 1799 Arthur Young was able to give a detailed description of warping in north Lincolnshire.¹¹ Most modern accounts of the process are based on a paper published by Ralph Creyke, as late as 1845, in the *Journal of the Royal Agricultural Society of England*.¹² This explained to a national audience a practice that was apparently little known outside the lower reaches of the Trent and the Yorkshire Ouse.

Warping was particularly suited to this part of the lower Trent basin, as the high tides of the river, when combined with the low-lying situation of the fields to be warped, made the practicalities of the process relatively simple. The warping process covered the unproductive peaty and acidic soils, the sandy soils and the heavy clay of the area with light, well-draining silt. The fertility of this deposited silt was in part due to the quantity of raw sewage that was discharged into the river from the many towns within the Trent's vast catchment area. Warping was expensive as specially made sluice gates had to be built, and embankments with sloping sides had to be constructed around the fields in order to contain the water. Water was allowed into the embanked fields during the spring tides through these gates, and when the tide was at its height, the gates were closed. As the tide ebbed, the water was allowed to escape slowly back into the Trent, having deposited most of its mud on the surface on the enclosure in which it had been penned. The result was a perfectly flat field, and if warping was carried out, during the several spring tides, for two or three years, a layer of fertile silt of perhaps a metre or more, would have been laid down.

⁸ J. Wright (ed.), *English Dialect Dictionary* (6 vols, 1898–1905), VI, pp. 387–8; Warping should not be confused with the other form of artificial land reclamation, the deliberate accretion of estuarine alluvium. This involved the construction of embankments to enable the trapping of sediments carried naturally by the waters of the Humber. This type of reclamation was used, for example, from the seventeenth century onwards, to build up the area round Sunk Island Sand between Hull and Spurn Point. M. Dinnin, 'Introduction to

the palaeoenvironmental survey', in R. Van de Noort and S. Ellis (eds), *Wetland heritage of Holderness: an archaeological survey* (1995), *passim*.

⁹ Loudon, *Encyclopædia*, p. 332.

¹⁰ G. Rennie, et al., *General View of the agriculture of the West Riding of Yorkshire* (1793), p. 166.

¹¹ A. Young, *General View of the agriculture of the County of Lincoln* (1799), pp. 276–7.

¹² R. Creyke, 'Some account of the process of warping', *JRASE* 5 (1845), pp. 398–405.

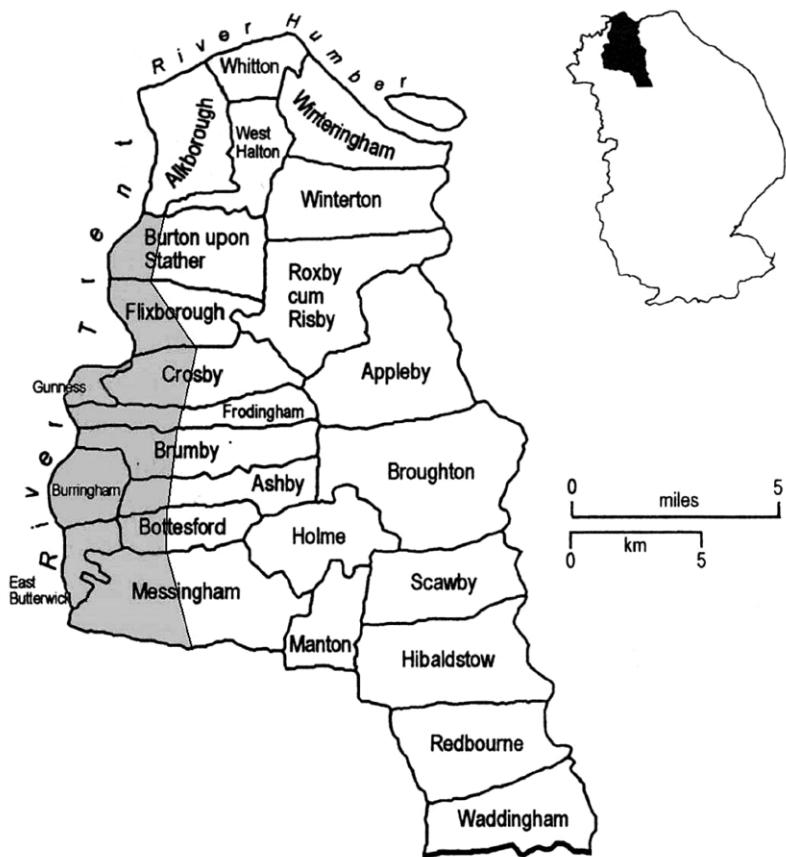


FIGURE 1. The townships east of the Trent in north-west Lindsey and, inset, shown within Lincolnshire – shading to show approximate extent of warping

Source: Based on Nottingham University Manuscripts Dept., BrY4, 'Map of the levels within Manley Wapentake' (printed); 1875

Warping and drainage could not usually be undertaken by a single farmer, unless that farmer had a field immediately adjacent to a river. In that case a drain could be made to outfall to the river, or a sluice gate could be built which would let muddy water into an embanked field. The farmer in this situation however would find himself faced with a considerable expense. If warping and drainage could be incorporated into the parliamentary enclosure process, with numbers of farmers agreeing to share the cost of construction, then the cost would be reduced, and this very important element in agricultural advancement could be implemented.

