

‘An excellent improver of the soil’: Marl and the landscape of lowland Lancashire*

by William D. Shannon

Abstract

In parts of lowland Lancashire almost every field had its marl-pit. Most of these were dug during the eighteenth century, but the history of the use of marl goes back to antiquity. It would appear that, prior to the eighteenth century, marl was mainly dug on the waste, and carted to where it was to be used, primarily to bring new land into cultivation from the mosses, lowland moors and heaths. Later, post-enclosure, and as the cost of carriage became the determining factor, it became the norm instead to dig for marl in the fields in which it was to be spread; although ‘industrial-scale’ marl extraction continued on the wastes, sometimes using railways to bring it to where it was required. Early in the nineteenth century marl began to be replaced by lime and imported mineral fertilizers: but the legacy of marling remains in the large numbers of flooded pits which continue to be such a striking feature of the Lancashire landscape.

The evidence for historic marl-digging is still a distinctive feature of the Lancashire plain. Angus Winchester has described how the district is ‘peppered with literally thousands of pits and ponds’; while a map in Rackham’s *History of the countryside*, showing the national distribution of ponds in the 1920s, highlights the extent to which this was a highly regionalized phenomenon, with just two parts of the United Kingdom where there are more than 16 ponds to the square mile, namely East Anglia – and Central/South Lancashire and Cheshire.¹ Often in the centres of the fields and surrounded by trees, Lancashire’s ponds are not always easy to spot today from the road or footpath. They are not to be seen on the 1:50,000 map; but they are marked on the 1:25,000 maps, are clearly visible on Google Earth, and are particularly striking on the old Six Inch maps (Map 2) and tithe maps. The vast majority of these ponds

* The quotation is from John Holt, *General view of the agriculture of the County of Lancaster: With observations on the means of its improvement* (1794, repr. New York, Augustus Kelley, 1969), p. 112. I would like to thank Professor Richard Hoyle for his helpful comments on an earlier draft of this paper, and also the two anonymous reviewers for their contributions, especially in pointing me at a number of useful references that I had missed.

¹ A. Winchester, *England’s landscape: The North West* (2006), p. 94. For studies of marl pits in other counties, see E. Jeffery, *The marl pits of West Sussex* (West Sussex Record Office Tithe Maps Project, 2008); H. C. Prince, ‘The origins of pits and depressions in Norfolk’, *Geography* 49 (1964), pp. 15–32; Upton by Chester Local History Group, *The marlpits around the Upton area*, www.historyofuptonbychester.org.uk/marlpits.html [accessed 25 March 2019]; O. Rackham, *The history of the countryside* (1986), p. 347 (fig. 16.10); for Scotland, see R. A. Dodgshon, ‘Land improvement in Scottish farming: marl and lime in Roxburghshire and Berwickshire in the eighteenth century’, *AgHR* 26 (1978), pp. 1–14.



MAP 1: Lancashire (pre-1974 boundaries) showing hundreds, and places named in the text.



FIGURE 1: Marl Pit, Elston Lane, Elston, nr. Preston, showing steep sides to left, and approach slope to right and foreground (Photo: author)

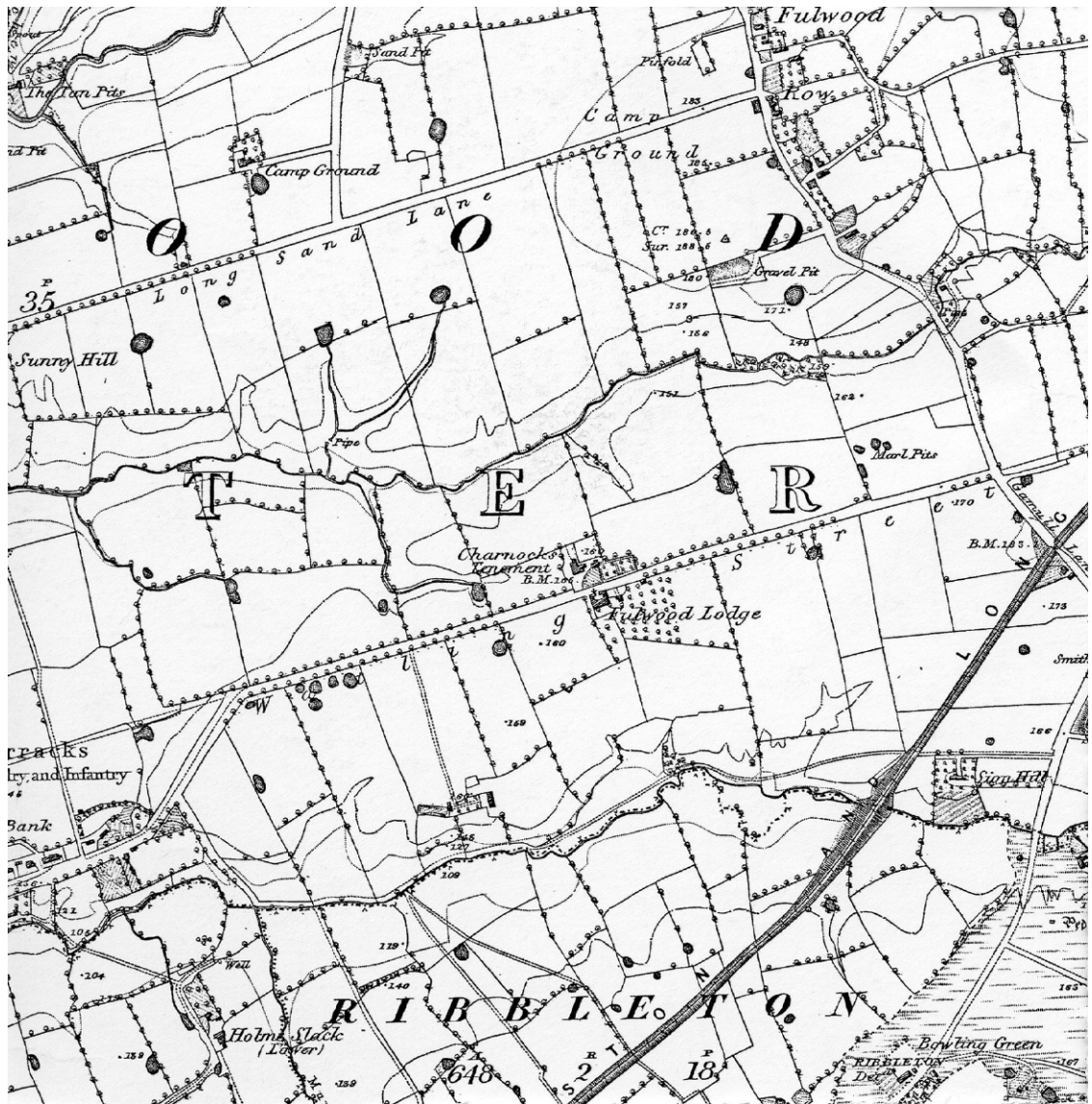
are man-made, yet they clearly perform no role in today's agriculture: indeed as Smith wrote in 1929, 'they are frequently a source of annoyance in arable parts, albeit a useful drinking place for stock'.² As a result, many have been filled in since their heyday: although their shadowy traces can sometimes still be seen in the landscape or in aerial photos/Google Earth.

A few of these pits could just be natural 'kettle holes' left behind when the glaciers melted: but when and why were the rest of them dug? Some might perhaps have originally been dew ponds for watering cattle; yet others perhaps were dug as fish ponds; while there were also sand pits, gravel pits, 'daube pits', or clay pits for brickmaking: but by far the majority of the Lancashire ponds are the flooded remains of 'marl-pits' (Figure 1), and indeed some are still referred to locally by that name. In the past, these pits were claimed to be 'the foundation of the improvements in the agriculture of this county', as the source from which marl, widely regarded as the best of fertilizers, was dug out.³ As such these marl-pits are as important a relic of local past agricultural practices as are the traces of ridge and furrow which survive today, particularly in the eastern and midland counties.