A number of Trent-side parishes – Messingham, Ashby, Burringham, Frodingham – where warping was associated with parliamentary enclosure, will now be discussed in turn. Finally two parishes – Flixborough and Burton upon Stather, which formed part of the Sheffield family estate, and where enclosure had preceded warping – will be considered.

II

(a) *Messingham*

In 1825 Archdeacon Bayley, vicar of Messingham commissioned a description of the changes that parliamentary enclosure had brought to the village from his curate, John Mackinnon. There is thus a nearly contemporaneous, before-and-after, portrayal of Messingham:

The farmers' houses were of mean construction, built of dirt taken from the street and covered with straw or stubble. The habitations of the poorer people were composed of the same materials, but covered with ling, turf or star-thack ... it contained many acres of land, yielded but little, and that principally rye, which was cultivated for home consumption. Much of the high land being of a sandy nature grew nothing but gorse and ling, which were plentifully stocked with rabbits; these prolific animals must ever be considered the bane of agriculture, and a great impediment to every kind of agricultural improvement. The low lands which were situated between the village and the Trent being of a boggy nature, for want of proper drains produced but little herbage, which gave support to a few sheep and large flocks of geese. Both above and below the town in various parts of the lordship, there were extensive pieces of water, some of them containing many acres; these abounded with various kinds of fish, but particularly in pike and eels, the former weighing from two to twelve pounds.¹³

Before parliamentary enclosure, Mackinnon notes, Messingham had 'three great divisions, the East Common, the Field and the West Common'.¹⁴ It seems that the Field was, as might be expected, sub-divided and 'North', 'South', 'East' and 'West' fields are mentioned in glebe terriers from 1634 onwards.¹⁵ From the lesser number of glebe strips in the East and West fields it is possible that these were smaller than the North and South fields, and were perhaps cultivated as one field on either side of the settlement of Messingham and that, in consequence, a three-field system of agriculture was in operation. As well as the enclosures of 1757 near to the eastern parish boundary, there were more by the river associated with the tofts of East Butterwick township, and a few closes on the northern parish boundary with others to the south of the settlement of Messingham.¹⁶

It was the autumn of 1796 when advertisements first appeared in the *Stamford Mercury* calling interested owners to a meeting at the Black Moor's Head Inn at Gainsborough. This announced the intended enclosure of East Butterwick, together with its neighbouring townships of Ashby and Burringham, and was 'to consider the expediency of the ... inclosure and what terms shall be offered to the lord of the manor and tythe owners'.¹⁷ Nothing more seems to have been heard of this plan for a joint enclosure of lands in the three townships, but in September 1797, again in the pages of the *Stamford Mercury*, a notice was placed that an application was to be made for an act for

¹³ J. Mackinnon, *Account of Messingham in the County of Lincoln* (ed. E. Peacock) (repr. 1881), pp. 8–9.

¹⁴ Ibid. p. 16.

¹⁵ Lincolnshire Archives Office (hereafter LAO),

Glebe terrier bundle, Messingham, 1634 and 1686.

¹⁶ LAO, Messingham Inclosure Award and Plan, PAR CO. 1 (also listed as LAO, Acc. 2007/54).

¹⁷ *Stamford Mercury*, 17 Oct. 1796.

dividing, allotting, draining, embanking, improving and warping the several open and common fields, ings, meadows, pastures, moors, commons, wastes, and other uninclosed lands and grounds within ... East Butterwick and Messingham ... also for making a compensation for the several tythes arising within the said Townships, and for other purposes.¹⁸

A month later proprietors were invited to meet at the Sun Inn in Scotter 'to receive the answers of the tythe owners to the proposals offered to them ... and to consult on other matters relative to the said inclosure'.¹⁹ The notice was signed by Mr William Barnard, a substantial landowner in the parish.²⁰

Negotiations amongst proprietors of land and tithe must have proceeded satisfactorily as in 1798 an act was passed for the enclosure of grounds within the township of Messingham and that part of the hamlet of East Butterwick which is in the parish of Messingham. The area to be enclosed was estimated at five thousand acres. Significantly, though, mention of warping had disappeared from the preamble to the act. This is probably because the proprietors were not willing to commit to the expense of the further improvement of the low-lying parts of the parish.²¹

The Act appointed the three Enclosure Commissioners and also named the Surveyor. All had local knowledge; two of the three, John Renshaw and Samuel Turner, had finished enclosing neighbouring Bottesford in 1797, while the third, Benjamin Codd of Glentworth was to be appointed to succeed John Renshaw and continue the enclosure of Ashby in 1802. The Surveyor, Anthony Bower, had just completed work on the award map of Bottesford and was to start on the Ashby enclosure in 1801, before finishing Messingham in 1804.

The Messingham Enclosure award was signed on 15 December 1804 and stated that the new owners had to ditch and fence their lands within three calendar months of the execution of the award. The 'payment of all tithes and the enjoyment of all rights of common' were deemed to have ended on 13 February 1800.²² No costs are mentioned, but Mackinnon states that the expense of this enclosure amounted to £13,773 13s. 6½d. A document in Lincolnshire Archives, however, gives the higher figure of £15,078 14s. 10d.²³ The award plan shows that, in the former West Common, the Commissioners had laid out five public drains which were to be maintained by the owners of lands in the West Common together with those in the Trent Ings, Carr, and Side Ings. Banks had been built along the courses of the Bottesford Beck, which formed the northern parish boundary, and the tiny River Eau, which formed part of the southern boundary with Scotter, with the aim of preventing those water courses flooding the low-lying lands.²⁴ To the east of Messingham township, two additional public drains had been constructed, to be kept in good condition at the expense of owners who had lands in the former East Common. By the river Trent, the drains were only a part solution to the problem of low-lying unproductive land. While warping is not specifically mentioned in the award, its

¹⁸ *Stamford Mercury*, 22 Sept. 1797.

¹⁹ *Stamford Mercury*, 20 Oct. 1797.

²⁰ Barnard paid 21% of the parish land tax in 1800. LAO, Land Tax Assessments, Manley Wapentake, 1800.

²¹ Lincoln Central Library (hereafter LCL), Messingham Inclosure Act, 1798.

²² LAO, Messingham Inclosure Award and Plan, PAR CO. 1.

²³ Mackinnon, *Messingham*, p. 19; LAO, Misc. Dep. 22/27.

²⁴ LAO, Messingham PAR CO. 1.

undertaking at some time in the near future is perhaps foreshadowed by the appointment of a contractor – Joseph Thackray of Gainsborough – who was to maintain the drains for two years only.²⁵

Six public roads, 40 feet wide, were laid out, together with 12 private roads, and the Surveyors of the Highways were awarded 13 plots of land totalling 13.5 acres, from which material to repair them could be dug. A total of almost 5546 acres had been allotted, nearly 11 per cent more than the 5000 acres estimated in the 1798 Act, and of this, 1131 were Special Allotments (allotments made in lieu of tithes, glebe or manorial rights, and land allotted to the Surveyor of Highways).²⁶

John Mackinnon, curate of the parish, continued his account of the parish and mentioned warping as an operation separate from the enclosure process:²⁷

From this time the state of the Lordship underwent a material alteration, and the village ... to improve. Draining only would have been instrumental in bettering the condition of the lands, but from their proximity to the river Trent, and the lowness of their situation, warping, conducted by Commissioners appointed for that purpose, has been adopted at the expense of about £10 an acre, by which process the lands readily let at 60s. an acre, and bring abundant crops of wheat, beans, and potatoes.

Edward Peacock, the editor of Mackinnon's account of Messingham, thought that his estimated cost of warping was too low, and the yearly rental too high, while Thirsk, in *English Peasant Farming*, commented that:

At Messingham, where nothing is known of the circumstances of the warping agreement, except that it followed enclosure, the cost of the operation was £10 an acre. This was relatively cheap. On an average, the cost was £12–£20, including the cost of the sluice and main drain, but the value of the land was raised from next to nothing to between £60 and £100 an acre.²⁸

The Rev. John Parkinson of East Ravendale, who wrote a diary, in three volumes, of happenings and tittle-tattle in local parishes, recorded the beginnings of warping in Messingham:

11 December 1811. Mr Roadley is warping 200 acres at Messingham; 50 he has warped already; 40 he hopes to complete next year & 90 afterwards. He lays on the warp, as I understood him, near a yard deep ... the land, when made, lets for 50s. an acre. It takes three years to lay such a coat on.²⁹

It seems likely that Mr Roadley, one of the parish's leading landowners, had deliberately caused the warping operation to be separated from the parliamentary enclosure of 1798–1804 so that he could complete the warping of his allotments in the low-lying areas of the parish, in his own time and according to the constraints of his budget. No documentation has been found as evidence for the exact timing of warping, but it seems from Parkinson's comments, as long

²⁵ Ibid.

²⁶ But Turner has 5560 awarded acres, in W. E. Tate, *Domesday of English Enclosure Acts and Awards* (ed. M. E. Turner) (1978), p. 166.

²⁷ Mackinnon, *Messingham*, pp. 19–20.