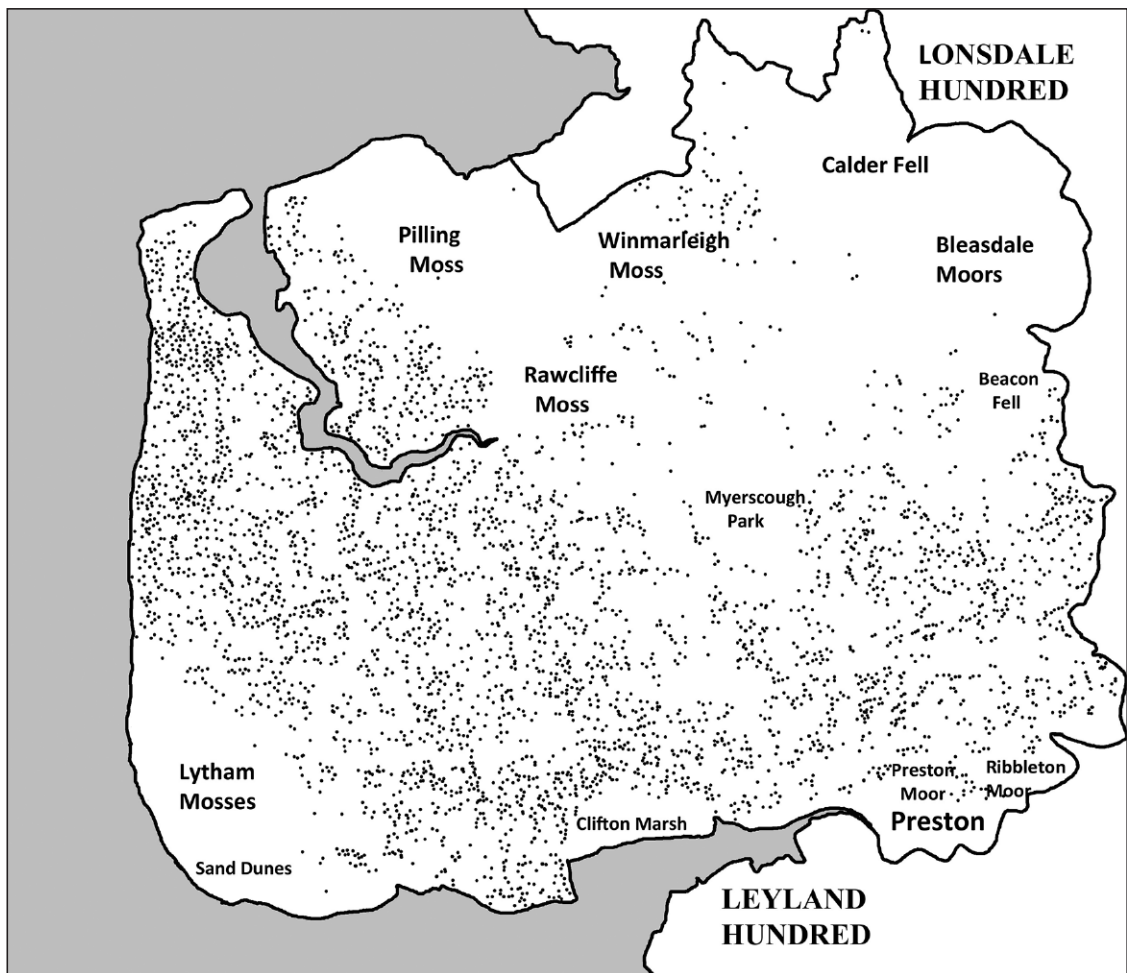
This paper will discuss the changing history and geography of marl extraction and use within the county, from medieval through early modern to the eighteenth and nineteenth centuries. It will explore changing patterns in the getting and using of marl over time, its role in the lives of the people of lowland Lancashire, and its impact on the landscape, then and today. The question as to what marl is, is left to an Appendix. All places named in the paper are shown on the location map (Map 1).

² A. M. Smith 'The soils of Lancashire and Cheshire: Agriculture, 1929), pp. 326–35.
A preliminary study', *J. Agriculture* 36 (Ministry of

³ Holt, *General view*, p. 111.



MAP 2. Extract, Sheet 61, First Edition Six Inch Ordnance Survey, surveyed 1844-47. More than fifty flooded pits can be seen in this one square mile extract showing part of Fulwood and Ribblesleton, north of Preston. The area south of Watling Street as far as the brook, and the area either side of Long Sand Lane were only enclosed in 1815, as part of the Fulwood Forest enclosure: the pits are not shown on the enclosure map, so must post date 1815. The older pits to the south of the brook, in Ribblesleton, would appear to be somewhat smaller than the Fulwood pits. Note that, unusually, four *Marl Pits* north of Watling Street are so named, suggesting they were still active at the date of the survey. Other pits, not flooded, are named as *Gravel Pit*, and *Sand Pit*, whilst the site of a former tannery is named as *The Tan Pits*. (OS map reproduced with the permission of the National Library of Scotland)



MAP 3. Marl Pits in Amounderness. Some 3700 marl pits are shown within the hundred boundaries, taken from the First Edition Six Inch map sheets 35–68. The main districts showing no or few marl pits are named.

I

Lancashire is fortunate in having the earliest Six Inch Ordnance Survey maps in the country, surveyed in the mid- to late 1840s.⁴ Map 3, based on those maps, shows the end product of centuries of pit-digging in Amounderness, one of the lowland hundreds of Lancashire, which embraces the district known as the Fylde. Nearly 4000 pits and ponds can be seen within this area alone: in some places almost every field had its own pit. Evidence for the digging of those pits is sparse in the extreme: but the probability is that this widespread dispersal occurred in the eighteenth century, after enclosure but before the coming of the canals and the cheap lime that they brought to the district. In earlier centuries, though, it would appear that the pits were dug, not within or adjacent to the fields upon which the marl was to be spread out, as was the

⁴ R. Oliver, *Ordnance Survey Maps: A concise guide for historians* (1993), p. 11.

case in the eighteenth century, but out upon the waste, whence the marl was carted to where it was to be used. At all times, though, there was a balance to be struck between the location of the pit and where the marl was to be used, as the cost of carriage rapidly exceeded the cost of getting the marl. Perhaps that did not matter when tenants were digging and carting marl themselves from the lord's pit: but it certainly mattered to the eighteenth-century improving landlord. However, despite the obvious long-term economic and other disadvantages, there seems in time to have been what can only be thought of as a 'fashion' for a pit in every field: and it has to be asked whether the return on the effort, coupled with the permanent loss of a small but significant part of the total potential arable land, was ever financially justified in many cases.

The historiography of marl is limited, to say the least. Fussell wrote a very brief paper on the subject in 1959.⁵ The *Agricultural History Review* has been published since 1953: but although passing references to the subject are not uncommon, there have only ever been three papers in this journal with 'marl' in the title, of which the most recent dates from 1994.⁶ Insofar as any academic attention at all has been given to marl, it has been discussed uncritically, or in passing, focusing on its economic impacts, particularly examining the attempts at cost-benefit analyses by the eighteenth and nineteenth century 'improvers' like Holt, the contributors to *Communications to the Board of Agriculture*, or the authors of *The Complete Farmer*.⁷ This, though, is to gloss over the fact that for most of its long history, marl was applied exceptionally, not as part of the routine agricultural cycle. The men that applied it, did so in the *belief* that it worked, in the same way that they believed blood-letting worked. Its digging and spreading were occasions for little rural ceremonies and celebrations; but its getting could also be the subject of disputes between or within manors, while marl-digging could also lead to serious industrial accidents. Once dug, and abandoned, the pits acquired secondary uses, as fish-ponds for example: but on arable land, the pit permanently took that part of the field out of production. Over time, pits went from extreme scarcity, dug on the margins, to the point where, in some districts, literally every field had one: and then as cheap lime became available, the abandoned pits became merely a relic of a former age, remaining to this day a feature of the landscape of lowland Lancashire.

II

The first mention of marling in Britain is some two thousand years ago, in Pliny's *Natural History*.⁸ However, Pliny is far from clear as to what he means by *margam*; and the confusion over what exactly marl is, and what it does, is a feature of early modern and later agricultural writers, in part at least conditioned by the fact that each writer tends to describe the marl with

⁵ G. E. Fussell, 'Marl: An ancient manure', *Nature*, 24 January 1959, pp. 214–17.

⁶ M. Thick, 'Sir Hugh Plat and the chemistry of marling', *AgHR* 42 (1994), pp. 156–7.

⁷ Holt, *General view*; various authors, *Communications to the Board of Agriculture* (6 vols, 1797–1808 (esp. J. Rodwell, 'On clay and marle', II, pp. 451–5;

J. Kiddle, 'Clay Marle', IV, pp. 124–5; T. Chatterton, 'Marle', IV, pp. 125–7; J. Willis, 'On Marl, Chalk and Clay', VI, pt I, pp. 31–40); A Society of Gentlemen, *The complete farmer or a general dictionary of agriculture and husbandry*, XI, *Marle* (5th edn, 1807) (unpaginated).

⁸ Pliny, *Natural history*, ed., H. Rackham (1961), V, Book XVII, iv. pp. 29, 42.

which he is most familiar, the word being used promiscuously for anything below the sub-soil which was brought up and spread on the surface, either (or both) to improve the texture or reduce the acidity of the soil. This is discussed in more detail in Appendix I.