²⁸ Ibid., editor's note; Joan Thirsk, *English Peasant Farming: the agrarian history of Lincolnshire from Tudor to recent times* (1957), p. 291.

²⁹ LAO, 1 Dixon/16/3, 'Diary notes of the Revd John Parkinson of Ravendale, 1804–26', p. 206.

as five years must have passed, after the completion of the parliamentary enclosure process, before it started. This may be an indication that the fruits of enclosure were not immediate and that several profitable agricultural seasons had to go by, before the task of embanking fields and making sluice gates could begin.

The first edition of the Ordnance Survey map of 1824 shows that the western part of the parish was then in the process of being warped with the North and South West Common drains leading to allotments, some of which were still marked as containing scrub or marsh.

The warping was supervised by a Commissioner appointed by virtue of 'Articles of agreement for warping and improving lands within the parish of Messingham ...'. This supervision evidently went on for many years, and the last mention of the agreement was in 1854, some 40 years after the business of warping began.³⁰ Warping continued for such a long time because, in some areas, especially where the original level was of peat, the land settled. It could settle from three feet above a datum, to one foot, because of this effect. If the original surface had been clay or sand, then the settling would be less. In any case if the settling was only slight, the landowner would be inclined to warp the land again, as the investment in outfall sluice and embankments had already been made. An annual layer of fresh fertile silt from the high equinoctial tide would be welcome after crops had been harvested and, following treatment, the land would be dry enough for ploughing early in the New Year. Warping would continue year by year until the cost of maintaining the sluice and drains exceeded the perceived agricultural advantage.³¹

The work of warping the low-lying land did however remain incomplete, as an angular piece of land known as Butterwick Hales, centred at SE 847062, in East Butterwick township and bordering Messingham township remains un-warped. It is noticeably lower than the surrounding land, has standing water in it throughout the year and is today used as pasture. White's *Directory* noted in 1856 that it was about 60 acres and had been 'purchased by the drainage commissioners ... as a receptacle for water in time of floods'.³²

(b) Ashby

At Ashby, three miles to the north of Messingham, the relationship between warping and parliamentary enclosure was different. The township's territory does not lie on the banks of the Trent but is separated from it by Burringham. Because of this, the act authorizing enclosure had to recite in detail the additional powers that were necessary to enable warping to be carried out. Essentially, provision was made by buying land in Burringham and by allotting space for a warping drain, with an outfall to the Trent, which could be dug when it was needed, or when the Ashby proprietors could afford it.

At the time of the Parliamentary Act of 1801, there were about 320 acres of old enclosures consisting of the tofts and croft of the township, together with the rectangular closes in the West field, which were associated with a 1784 private enclosure agreement.³³ There were therefore

³⁰ *Stamford Mercury*, 13 Oct. 1854.

³¹ The practice of warping over long periods is discussed in BPP 1909 XIV [Cd. 4461] *Royal Commission on Coast Erosion and Afforestation*. II (ii), pp. 108–120, especially p. 118.

³² W. White, *History, gazetteer and directory of Lincolnshire* (1856), p. 603.

³³ LAO, Misc. Dep. 77/16, 'Improvement of lands in the several open arable fields there by sowing of turnips and clover'.

1855 acres of land still to be enclosed.³⁴ Both the lord of the manor and the impropriator were absentees.³⁵ The preamble to the Act of 1801 contained all the usual motives for improvement without mentioning the word 'warping'. Perhaps the term was still little known at that time. Most of the 47 pages of the Act are given over to detailed instructions to the Commissioners; how farming was to be allowed to continue during the enclosure process, how they were to determine which of the land could be improved by drainage and warping, how new highways and footpaths were to be laid out and how some could be closed.

The Commissioners held their first meeting on 3 August 1801 at the Angel Inn, at Brigg. After many meetings, on 24 May 1804 they declared that the award was 'now ready to be ingrossed'. Work on the roads was ordered to be completed by the 11 July. On that date the Commissioners met at Ashby to view the roads, but work was still proceeding so they at once went to Brigg and met there from 11 to 13 July, where they made several small changes to the award. They were again at Ashby and Brigg from 1 to 4 October. At Ashby, the roads and various other building works were examined, while at Brigg further changes were made to the award, including, very significantly, the addition of a clause concerning warping, 'should this become possible'. The enclosure plan of Ashby clearly shows that embankments had been constructed at the low-lying west end of the township and they form its boundaries on three sides.³⁶ The zigzag course of an 'intended warping drain' was drawn on the map but, as noted, for warping to have been possible, the drain would have needed an inlet/outlet to the River Trent, across the fields of the neighbouring township of Burringham to the west.

The Commissioners clearly believed that the enclosure, at least, was approaching its conclusion but there is then an unexplained hiatus of four years before the minutes resume with a meeting at Brigg, on Friday 10 February 1809. At that meeting various bills were paid, a fourth rate of £257 was levied and the Commissioners finally signed the award.³⁷ Everything was ready for the low-lying lands of Ashby to be warped; the embankments had been constructed and room had been left for a warping drain to be dug to link with the Trent, by way of Burringham. The delay in the enclosure process from 1805–9 was almost certainly because the Ashby commissioners were waiting for the Burringham owners to begin their own enclosure, or at least to permit this linking section of the warping drain to be dug. By 1809 the Commissioners had evidently run out of patience with Burringham and they concluded the Ashby enclosure, with the warping for which the Act provided, yet to be started. It was not for some 20 years that the process of enclosure would begin in Burringham, and Ashby could be warped. When it came, it was done privately, by a landowner called Henry Healey, in a programme of improvement that included both drainage and warping.

³⁴ LAO, Brown, Hudson and Hudson, 7/1, Ashby Inclosure and Drainage Act, 1801.

³⁵ The lord was John Julius Angerstein (c.1732–1823), a marine insurance broker and an art connoisseur; the impropriator John Fardell (1744–1805), deputy registrar in the Archdeaconry of Lincoln and Stow. F. Martin, *The history of Lloyd's and of marine insurance in Great Britain* (1971), p. 145, et seq.; *The annual biography and obituary*, 13 (1824), p. 275; C. M. Lloyd, M. E. Finch

(eds.), *Letters from John Wallace to Madam Whichcot, and some correspondence of John Fardell, Deputy Registrar, 1802–5* (Lincoln Rec. Soc., 66, 1973), pp. 45–9.

³⁶ LAO, KR/2/10. There was no need for a fourth embankment, on the eastern margin of the area to be warped, as the ground rises naturally on that side.

³⁷ LAO, BH 7/1, Public notices and Minutes of Commissioners' meetings with four rates levied for the enclosure.

(c) *Burringham*

Burringham is a township by the Trent, of 1450 acres, bounded on the north by Brumby, on the east by Ashby and on the south by East Butterwick. In 1856, William White described it as once being 'a low swampy moor which has been improved by warping upon it the silty deposits of the Trent'.³⁸

As already noted, advertisements had appeared in the *Stamford Mercury* in the autumn of 1796 inviting owners to a meeting at the Black Moor's Head Inn at Gainsborough to discuss the intended enclosure of Burringham, together with its neighbouring townships of Ashby and East Butterwick.³⁹ Although, as already described, Ashby was enclosed in 1801–9, nothing more was heard of this plan for a joint enclosure of lands in the three townships, and it seems to have been abandoned.

Because warping was very costly, it was only practicable where the land to be improved was in a few hands, and where agreement could be reached to share the expense. In 1799 such an agreement was apparently made involving land in Burringham township in Bottesford parish, and in East Butterwick, the adjacent township to the south.⁴⁰ This proposed scheme must also have been abandoned, as nothing more was heard of it either. Achieving a consensus for agricultural improvement often proved difficult, but when the expense of warping and draining is also an issue, agreement will have been even harder and the arrangements may well have foundered on concerns about cost.

Henry Healey is the name particularly associated with the warping of land in the area. He was born Henry Holgate: when his uncle, George Healey died in 1824, he inherited property which was, at the time, said to be worth in excess of £100,000.⁴¹ By the terms of his uncle's will, Henry Holgate was required to adopt the surname Healey.⁴² He seems immediately to have begun a vigorous programme of enlargement and improvement of Healey's estate. He raised over £30,000 by mortgages to acquire additional property, including, in 1834, Ashby Duck decoy in Ashby township, and 350 acres of land which bordered his Burringham property. He was more celebrated however for the construction of the warping embankments and drains which were built in Burringham, a mile or so to the west of his new home. In the 20 years after 1828, he spent an estimated £31,000 on these works. In addition he paid several thousand pounds in compensation to his neighbours when the Healey drain broke on a number of occasions.⁴³ It may be that he overstretched his finances in improving his land in Burringham by warping, as he had sold off his properties in Frodingham and Crosby by 1842.⁴⁴ As he was by far the major landowner in the township, and he had expended such a great amount of money over the years, it seems very likely that it was Healey who finally carried out the warping of Ashby and largely created the drained and warped landscape of Burringham that is seen today.

³⁸ White, *History*, p. 596.

³⁹ *Stamford Mercury*, 17 Oct. 1796.

⁴⁰ John Rylands Library, Manchester, RYCH/3102, 'Articles of agreement between William Hall of Kingston upon Hull, and Thomas Peacock of Northorpe ... under the superintendence of Anthony Bower', 1 Jan. 1799.

⁴¹ Lincolnshire Archives Committee, *Archivists' report* 22, 1 Apr. 1970 – 23 Mar. 1971 (1971), p. 53.