Although Walter of Henley (*Le Dite de Hosebondrie*, early thirteenth century) made a passing reference to marl, direct contemporary primary evidence for medieval marling is hard to come by, perhaps inevitably.⁹ Archival material is unsurprisingly patchy in its coverage: thus for example, in the many hundreds of deeds covering all parts of central Lancashire which make up the Hoghton collection, dating from the twelfth to the seventeenth centuries, there is not a single reference to marl, though other products of the waste are mentioned – including turbaries, stone quarries, coal and lead mines.¹⁰ Such early evidence as there is, tends to come from court documents, where there is an inevitable bias, in that a freeholder digging marl on his own land, or a lord ordering digging in his demesne is unlikely to attract the attention of the courts. Nevertheless, such evidence as survives suggests strongly that in the medieval period marl was dug out on the waste, rather than in the fields themselves. The very nature of common fields, which, as Youd first showed, were the norm on the Lancashire Plain in the medieval period would have precluded the digging of marl therein.¹¹

The oldest record we have locally, a grant of 1310 referring to a piece of land in Thornton, near Little Crosby (West Derby hundred), specifically grants the right ‘to take marl (*capere marliam*) in the common for marling (*marliandum*) the said place’.¹² In the same year, there is a reference to a claim against ‘Henry the Marler’ at Ingolhead, Broughton (Amounderness hundred), suggesting that marling was sufficiently widespread at that date to be a profession in its own right: but also perhaps sufficiently unusual as not to be something a farmer did for himself.¹³ In another medieval reference, a lease of 1338 conferred rights on the waste of *Gerlaghside* in Wheelton (Leyland hundred), including pasture, marl and clay (*marla et clay*), and peat.¹⁴

These dates are perhaps significant, in that this was the time when, in the words of Winchester, ‘the cultivated area expanded in the lowlands; inroads were made into surviving woodland as new farms and hamlets were established and “assarting” (clearance for cultivation) took place’.¹⁵

This phase came to an end with the crises of the mid-fourteenth century: and it may be that there was thereafter little widespread call for marl until the early sixteenth century, when new land began once again to be taken in from the waste. In the meantime, again as Youd and Winchester have shown, open fields had become much less common, disappearing through piecemeal enclosure through the exchange of strips to form consolidated individual holdings.¹⁶

⁹ E. Lamond (ed.), *Walter of Henley's husbandry* (1890), p. 30.

¹⁰ J. H. Lumby, *A Calendar of the Deeds and Papers in the Possession of Sir James de Hoghton, Bart, of Hoghton Tower, Lancashire* (Rec. Soc. Lancashire and Cheshire, 1936).

¹¹ G. Youd, ‘Common lands and enclosure in Lancashire’ (Unpubl. MA dissertation, Liverpool University,

1958).

¹² TNA LA DDM/49/12.

¹³ *Victoria County History*, Lancashire, VII, p. 120.

¹⁴ LA DP/397/23/1.

¹⁵ Winchester, *North West*, p. 40.

¹⁶ Youd, *Common lands*, passim; Winchester, *North West*, p. 86–90.

III

The early modern period brought an explosion of books on improvement, notably that of John Fitzherbert, from Derbyshire, whose *Boke of Surveyeng and Improvements* (1523) was critical of those who did not keep up the practice of marling, particularly where plough-land had been abandoned and let to become 'busshy groundes and mossy', saying that 'all other countreis may take ensample at Chestershyre and Lancastershyre, for many of them that have so doone, have made the improvmentes as good as the lande was before'.¹⁷ William Camden (1586) had noted in Lancashire 'the abundance of marle (*margam*), which serveth instead of mucke to enrich their grounds'.¹⁸ John Norden in his *Surveyors Dialogue* (1618) continued with Fitzherbert's trope of abandoned marl pits, 'first found and digged by the providence and industry of our forefathers, and left and lost by the negligence of latter times'.¹⁹ He noted in particular marling in 'Lancashire, Cheshire, Shropshire, Somerset, Middlesex, Sussex, Surrey'.²⁰ Walter Blyth (1652) could not speak highly enough of marl, and recounted some of his own practical experiments, concluding: 'the lands upon which Marle yeelds great Increase is upon your higher Sandy Land mixed or Gravelly ... but strong Clay in my opinion is most unsuitable. But an exact tryall I never made thereof, therefore am not Peremptory'.²¹

In this he was starting, or echoing, the received wisdom which later emerged as a jingle apparently first recorded in 1819:

He that marls sand may buy land
He that marls moss shall have no loss
He that marls clay flings all away.²²

Clearly the author of that jingle had never been to Lancashire, where the vast majority of marling appears to have been applied to clay and moss soils, not perhaps for the *structural* benefits (as implied in the jingle), but primarily for its *chemical* benefits, to reduce the acidity of the soil (see Appendix I).²³

A little earlier, Hugh Plat (1594) had made the first attempt at understanding how those chemical benefits came about, recognizing the close relationship of marl with chalk and lime.²⁴ He recommended searching for it using 'a long Auger or Percer, with several large bittes',

¹⁷ J. Fitzherbert, *Boke of surveyeng and improvements* (1523, facsimile edn, Theatrum Orbis Terrarum, Amsterdam, 1974), fol. xlvi.

¹⁸ William Camden, *Britannia*, London (1586), 506: Translation by Philemon Holland from the 1637 edition, p. 745.

¹⁹ J. Norden, *The surveyors dialogue* (3rd edn, 1618, repr. 1979), p. 222.

²⁰ *Ibid.*, p. 223.

²¹ W. Blyth, *The English improver improved or the survey of husbandry surveyed* (1652), p. 139.

²² *Notes and Queries*, 3rd Series, II, 28 March 1863: reported as having been printed in Evans & Ruffy's *Farmers' Journal*, 3 May 1819, contributed by 'A lord of

a manor' who said it was 'an old saying'.

²³ See W. M. Mathew, 'Marling in British agriculture: A case of partial identity', *AgHR* 41 (1993), pp. 97–110, for a discussion of the way nineteenth-century writers tended to focus upon the structural benefits of marling, in adding body to light soils, rather than upon the chemical benefits of neutralizing acid soils, which was its main purpose in damp, boggy Lancashire.

²⁴ H. Plat, *Diverse new sorts of Soyle not yet brought into any publique use, for manuring both of pasture and arable ground* (1594), pp. 23–4. For discussion of this work, see M. Thick, 'Sir Hugh Plat and the Chemistry of Marling', *AgHR* 42 (1994), pp. 156–7.

looking for the 'right Marle', distinguishable by its 'whitenesse and hardnesse'.²⁵ Somewhat later, Gabriel Plattes (1639), who seems also to have had personal experience of the 'barren mossie ground' of the 'North Countrey', explained 'these fat veines of Marle' as having been formed either in the aftermath of Noah's Flood or, in a theory remarkable for its time, 'that all Land hath once bin Sea, and will be Sea again by turnes in length of time'.²⁶ However, he had little that was practical to say on the subject of its usage.

By contrast the *Memoranda Book of James Bankes of Wigan, 1586–1617*, gives us considerable insight into the practical concerns of an early modern Lancashire landlord, anxious to increase his revenue.²⁷ Thus he recommends to his sons that, should any 'morich [moorish] ground' come to the end of its lease, then they should immediately marl the land in order to increase its value before re-letting it 'so that therby you shall in cress yor Rentes'.²⁸ In particular he advised his sons to 'marle that which was never afor marled', and, in reviewing the various holdings that made up his estate, he drew the attention of his sons to several parcels of land which he believed would particularly benefit from marling.²⁹ Bankes does not tell us where his marl was to be obtained, but by implication it would not have been in the relevant fields, but somewhere else, within his waste.

As early as the 1650s, as Gritt has shown, there were improving landlords in Lancashire, notably including William Blundell of Little Crosby (West Derby hundred) who used copious quantities of marl on his estate, and who encouraged his tenants to do the same.³⁰ However, whilst it is unclear whether Bankes and Blundell favoured the recurring periodic use of marl to restore 'heart' to existing arable land, such archival evidence as there is for this period overwhelmingly suggests that the main use for marl in the county at this period was in bringing new land into cultivation. It must be accepted, though, that the record may be skewed. Bankes and Blundell are exceptional in leaving memoranda books: most of the records which we have that touch on marl are records of conflict. Under the law of the manor, the lord owned the soil of the waste, so only he could grant the right to dig marl there. Hence examples of marl digging came to be cited in court cases to show, for example, which of two litigants owned a particular waste.

A systematic study of 130 cases involving enclosure and improvement disputes before the Chancery Court of the Duchy of Lancaster between 1500 and 1700 revealed mentions of marling in some 21 of these cases.³¹ Most of these were passing references, without detail: but the evidence of those few cases where there is more information backs up the suggestion that at this period digging of marl pits was generally something which occurred on the manorial waste, not in the fields themselves. Thus a case in Ellel, near Lancaster (Lonsdale hundred), in 1581 refers to a 'myne of whyte marle upon Ellel More', and claims the manorial lord not only

²⁵ Plat, *Diverse new sorts*, pp. 20, 27.

²⁶ G. P. [Gabriel Plattes], *A discovery of infinite treasure hidden since the Worlds beginning* (1639), p. 27.

²⁷ J. Bankes (ed.), *The memoranda book of James Bankes, 1586–1617* (1935).

²⁸ *Ibid.*, p. 8.

²⁹ *Ibid.*, p. 13.

³⁰ LA DDBL/Acc 6121/Box 1 – Microfilm: 'The Great

Hodge Podge 1560–1698'; A. J. Gritt, 'Aspects of agrarian change in south-west Lancashire, c.1650–1850' (Unpubl. PhD thesis, University of Central Lancashire, 2000).

³¹ W. D. Shannon, 'Approvement and improvement in early-modern England: Enclosure in the lowland wastes of Lancashire, c.1500–1700' (Unpubl. PhD thesis, Lancaster University, 2009).

had the right 'to sell lodes of the said whyte marle' (which was presumably particularly rich in calcium carbonate), but had also appointed 'overseers of the whyte marle' for that purpose.³² In another case in the same year the lord of Chorlton (Salford hundred) accused some tenants of his neighbour of 'riotously' digging marl on his waste.³³ However, although the tenants denied that they had in fact dug the marl, they also claimed that the lord of neighbouring Withington had licensed the digging of the pit, out of which 2000 loads of marl had been removed for sale, in support of an enclosure episode.

In converting mosses, lowland moors, or heaths to arable land, the standard programme would appear to have been, first to enclose the area with a ditch, then clear and level the ground, followed by paring and burning of the turf, then spreading marl. After leaving the marl over winter to do its work, the land would be ploughed, corn sowed, and the harvest reaped. Sometimes the results were disappointing: but other cases tell of great successes, as in Chadderton (Salford hundred), c.1624, where stubbing and ridding four acres cost £3 6s. 8d. an acre, followed by marling at £5 1s. 8d. an acre, a total initial investment of £8 8s. 4d. an acre. However, the new land now yielded crops of barley and oats valued at £4 an acre – 'yeeldes as good as most in Salford hundreth'.³⁴ Allowing for other costs such as the entry fine and annual rent, plus the outlay on seed, ploughing, sowing and reaping, the improver would still have achieved a fairly rapid pay-back on his initial investment, in perhaps as little as four years. It is worth noting here, as elsewhere, that the cost of marling, like all the other costs of improvement, and hence all the risks, fell to the tenant, not to the landlord.³⁵

Another case, dating from 1663 and referring to Knowsley (West Derby hundred), similarly shows not only the significance of marling costs within the total outlay on improvement, but also the dramatic returns claimed to be achievable in the right circumstances.³⁶ An eight-acre parcel of heath had been fenced, ditched, levelled and marled in around 1636, and then there had been a second marling some ten or more years later. Total investment was £82 over a twenty-five year period: but this turned land, which had been worth 2s. 6d. a year (or about 4d. an acre) into land yielding £6 a year 'above all reprints', that is, after all rents and other expenses had been deducted, a net return of about 17s. per acre per annum, or 48 times the pre-enclosure value. Incidentally, the evidence in this case also suggests that it was thought worthwhile sometimes to apply a new dressing of marl every now and again.

Meanwhile the abandonment of marl pits and their subsequent use for different purposes is revealed by a case in Heaton Norris (Salford hundred) in 1593, which concerned encroachment on the waste, the specific accusation being that the defendants had been 'riotously fishing' in a flooded marl pit, an apparently trivial matter, except for the fact that had the lord let it pass, it could later be argued that that part of the waste did not belong to him.³⁷ The interest here, however, lies in this secondary use of worked-out marl pits as fishing ponds, presumably

³² DL 4/23/57, 23 Eliz.

³³ DL 4/23/66, 23 Eliz.

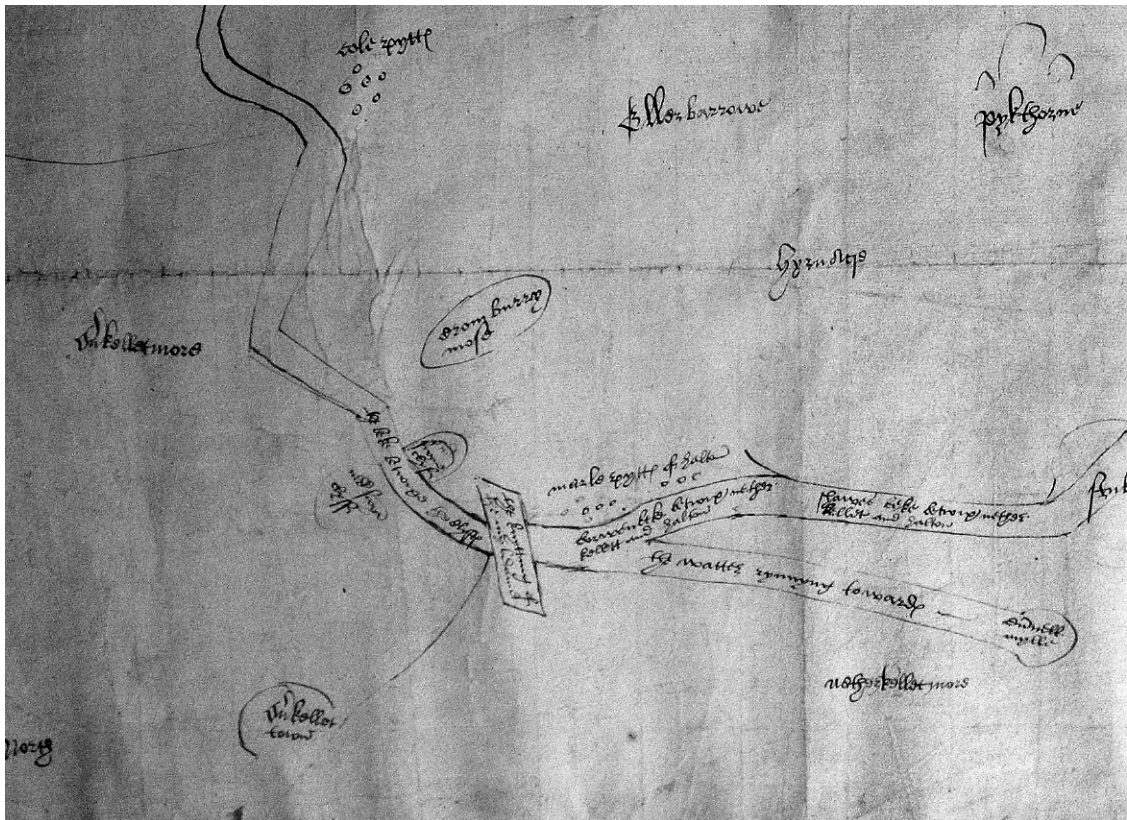
³⁴ DL 4/85/35, 9, Chas 1, Deposition of George Kenyon, of Heap in Bury, husbandman.

³⁵ W. D. Shannon, 'Risks and rewards in wasteland enclosure: lowland Lancashire c.1500–1650', chapter in J. Whittle (ed.), *Landlords and tenants in Britain,*

1440–1660: Tawney's agrarian problem revisited (2013), pp. 150–65; see also A. Gritt, 'Making good land from bad: The drainage of west Lancashire, c.1650–1850', *Rural Hist.* 19 (2008), pp. 1–27.

³⁶ DL 4/107/7, 15 Chas 2.

³⁷ DL 4/35/31, 35 Eliz.



MAP 4. Extract of Lord Dacre's map (1542) showing disputed land between Halton and Nether Kellet, (Lonsdale hundred): note 'marle pyttes of halton' and also 'cole pyttes'.
(Reproduced by permission of the National Archives, TNA DL 3/38/ D1r Nether Kellet 33 Hen 8.)

following deliberate stocking with fish, as we will see later. The marl pit involved in this case had clearly been abandoned many years previously, as the fishers had cut down a mature willow tree which 'honge in the water in one of the said marle pittes for that it hindred their fishinge'.

Of the other dozen or so cases in the sample study that mention marling, the majority do so merely in passing, referring to marl as a resource on the manorial waste, belonging to the lord. We are particularly fortunate, though, that the Duchy Court was at the forefront of the new technology of cartography: and a number of dispute maps survive, now in the National Archives, which allow us to locate precisely where certain pits lay, and upon what sort of soil. The first of these dates from 1542 and refers to a dispute between Lords Derby and Dacre over where the boundaries lay between their respective manors of Nether Kellet and Halton, on the low moors above the River Lune (Lonsdale hundred). Both sides submitted their own maps to the court, with Dacre backing up his claim by showing on his map (Map 4) the location not only of the 'marle pyttes of halton', but also 'cole pyttes' and a 'fre stone quarrell' – the products of all of which belonged to the lord.³⁸ Although the case was initially about an

³⁸ DL 3/38 D1r, 1542.

accusation by Dacre that Derby's tenants had been digging peat on his side of the claimed boundary, witnesses called on behalf of Dacre claimed that they and the other tenants had also been getting marl on that part of the waste for at least 40 years past, under licence of Dacre's steward. The location of the pits can be fairly closely identified, south of Nether Kellet, and would appear to have been dug into a soil called Brickfield 2 Association, a loamy soil overlying glacial till, which itself overlay limestone bedrock.³⁹

A case involving enclosure on Swinton Moor (Salford hundred) in 1581 was accompanied by a sketch map which did not indicate the locations of marl pits; but the depositions in the case nevertheless included several references to marling as a precursor to ploughing, with a suggestion that such activities had only been taking place since the Dissolution (the land having previously belonged to Whalley Abbey).⁴⁰ In a particularly specific account of the process involved, one deponent, a 30-year-old labourer called William Styrrupp, recounted that his master, Mr Shevington, had ordered him to enclose part of the moss called Foxholes, and 'at suche tyme as the Foxholes were marled the said Mr Shevington commanded the said Styrrupp that marle shulde be layde upon a Roock to be sett on the parcel of grounde so Inclosed at suche tyme as the mosse should be digged awaye': in other words, the marl was dug first and left piled up, to be used after the top surface of the moss had been pared away.⁴¹

In another case also dating to 1581, residents of Eastham in Lytham (Amounderness hundred) were accused by the lord of neighbouring Bryning of having dug marl on his waste named Bryning Carr, 'And carried awaye ... one Thousand loades of marle to the value of Twentie poundes'.⁴² The defendants claimed the incident had actually taken place in Eastham Carr within Lytham, not in Bryning Carr at all, and as such they had lawfully dug marl there.⁴³ The Duchy Court commissioned a map, which showed the location of the disputed marl pit (Map 5). This marl pit, and its successors, can still be seen in the landscape today. The key point here is that the Lytham residents once again were quite clearly digging the marl on the waste (which in this case was 'carr', or lightly-wooded waterlogged land), then carting it away to be used to assist with their communal effort at extending the nearby Eastham common arable field, which witnesses in the case, and the map itself, show to have been encroaching onto the waste for some time. One thousand loads probably meant they had carried away enough marl that season to convert to arable up to a dozen acres of newly taken-in 'carr' land.