⁴² LAO, 2 TGH 1/4/6, note concerning an entry in *London Gazette* re. change of name, 23 Aug. 1824; A. R. Maddison (ed.), *Lincolnshire Pedigrees* (4 vols, Harleian Soc. 50, 51, 52, 55, 1902–6), pp. 477–8.

⁴³ LAO, 2 TGH 1/31/4/3.

⁴⁴ This was to prove a costly error, as ironstone was discovered on these lands by the Winn family in the late 1850s.

(d) *Frodingham*

The experience in Frodingham, north of Burringham township, was different again. Although permission was given in the 1831 Enclosure Act to warp, it seems that the commissioners had learned their lessons and were no longer willing to wait on the whims and caprices of neighbouring landowners, before being able to undertake warping as part of their duties. Instead, the Act appointed the biggest owner to carry out the warping.

A petition came before the House of Commons in 1831 requesting the enclosure and drainage of the townships of Frodingham parish. The House committee, in approving the petition, seems to have added 'warping' to the wording. Before the bill could proceed, a counter petition from a local landowner, Mrs Sally Smith, was considered and approved, which effectively removed Brumby township from the enclosure.⁴⁵ The Act was passed on 23 August 1831 and allowed 'inclosing, draining and warping' in the rest of the parish of Frodingham.⁴⁶ The Act is conventional until paragraph 66, which states that after the lands capable of being warped had been identified by Commissioners, it would be lawful for Frodingham's leading landowner, Charles Winn, to undertake the warping himself.⁴⁷

A series of subsequent paragraphs laid out in detail the rights and obligations of Winn in carrying out the work. Most importantly, Winn's estate was to be answerable for 'misconduct in the warping'.⁴⁸ Landowners were to be charged by Winn a total of £20 per acre for the work of warping. As soon as an acre of land was embanked and ready for the process to begin, the owners were to pay £10 per acre to Winn. When warping was 'well and effectually completed' as determined by 'engineers' appointed by the Act, the balance was to be paid. Those appointed were not engineers in any modern sense, but were local farmers and landowners who would have experienced warping in their own parishes and would have known what a successfully completed warp looked like.⁴⁹ They must also have been acceptable to all the affected landowners. After successful completion of warping, the Act provided for the appointment of a Warping Commissioner to be paid for by a warping rate, charged on the owners of warped lands.⁵⁰ The warping aspect of the enclosure was therefore taken out of the hands of the enclosure commissioners and placed under the control of the leading landowner, although the act included safeguards for the protection of the smaller landowners.⁵¹ The warping cost is at the top end of Thirsk's estimate of £12 to £20 per acre.

The area encompassed by the act was about 1962 acres, and the award three years later enclosed a little over 1754 acres, so 208 acres had already been enclosed before that time.⁵² The area of 'warpable' land identified in the 1834 award was a little over 504 acres of the low-lying land called the Carrs and Moors in Scunthorpe and Frodingham townships.

⁴⁵ *Journals of the House of Commons*, 86, 1830–1, pp. 45–6, 351, 638, 664.

⁴⁶ 1 & 2 Wm IV, c. 57, An Act for inclosing, draining, and warping Lands within the townships or hamlets of Frodingham, Scunthorpe, and Gunhouse (otherwise Gunnas), all in the Parish of Frodingham in the County of Lincoln, 23 Aug. 1831.

⁴⁷ Ibid., para. 66.

⁴⁸ Ibid., para. 68.

⁴⁹ Ibid., para. 69.

⁵⁰ Ibid., para. 76.

⁵¹ By 1847 an act had been passed (10 & 11 Vict., c. 38, English Drainage Act, 1847) which in effect authorized any person interested in draining and warping his lands, to clear a way through all obstructions, wherever it was worth the expense of the works and the compensation to his neighbours.

⁵² LAO, Lindsey Award/125, Frodingham, Scunthorpe and Gunness Enclosure Award and Plan, 22 Aug 1834; White, *History*, pp. 598–9.

It would have seemed sensible, following the award, to drain and warp the whole of this area immediately, as part of the continuing programme of agricultural improvement, and as authorized by the Act. A notice had appeared in the *Stamford Mercury* just ten days after the Act was published, announcing the intention to drain and warp the lands that were being enclosed;⁵³ and there was an undated plan showing how the area of 235 acres might be warped and laid out, with ditches between owners' plots.⁵⁴ The progress of warping is not clear from the remaining records, but it was not finished until 1847, when the 'engineers' Peacock and Faviell signed a declaration that it had been completed 'as well ... as the situation and level will admit'.⁵⁵

The remaining 'warpable' part of the parish, Brumby West Common, was excluded at this time. It had not been possible to obtain agreement to enclose and warp from the Brumby landowner, Mrs Sally Smith, when the rest of Frodingham parish was enclosed. It was not until 1867 that the area was improved, by which time its owner had become the Earl of Beauchamp, of Madresfield Court, Worcestershire.⁵⁶

III

In some parts of north-west Lincolnshire, the desire to warp the low-lying land was thus an important incentive to parliamentary enclosure, but in two parishes this could not be said to be true, as enclosure had already taken place *before* the new technique became fashionable.

North of Frodingham are Flixborough and Burton Stather parishes, home to the Sheffield family. The Sheffields seem to have been settled in Lincolnshire since the thirteenth century and, by the mid-eighteenth century, had an estate called Normanby, which consisted of the whole of Flixborough parish and the southern half of Burton. In 1778 Sir John Sheffield commissioned John Snape to make plans of the manor of Normanby, the manors of Burton and Thealby in the parish of Burton upon Stather, and a plan of the parish of Flixborough.⁵⁷ Snape's maps shows that nearly all the Sheffield family property had been enclosed by that time.

The Sheffield family had thus been early agricultural innovators and had led the way, in north-west Lindsey, with the enclosures on their Normanby estate. As has been shown, however, in the years that followed it had become the custom to drain and warp the low-lying lands in association with parliamentary enclosure, or as soon afterwards as practicable. This had not happened with the Sheffield's estates as warping had only begun to be a recognized technique in the 1790s.⁵⁸ The family must have looked at their low-lying tenanted land by the

⁵³ *Stamford Mercury*, 2 Sept. 1831, p. 2 col. 4: 'Notice for drainage of lands in hamlets of Frodingham under Act of Enclosure'.

⁵⁴ LAO, Sheff/E/52/2. The area is immediately north of the A18 between Gunness and Scunthorpe.

⁵⁵ LAO, Stubbs/1/249.

⁵⁶ G. E. Cokayne, V. Gibbs, *et al.*, (eds.), *The Complete Peerage of England, Scotland, Ireland, Great Britain and the United Kingdom, Extant, Extinct or Dormant* (2000), II, p. 41; LAO, Lindsey Award/125;

LAO, Lindsey, Brumby award 119.

⁵⁷ North-east Lincolnshire Archives, 524/A/9/2 Flixborough; 524/A/9/3 Normanby; 524/A/9/4 Burton and Thealby. Sir John also commissioned, at the same time, plans of West Butterwick (524/A/9/5) and of the 'Manor of Crosby in the Parishes of West-Horton and Froddingham' (524/A/9/6).

⁵⁸ Plans to warp Morton Carr, north of Gainsborough with sketches of sluices etc, were being discussed in 1796. LAO, 1-Dixon/21/4/1/4.

river and wished that its productivity, and its rentable value, could be increased to equal that of other parishes that had been warped later. Any such talk of warping of the low-lying lands on the Sheffield estates would have been controversial at this stage, as this was tenanted land.

There were talks about the possibility of warping land below Burton Wood in 1827, but nothing seems to have come of them.⁵⁹ In 1835 there had been discussions based upon a paper that examined the possibility of warping 255 acres of land in Flixborough township and 334 acres below Burton Wood *without* the construction of a new warping sluice; instead an existing drainage sluice called Neap Clough would be used. The author of the paper (who was, almost certainly, the Normanby estate manager Robert Barker), thought that £600 could be saved in this way and he thought that '[should] the summer prove tolerably dry, it is possible that the land in question might be raised 18 inches and some of it 2 feet in *one* year, at any rate not more than two years would be required'.⁶⁰ He estimated how much extra rent would be produced by the land after improvement; at Flixborough he thought that rents could increase by 164 per cent and in the fields below Burton Wood by 134 per cent. It was not an easy calculation because as well as the considerable cost of the process itself, landowners would need to accept a much reduced rent from tenants for an indeterminate period.⁶¹

It seems that warping was underway in the years 1840–7, on some of the land at least, and in November 1843, Barker produced a further set of calculations to show its progress.⁶² In 1846–7 a further 69 acres were warped, and the process was completed in 1848–9 when 73 acres were warped.⁶³

A large drain together with a 'cleugh' into the Trent still exist just south of the landing stage at Burton, so it seems that Barker's idea for saving money was not acted upon, and a new warping drain was in fact constructed.⁶⁴ A small amount of land near the 'cleugh' remains unwarped and it may be that one or two of the other smaller owners in Burton Stather were unwilling, or unable, to warp their land for reasons of cost.

The Sheffield family had paid the price for not warping at the same time as enclosure, but by 1850 all the riverside parts of their Normanby estate would have been as productive as those of neighbouring parishes.

IV

Before about 1800 no more than 1500 acres had been warped in Lincolnshire.⁶⁵ Fifty years later the total land improved in this way, alongside the east bank of the Trent from Messingham to Burton upon Stather, amounted to about 7000 acres.⁶⁶ The increase in the value of land

⁵⁹ LAO, Sheff/E/1/27.