Yet another case dates from the 1630s and relates to a long-running dispute over boundaries on mossland waste, between the lords of Hindley and the lords of Ince (West Derby hundred), which resulted in another Duchy map.⁴⁴ This one shows two marl pits, each labelled 'An auncient Marle pit made by Mr Gerrardes fateres appointment upon the wast' (Map 6).

³⁹ National Soil Resources Institute (2019) *Soils Site Report for location 351987E, 467632N, 5km x 5km*, National Soil Resources Institute, Cranfield University, accessed via www.landis.org.uk/sitereporter [accessed 25 Aug. 2020].

⁴⁰ TNA MPC 1/256; DL 4/23/55, 23 Eliz.

⁴¹ TNA DL 4/24/11, 24 Eliz.; Rook: a small pile, esp

of turves, stones etc, J. Wright (ed.), *The English dialect dictionary*, V, L-S, (London, 1905), p. 148.

⁴² TNA DL 1/122/M4, Bryning 1581: Bill of George Middleton esq. of Leighton.

⁴³ TNA DL 4/23/53, Bryning 1581: Answer.

⁴⁴ TNA MPC 1/98/1&2, Two maps of lands near Wigan, 1639.



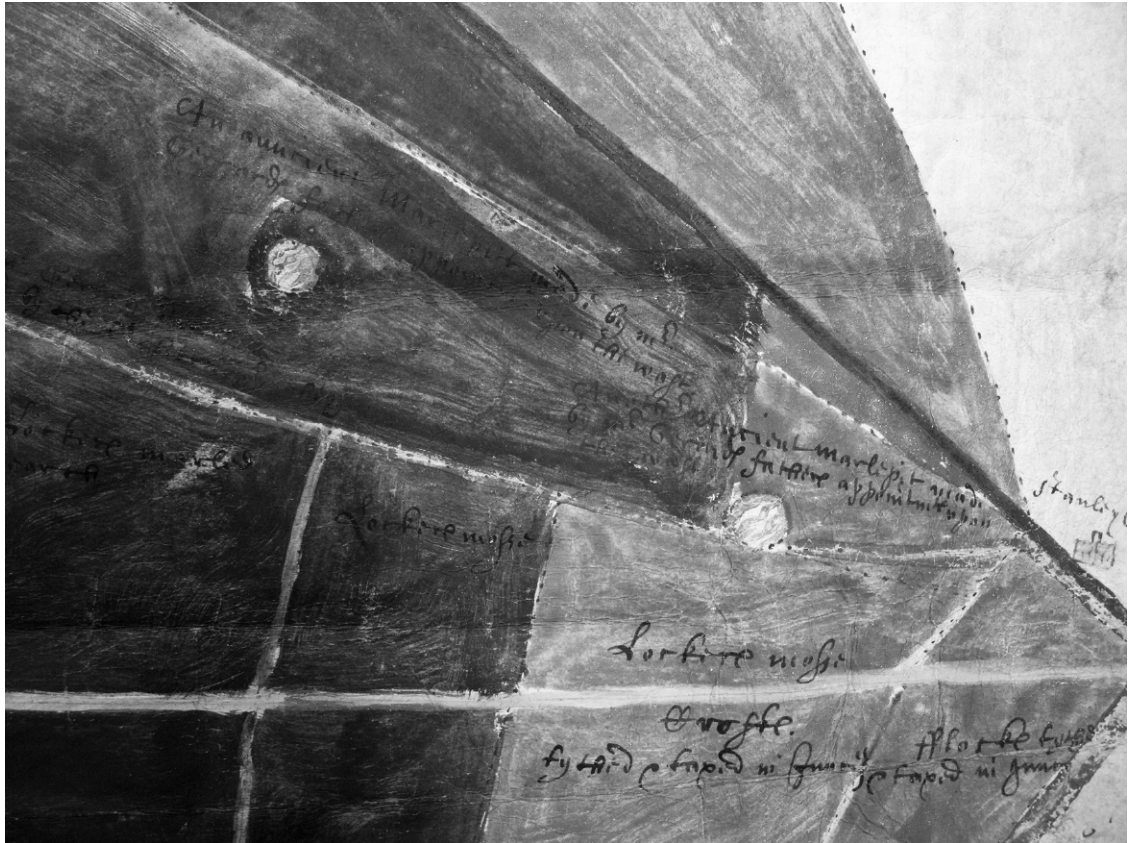
MAP 5. Extract of Commissioners' map (1581) showing disputed land between Bryning and Lytham (Amounderness hundred). The dotted line above the marl pit (overlaid with grey dots) shows the former extent of the arable lands of Eastham (in Lytham), and recent encroachments onto Bryning Carr (the darker areas on the left). The marl pit stands on the disputed carr (the pale, painted area to the right), with arable to the left and newly enclosed pasture to the right (the dark area to the lower right). (Reproduced by permission of the National Archives, TNA MPC 1/ 258 Bryning Carr 1582.)

Gerard, the defendant, was lord of Ince and had been enclosing land on the edge of the waste. He was clearly basing his claim to ownership of that ground upon the fact that, a generation previously, his father had authorized the digging of marl here. However, in connection with the enclosure, the deponents were asked 'whether was the said close a parcell of mosse ground & some tyme turbarie before the inclosinge & marling thereof'.⁴⁵ Witnesses stated that 38 years previously (that is, around 1601), the then Mr Gerard had caused part of the moss to be 'plowed with oxen & to be sowed with big [barley]'.⁴⁶ The marl had clearly been an integral part of that reclamation project, which had again taken place upon Brickfield Association soils.

In all these cases the marl was being dug upon the waste, on behalf of, or under licence of, or purchase from, the manorial lord, sometimes as a communal effort. What is not clear from these cases is whether the tenants were doing this on their own initiative or whether it was a

⁴⁵ TNA DL 4/84/15, 1633.

⁴⁶ TNA DL 4/94/55, Hindley 1639.



MAP 6. Extract of Commissioners' map (1639) showing disputed lands between Ince and Hindley (West Derby Hundred). Two 'auncient' marl pits are shown as having been made by the appointment of the father of Mr Gerrard (the defendant in the case). One is shown on the darker area, representing pasture, the other on the area representing mossland.
(Reproduced by permission of the National Archives, TNA MPC 1/98/1 Hindley 1639.)

requirement of their landlord's. Some possible light may be thrown onto this by the Clifton Leases, a long run of more than 50 leases, mostly dating between 1607 and 1616, referring to small parcels of land newly enclosed from the moss and marshland of Lytham (Amounderness hundred).⁴⁷ The majority of these leases were for three lives: and the tenant was required to enclose, hedge and ditch – and to 'improve' the land, although in no case is it spelled out what that term involved: nor was there any reference to the getting of marl as a 'boon-service'. The conclusion must be that the tenant was free to proceed as he wished: the landlord got his fine and rent anyway, and of course the reversion of the land after the three lives had expired. In just one case, however, the new tenant was granted 'free libertie to digge cast and gett marl within the same for the bettering thereof'.⁴⁸ The implication is that this tenant was specifically being allowed to dig a new marl pit on his own leasehold. It is not clear how usual, or unusual,

⁴⁷ Lancashire Archives [hereafter, LA] DDCL 2160–2233, Clifton Leases.

⁴⁸ LA DDCL 2163.

this was: but it seems that this was perhaps a new development, but one which was to become general practice in the period which followed.