⁶⁰ LAO, Sheff/E/5/50 (emphasis in original). In a dry year, the flood water at spring tides carries a higher proportion of solid matter.

⁶¹ LAO, Sheff/E/5/50.

⁶² LAO, Sheff/E/5/48.

⁶³ LAO, Sheff/E/5/55, Land below Flixborough Hill.

⁶⁴ 'Clough' is the outfall sluice of a drain communicating with a tidal river and provided with flood gates

(O.E.D. III [1989], p. 364). The local word for it however is 'cleugh', which is pronounced as 'clue'.

⁶⁵ J. A. Clarke, 'On the farming of Lincolnshire', *JRASE* 12 (1851), p. 371.

⁶⁶ Thirsk, *English Peasant Farming*, p. 291; Lillie identified as much as 9933 hectares (24,545 acres) of warp in the lower Trent valley: M. Lillie, 'Alluvium and warping in the lower Trent valley', in Van de Noort and Ellis (eds), *Wetland Heritage*, p. 122.

was substantial, and had even persuaded the Sheffield family to warp *after* they had privately enclosed their lands earlier.⁶⁷ In most of the area by the river however, enclosure had been a precursor to warping, as it was much more practical to identify the area which could be improved, establish ownership and make space for warping drains and sluices by parliamentary enclosure, *before* the warping process was undertaken.

James Caird provided an account of Lincolnshire farming practice in the middle of the nineteenth century. He recognized the improvements that had been carried out beside the river by the technique of warping:

Peat moss of the most sterile character has been by this process covered with soil of the greatest fertility, and swamps which in the memory of our informant were resorted to for leeches are now, by the effects of warping, converted into firm and fertile fields.⁶⁸

He seems to have misinterpreted the hydrological action by which warping comes about, and believed that the fertile muddy soils which formed the warp came *up* the river from the sea, and were deposited in this manner, as far as thirty miles from the ocean. In reality, the mud came *down* the Trent from central England, and the warping technique was usefully limited to about 30 miles up-river, by the diminishing spring tidal range.⁶⁹

A curious consequence of warping was the disappearance of Will-o'-the-wisp or *ignis fatuus*, the ghostly light sometimes seen at night or twilight over bogs, swamps, and marshes. A correspondent wrote in 1852 to *Notes and Queries*:

Fifty years ago he might be seen nightly dancing over bog and brake; but since the process of warping has been discovered, which has made valuable property of what was before a morass, nearly the whole of the commons between Gainsborough and the Humber have been brought into cultivation, and the drainage consequent thereon has nearly banished poor Will. Any person wishing to make his acquaintance would probably succeed, if he were to pass a night next November, on Brumby or Scotton common.⁷⁰

Brumby west common was not to be improved until 1867, while Scotton common had to wait until 1884–5, by which time, with the complete disappearance of the old marshy landscape and its replacement by a new fertile and productive terrain, 'poor Will' had danced his last.⁷¹

Schemes of water management are almost always associated with parliamentary enclosure, but in the area of north-west Lincolnshire, more advanced techniques were necessary to convert this landscape of tidal rivers and low-lying land to more productive use. In the east of the area, the river Ancholme was tamed by a sluice gate, and enclosure was afterwards

⁶⁷ See n. 30 above: at Messingham the value of warped land was raised to £60–100 per acre from practically nothing.

⁶⁸ J. Caird, *English Agriculture in 1850–51* (1852), pp. 191–2.

⁶⁹ Ibid.

⁷⁰ *Notes and Queries* 5 (1852), p. 574.

⁷¹ *Stamford Mercury*, 12 July 1867, quoted in

R. E. Armstrong (ed.), *An industrial island: A history of Scunthorpe* (1981), p. 20; LAO, Lindsey, Brumby award 119; LAO, Lindsey award 176, Scotton and East Ferry Enclosure Award and Plan, 18 Mar 1885; Byford thought that warping around Hatfield, on the west side of the Trent, may have continued until 1939: Byford, 'Agricultural change', I, p. 279.

worthwhile.⁷² In the west, covering the poor peaty soils by fertile river silt had to be preceded by enclosure. Because of the constructional work involved, drainage and warping schemes were likely to be more expensive than other agricultural improvement. These costs were justified however by the prospects of the increased rents which would come from an end to inundation and greatly increased fertility.

As Beckett has observed, 'it is possible that in their fascination with the enclosure of open fields, historians have overlooked the fact that the general trend of enclosure may have been towards land reclamation rather than reorganization of the arable'.⁷³ Certainly in parishes bordering the lower reaches of the Trent, it does appear that a principal motive for parliamentary enclosure was improving unproductive peaty and acidic soils by replacing them with light, well-drained silt by warping.

⁷² *Journals of the House of Commons*, 31, 1767, p. 66;
LAO, 2-RED/4/8/1.

⁷³ J. V. Beckett, *The Agricultural Revolution* (1990),
p. 37.