One other aspect of the history of marling at this time is worth mentioning. The pits themselves could often be many metres deep, and it was probably by no means rare for a premature collapse or pitfall to occur, potentially bringing down tonnes of marl onto the workers below. The records of the seventeenth-century Quarter Sessions occasionally allow glimpses into the dangers of this work. Thus in 1631, John Ashton and John Smith of Winwick parish (West Derby hundred) petitioned for relief, having had their legs broken by a fall of marl.⁴⁹ In 1663, Margaret, the wife of Rodger Harrison of Lathom (West Derby hundred) similarly petitioned on the grounds that her husband 'hath lately come to a foule dissaster by a fall of Marle whereby his thigh is broken and his body brused and now lyeth in great misery'; while Thomas Redford of Pendlebury reported to the justices in 1689 that he 'last summer happened accedentially to bee lamed in a marle pit on Swinton Moore' (Salford hundred).⁵⁰ These steep-sided pits could also be dangerous to farm animals, with Winchester noting a manorial court at Astley, near Wigan (West Derby hundred) in 1572 ordering the draining of a marl pit 'wyche is dangerous for menez cattell'.⁵¹

IV

Arthur Young's *Six Month Tour* describes a journey in 1768 which began in London, proceeded up the east side of England through Lincolnshire, Yorkshire, Durham and Northumberland, then crossed to the other side to return via Cumberland, Westmorland, Lancashire, Cheshire, Staffordshire and through the Midlands to Oxfordshire and home.⁵² In all he visited 31 counties: and it is striking that he does not mention marl once until he reaches Lancashire, where, by contrast with the rest of England, 'marle is the principal manure', reporting that it 'is found under all this county'.⁵³ He then notes marl throughout Lancashire, Cheshire and into Staffordshire, but thereafter, as he heads back through the Midlands and into the South, apart from one passing mention at Bromsgrove (Worcs.), there is no more mention of marl, strongly suggesting that, at this date, whilst marling as a *concept* was familiar nationally, it was only really being practised to any great extent in the North West.⁵⁴ However, it should be noted that the *Communications to the Board of Agriculture* (1797–1810) also carry accounts of marling in Suffolk, Norfolk, Yorkshire and Hampshire.⁵⁵

As the eighteenth century had opened, Charles Leigh, from Singleton in the Fylde (who, like Plattes before him, thought marl had its origins in the Deluge) had written that 'A good marling is often counted equal to the Purchase of the Land'.⁵⁶ As the century wore on, other commentators similarly focused upon the economic benefits of marling, with

⁴⁹ LA QSB/1/90/51. John Smith subsequently re-petitioned the justices for continuance of relief, in 1632, LA QSB/1/110/76.

⁵⁰ LA QSP/243/3; LA QSP/678/5.

⁵¹ Winchester, *North West*, p. 94; LA DDHm/1 Astley 6 Feb 1572.

⁵² A. Young, *A six month tour through the North of*

England, III (Sec. edn, 1771).

⁵³ *Ibid.*, pp. 153, 158.

⁵⁴ *Ibid.*, p. 302.

⁵⁵ *Communications to the Board of Agriculture*, II, pp. 451–5; IV, pp. 124–7; VI, pt I, pp. 31–40.

⁵⁶ C. Leigh, *Natural history of Lancashire, Cheshire and the Peak in Derbyshire* (1700), pp. 55–6.

several seeking to establish best practice from the reported activities of improving landlords. The classic account of the state of agriculture in eighteenth-century Lancashire is that of John Holt (1794), an enthusiast for marl, 'an excellent improver of the soil, under so many different circumstances, that it cannot be recommended too often, nor praised beyond its real merits'.⁵⁷ He reported on an analysis carried out by a 'Chymist' from Liverpool, who had found that 'calx' represented about 20 per cent of the weight of the marl; whilst elsewhere he noted an experiment involving burning marl in a brick oven, in an attempt to make something akin to quicklime.⁵⁸ On a more practical note, he recommended beginning marling in May or June, spreading it immediately 'in a rough, lumpy form', then leaving it for 'one summer's sun, and one winter's frost, at least' before ploughing it in. His recommendations as to quantities, though, are a little confusing: 'The quantity laid on is from two to three, or three and a half, cubic roods of 64 yards to every statute acre': which seems to suggest covering every square yard of each acre in marl up to a depth of some eight to fifteen inches.⁵⁹ It may be at this date, although he does not say so, that we have moved from marl being used primarily to bring land into cultivation for the first time, to a new era of the widespread use of marl on existing farmland, which led to that proliferation of the pits to be seen on the nineteenth-century maps (Map 2). Holt indeed reported approvingly of the activities and experiments of several Lancashire landowners, concluding that the cost of carting rapidly out-weighed the cost of getting the marl; and that it therefore made sense to have a pit in each field: however, 'a pit in the middle of a field is not only an eye-sore, but a nuisance', leading to his recommendation that the pits should be located along one of edges of the field, and not in a corner; while if the field was on a slope, then the pit should be placed on the edge nearest the top of the slope.⁶⁰ The evidence (see Maps 2 and 7) suggests that his advice was at least partly listened to.

The classic marl-pit was oval with three vertical faces, the fourth being a long shallow slope for backing-in the carts which were to lead the marl out (Figure 1). The marlers worked against the vertical faces, digging out the marl, and loading it onto the carts. Holt describes the process:

Marle is got by falling it in large clods; this method is expeditious, but requires great caution, and is frequently attended with danger; the piece intended to be fallen is undermined, and loosened at each side, by being cut through; long piles are then driven in at the top, and sometimes water is required to insinuate itself into the interstices which the poles have made. The clod falls with such violence as to break the mass into pieces.⁶¹

Holt was primarily a commentator rather than a practitioner: but we are extraordinarily fortunate in having the diaries of Nicholas Blundell, of Little Crosby, grandson of the William Blundell who, as we have already seen, was a seventeenth-century enthusiast for marl.⁶²

⁵⁷ Holt, *General view*, p. 112.

⁵⁸ *Ibid.*, pp. 124, 138.

⁵⁹ *Ibid.*, p. 113.

⁶⁰ *Ibid.*, pp. 117–19. The large number of Lancashire fields with pits in the middle suggests either that Holt's advice was not generally listened to, or that by the time

he gave it, most pits had already been dug.

⁶¹ *Ibid.*, p. 117.

⁶² F. Tyrer (ed.), *The great diurnal of Nicholas Blundell of Little Crosby, Lancashire* (3 vols, Rec. Soc. Lancashire and Cheshire, 1968–72).

From 1702 to 1728, Nicholas kept an often very detailed journal, covering his agricultural and social activities, and giving us insights into farming practice, as well as providing lots of technical terms. A Recusant (Catholic), he was barred from public life, and so put his energies into improving his estate, scientific observation and other matters. Upon inheriting Little Crosby, Blundell had commissioned a very fine estate map, dated 1702, which shows some twenty small rectangles coloured blue in a number of fields in the south east part of the estate.⁶³ If, as is probable, these represent marl pits, then presumably they were dug in his grandfather's day. Subsequently, though, in 1712 he decided to dig his own pit in an area of enclosed pasture, which he proposed to convert to arable. The new work began on 11 April 1712 when two men, presumably professional marlers, 'boored for Marle in the Pick' [or Pike, meaning land which comes to a point].⁶⁴ The following week, he 'began to Feigh [to remove the turf, or top surface] for a Marl-pit in the Great Morehay tiss designed for Marling the Little Morehay & Pike'.⁶⁵ By the end of May, the pit was dug and 'Ten of my Marlers came & shot the two paises of my New Marlpit' ['paise' here appears to relate to the access slope into the pit for the carts].⁶⁶ Then on 12 June 1712:

I began to Marle the Little Morehay and Pick out of a Pitt made in the Great Morehey, I had two Companys & each Company Consisted of three Hewers and four Fillers, there was twelve Carts, four Spreaders & one Water Bayly, they got out 754 Loads, I was with them soone after three of the clock in the Morning.⁶⁷

The following day, 13 June, they dug and spread 800 loads and on 14 June a further 823 loads: then on the 17th, they 'began to fey the Marl pit, part of it deeper'.⁶⁸ Later in the month there was 'The Flowering' as described below, followed by the paying off of the marlers and carters. A year later, on 21 July 1714, he 'began to ripple [take the seed off] my Flax as grew on my Marled Ground in the Little More-Hey'.⁶⁹ In other words, what had very recently been rough grazing was now producing a cash crop.

Subsequently, one of Blundell's daughters wrote up the full accounts of the marling, calculating the cost at £108 17s. 2d. in all, or near £10 an acre.⁷⁰ We learn from her that the pit was 54 yards by 28 yards, and that the 'Fey & Clay' above the marl was 3½ feet deep.⁷¹ In all they laid 22,506 loads of marl (at six score to the hundred) on the 11 acres of the Little Moorhey and the Pike, an incredible 2000 loads per acre (although she does not specify how big a 'load' was). She reported that 'the Marle was very good & the lower the better & the further they went into the Moor Hey the better the head of Marle'. The soil here, which is naturally wet and very acid, comprises sandy and loamy soils of the Sollom Series, overlying till. Today, there are no

⁶³ LA DDBL/48/41, Plan of Little Crosby, 1702.

⁶⁴ Tyrer (ed.), *Great diurnal*, II, p. 13; P. Cavill, *A new dictionary of English field names* (English Place-Name Soc., 2018), pp. 327–8.

⁶⁵ Tyrer (ed.), *Great diurnal*, II, p. 15.

⁶⁶ *Ibid.*, II, p. 20.

⁶⁷ *Ibid.*, II, p. 22.

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*, II, p. 105.

⁷⁰ *Ibid.*, II, Appendix B, p. 282.

⁷¹ If the blue rectangles on the Little Crosby estate map (LA DDBL/48/41) are marl pits, and are accurately drawn to scale, then the largest of them is only one third the size of Nicholas's pit – measuring approximately 33 x 16 yds, compared with his 54 x 28 yds.

longer any signs of Blundell's pit, as the fields concerned were taken by a later Blundell into his park, and planted with trees.

In addition to Blundell's accounts of the practical, economic, aspects of marling, for the first time we also learn from him of some of the cultural aspects, the traditions and folklore attached to marl, which presumably had been there in the earlier periods, but hidden from us. For example, Blundell several times mentions a quaint custom of visiting marl-pits and tipping the workers to shout out, when presumably the shape of the pit acted as an amplifier or echo-chamber: thus 3 July 1721 'I went to Mr Bayrons Marlors and made them to shout'.⁷² Blundell also tells us on one occasion an event which he described as 'The Flowering of my Marl-pit', which was apparently similar to a Harvest Home (or perhaps to the 'Topping Out' ceremony to celebrate the completion of a building), involving entertaining the workers in his barn, which was dressed for the occasion, and provided with food and drink, while garlanded young women and sword dancers were in attendance. The event took place on 9 July 1712, when the stars of the show were 'all the 14 Marlers [who] had a particular Dress upon their Heads and Carried each of them a Musket or Gun'.⁷³ This was not the end of the celebrations, however, as in the following week, on 15 July, he 'Baited a Large Bull in the Bottom of my New Marlpit', the bull successfully seeing off '8 or 9 Doggs'.⁷⁴ The fact that such activities were not just unique to Little Crosby can be seen in an almost contemporary diary of a Nonconformist minister, who wrote on 3 July 1729 'Then Thomas Seed, o' th' Little Town [Thornley, below Longridge Fell, Blackburn Hundred], having ended his marling, and invited me and my love to the Fell End to be cheerful with him, at Ellen Seed's, she and I went to Ellen Seed's, and were with the marlers till betwixt 7 and 8 o'clock'.⁷⁵

A century later, such events were recalled by Thornber, writing about 'Ancient Customs, Superstitions, Habits etc' of the Fylde:

The harvest home and the 'shutting of marling' were gala days, which the depression of the farming interest has almost banished out of the country. On the latter occasion, a lord and a lady were drawn out of the pit by a strong muster of horses, decorated with ribbons, and mounted by their drivers, trimmed out in their best, who afterwards paraded through the lanes and streets, always remembering to attract the notice of those from whom they expected a donation'.⁷⁶

Blundell also tells us of the deliberate subsequent utilization of the exhausted pits as either, or both, a leisure and food resource, as when on 7 February 1713, Blundell 'made up a Headbolt ... to keep the water from Running out of the New Marl-Pit', thus allowing the pit to fill with water: and on 10 March he 'Put 40 ... Carps into my New Marl-Pit between the Pike and the Great More-Hey', thus converting it into a fishpond.⁷⁷ The fact that such fishponds were perhaps common may be deduced from the sole reference to marl in Thomas Bellingham's

⁷² Tyrer (ed.), *Great diurnal*, III, p. 49.

⁷³ Ibid., II, p. 26.

⁷⁴ Ibid.

⁷⁵ W. Dobson, *Extracts from the diary of the Rev. Peter Walker, Nonconformist Minister, for the years 1725,*

1729 and 1730 (Preston, 1866), p. 28.

⁷⁶ W. Thornber, *The history of Blackpool and its neighbourhood* (1837, republ. Blackpool and Fylde Historical Soc., 1985), p. 93.

⁷⁷ Tyrer (ed.), *Great diurnal*, pp. 50, 54.

extensive diaries, in which he mentions how, on 1 April 1690, in the vicinity of Penwortham (Leyland hundred), 'we went to see some men fishing a marlepond, but gott little fish'.⁷⁸

Somewhat later in the century, we have the *Memoranda Books* of Basil Eccleston, of Eccleston (West Derby hundred), stretching over some 30 years.⁷⁹ Eccleston, another Catholic like the Blundells, managed his own estates, which were located on heavy clay soils, on glacial till which in part overlay coal measures – and again there was marl beneath his land, in one place 'very good marl, four yards thick or more', although elsewhere 'only' seven-foot thick, below '4 feet of feigh' [overburden].⁸⁰ As Gritt has shown, Eccleston was a widely-renowned improver with an international reputation, so he was hardly typical of the county's landlords: but crucially he was an enthusiast for marl, going as far as to waive the half-year rents of some tenants for three years on condition they marled the land; while on another occasion he agreed not to raise the rents if the tenants marled.⁸¹ Virgoe, however, has suggested that although Eccleston was encouraging his tenants to use marl, he himself was using marl less frequently, and was moving on to the new alternatives of lime and soaper's waste.⁸²

Unfortunately, Eccleston does not tell us what type of land he, or his tenants, were marling, or why, but the names of the fields might give a clue – for example *Heath Heys*, *Rough Hey*, *Scholes Meadow* and *Rutty Copy* might suggest that it was probably mainly poor land, possibly intended for conversion to arable: although a couple of other fields named *The Great Feild* and *Engine Coal Pit Feild* might suggest that at least occasionally he was putting marl on to fields that were already arable, to improve them. What is clear, though, is that his marl pits, perhaps unusually for this date, were still not in the fields where the marl was to be used, but in places called *Harwell Heath*, *Thatwell Heath*, *The Paddock*, *Middle Wood* and *Furthest Wood Meadow*.

In terms of techniques, several times we learn of Eccleston boring for marl, then digging new pits: and sometimes pumping out old ones.⁸³ He is meticulous in recording the costs of marling, and the quantities used, generally laying down around four to six rods per local acre (at eight yards to the rod), paying perhaps 8s. the rod: though in fact the cost of getting the marl is only a small part of the total. Thus the cost in July 1763 of 'ridding and marling Holland's Nook, quantity 3 acres' came to over £35, including ridding, pumping, getting the marl, carting and spreading – of which the biggest single element, as Holt was subsequently to note, was carting the marl, amounting to over £20.⁸⁴ What we do not learn from Eccleston, though, is what, if anything, was the return from this effort and cost. Nor do we hear in Eccleston of sword dancers, or bull-baiters, or shouting for the echoes: but in one respect at least there was a lighter side to Eccleston, as he reports on one occasion that, like Blundell before him, he stocked a marl pit with fish – in this case '25 cupple' of gudgeon (6 February 1760).

⁷⁸ A. Hewitson (ed.), *Diary of Thomas Bellingham* (Preston, 1908) p. 111.

⁷⁹ A. J. Gritt and J. M. Virgoe with C. P. Browning (eds), *The Memoranda Books of Basil Thomas Eccleston, 1757–1789* (Rec. Soc. Lancashire and Cheshire, 139, 2004).

⁸⁰ Gritt et al. (eds), *Memoranda books*, pp. 46, 79.

⁸¹ Gritt, *Agrarian change*, p. 208; Gritt et al. (eds), *Memoranda books*, pp. 4, 78.

⁸² J. M. Virgoe, 'Rural south-west Lancashire in the eighteenth century: The land and the people' (Unpubl. PhD Thesis, Liverpool University, 2003), p. 217. See also id., *Thomas Eccleston (1752–1809): A Progressive Lancastrian Agriculturalist* (Chetham Soc., 49, 2012).

⁸³ Gritt et al. (eds), *Memoranda books*, pp. 12, 23, 51, 119, 121.

⁸⁴ Idem., p. 51.

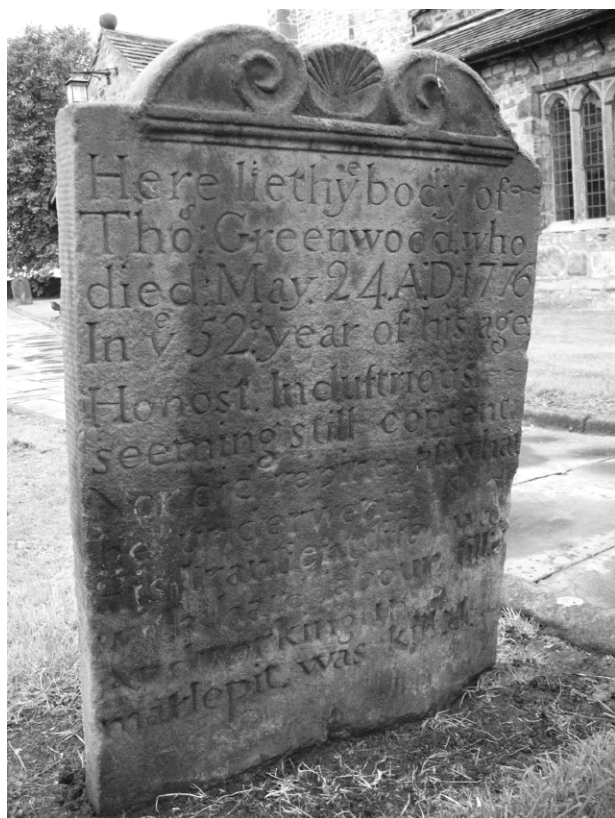


FIGURE 2. Gravestone of Thos Greenwood, killed in a marl pit, 1776, Ribchester church yard (Photo: Author)

As in the earlier century, there was also a darker side to marl, as can be seen for example from a gravestone in the church-yard at Ribchester (Blackburn hundred) (Figure 2) which records the fate of a marler: 'Here lieth ye body of/ Tho: Greenwood who/ died May 24 AD 1776/ In ye 52^d year of his age/ Honost (sic), Industrious/ Seeming still content/ Nor did repine at what/he underwent/ His transient life was/with hard labour filled/ And working in a/ marlepit was killed.'

V

By the end of the eighteenth century and into the early nineteenth, marl was being used on an industrial scale to reclaim the Lancashire mosses, notably Trafford Moss (Salford hundred), where, according to Aikin, reclamation began in 1793. Because the moss was too soft and spongy to bear the weight of horse and cart, 'moveable cast iron roads' resting on wooden sleepers, were laid down, 'over which the marl is conveyed in four-wheeled wagons, containing about six hundred weight each. One horse with great ease takes six of

⁸⁵ J. Aikin, *A description of the country from thirty to forty miles round Manchester* (1795), p. 382; see also D. Hall *et al.*, *The wetlands of Greater Manchester* (North West Wetlands Survey, 2, Lancaster University Archaeological Unit, 1995), p. 126.

these wagons'.⁸⁵ By 1794, 100 acres of former moss were under tillage, apparently mainly for potatoes. Work on nearby Chat Moss began soon after, where Caird tells us that drainage in the late eighteenth century was followed by the application of 100 to 150 tons of marl per acre, the work being 'most easily effected by the use of a moveable railway'.⁸⁶ Garnett, in his classic study of farming in Lancashire in the mid-nineteenth century, further discusses this project, reporting that the average distance which the marl had to be moved by the railway was about two-thirds of a mile.⁸⁷ Another of Garnett's examples referred to improving the mosses north of the Wyre, again with the marling having been carried out 'with the assistance of a moveable railway'.⁸⁸

Away from these areas of reclamation, however, the marling era was coming to an end. With the slump in corn prices after the Napoleonic Wars, the start of the railways and the growth of the industrial towns creating the market for 'railway milk', in some parts of the region, such as the Fylde, arable was reverting back to permanent grass, meadow, and turnip and other fodder crops.⁸⁹ Moreover, from early in the nineteenth century, bone manure 'began to supersede marl in Cheshire and the West Midlands' while the process accelerated further into the century with the introduction of imported mineral fertilizers, especially guano.⁹⁰ Upon entering Lancashire from the north in 1768, Young had noted 'lime is in use among them, but it has been only for two or three years'.⁹¹ However, lime, described by David Johnson as 'marl's competitor', really took off with the opening of the Lancaster Canal in 1819, which acquired the name 'The Black and White' from its cargoes of coal heading north from the Lancashire coalfields and limestone heading south from Cumbria.⁹² A similar role was played for the southern part of the county by the Leeds and Liverpool Canal, bringing lime from Craven.⁹³ Although lime cost more by the load, much smaller quantities were needed, while lime also had a much more rapid effect upon the soil (although less lasting), and so marl use survived only where light soils would also benefit from its effect on soil texture. In Lancashire, Garnett reported in 1849 that 'lime is used throughout the county almost universally', and he said, of guano, that 'from one end of the county to the other ... this foreign manure seems to be valued most highly': although he added that marl was still used in the county, 'chiefly on peat and moss lands': presumably where it continued to have value as an improver of the texture of the soil, which lime and guano, of course, did not.⁹⁴

James Caird, writing on *English Agriculture in 1850–51*, reported on the continued contemporary use of marl in parts of Lancashire: but as regards 'the general class of farms', he found that in the Fylde, for example, marling 'is still practised, but not in the same wholesale manner

⁸⁶ J. Caird, *English agriculture in 1850–51* (1852), p. 276.

⁸⁷ W. J. Garnett, 'Farming of Lancashire', *JRASE*, 1st ser. 10 (1849), pp. 1–51.

⁸⁸ Caird, *English agriculture*, p. 276.

⁸⁹ G. Rogers, 'Social and economic change on Lancashire landed estates during the nineteenth century, with special reference to the Clifton Estate, 1832–1916' (Unpubl. PhD Thesis, Lancaster University, 1981).

⁹⁰ G. E. Fussell, 'Marl: An Ancient Manure', *Nature*, 24 Jan. 1959, pp. 214–17.

⁹¹ Young, *Six month tour*, III, p. 143.

⁹² D. Johnson, *An improving prospect? a history of agricultural change in Cumbria* (2016), p. 85; Canal and River Trust, 'Lancaster Canal', canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/lancaster-canal [accessed 24 Mar. 2020].

⁹³ G. Firth, 'Bradford coal, Craven limestone and the origins of the Leeds & Liverpool Canal, 1765–1775', *J. Transport Hist.*, 3rd ser. 17 (May 1983), pp. 50–62; see also Gritt, *Agrarian change*, p. 202.

⁹⁴ Garnett, 'Farming in Lancashire'.

as formerly'.⁹⁵ Rogers cited a lease of 1840 on the Clifton estate (also on the Fylde) requiring the lessee of 41 acres for nine years 'to marl yearly two acres during the term': but this was possibly one of the last such leases calling for marling.⁹⁶ Binns, writing at the same time as Caird, saw marling as something which was associated with the past, referring to a time forty years previously when he had first become familiar with Lancashire farms, when marling was very general: and he complained that the legacy of that era was 'a serious and permanent evil ... by creating a large number of pits in the middle of the fields, which, from the retentive nature of the subsoil, soon become filled with water' causing 'obstructions to ploughing and cultivation, the loss of land, the injury to the adjoining land as well as to the climate'.⁹⁷

VI

By the 1930s, the Land Utilisation Survey showed lowland Lancashire north of the Ribble to be predominantly 'Meadowland & Permanent Grass' although south of the river it continued to be predominantly arable.⁹⁸ In the text, it is reported that in the Fylde 'permanent grass [was] dominant and arable subordinate'.⁹⁹ Clearly, though, that had not always been the case: into the nineteenth century, Central Fylde was the main grain growing area of Lancashire, with Thornber declaring in 1837 that 'the Fylde is truly styled the "cornfield of Amounderness"'¹⁰⁰

Rodgers noted four arable regions in Tudor Lancashire, within what was otherwise a predominantly pastoral county – namely the Central Fylde, East Fylde, Ribble Valley and Central Arable Regions – with the extension of arable in lowland Lancashire in the early modern period having been, according to Thirsk, the result of a 'period of strenuous land improvement' prior to 1640, characterized by marling, embanking against the sea, and enclosure.¹⁰¹ Such evidence as there is suggests that marling had been part of the Lancashire farmer's armoury back into the medieval period and even beyond: but that it was probably in the early days a relatively rare event, involving digging marl on the lord's waste and then either using it in the near vicinity for 'assarting' the waste, or carting it to the (arable) field where it had been decided it was needed, either for a first dose, or for subsequent re-marlings. From the early-modern period, however, marl was again perhaps mainly being used for reclamation of the adjacent waste, especially the mossland edges; and for conversion of rough grazing there and on the lowland moors into arable. For much of its history, then, marl seems to have been used primarily to help turn rough, unimproved pasture into arable: it follows that marl-getting historically would mainly have been a feature of those periods when land was being taken in from the waste. However, there was always too a secondary use of improving worn-out arable

⁹⁵ Caird, *English agriculture*, p. 280.

⁹⁶ Rogers, 'Lancashire Landed Estates', Appendix 1.

⁹⁷ J. Binns, *Notes on the Agriculture of Lancashire with Suggestions for its Improvement* (1851), p. 10.

⁹⁸ *Land Utilisation Survey of Great Britain*, sheet 2, based on a field survey carried out between 1931 and 1939.

⁹⁹ W. Smith, 'Part 45: The County of Lancashire', in L. D. Stamp (ed.), *The land of Britain: The report of the*

Land Utilisation Survey of Britain (1946), p. 64.

¹⁰⁰ Thornber, *History of Blackpool*, p. 125.

¹⁰¹ H. B. Rodgers, 'Land use in Tudor Lancashire: The evidence of the Final Concords, 1450–1558', *Trans. and Papers, Institute of British Geographers* 21 (1955), pp. 79–97; J. Thirsk, 'The farming regions of England', in Thirsk (ed.), *The agrarian history of England and Wales*, IV, 1500–1640 (1967), pp. 81–2.

by adding a reviving dose of marl: although Middleton *et al.* have noted the dangers of that practice, with fields becoming ‘over-marled’, and very heavy to work.¹⁰²

In the early eighteenth century, however, we enter a new phase, with marl beginning to be used far more widely and intensively, on individual holdings, some of them enclosed from former open fields: and with the big difference that many of the pits were now for the first time being dug within the fields which were themselves to be marled, rather than out upon the waste as hitherto. Perhaps a throw-away remark of Arthur Young’s, referring to the land around Altrincham (Cheshire) – ‘they reckon it does best on the ground it is under’ – reflects a widespread justification for digging for marl in one’s own field; while the ‘trickle-down’ effect noted in Flanders may explain this explosion in use, from the manorial lords and their ‘improvements’ to the ordinary small/medium farmer.¹⁰³

The eighteenth century is without doubt the era to which most of the surviving pits of the region belong: with many if not most of them probably only being used the once, rather than being re-dug every generation or so. An observation that in the Central Fylde where traces of ridge and furrow remain, implying prolonged medieval cultivation, ‘most were cut by marl pits’, suggests that, as noted above, marling was now being used on land which had in times past been arable open fields, perhaps echoing Fitzherbert’s sixteenth-century comments about the benefits of marling abandoned ploughland: a similar feature being noted on the western edge of Croston Moss (Leyland hundred).¹⁰⁴ However, the very survival of the ridge and furrow after the eighteenth-century marling episode might suggest either that subsequent ploughing was not prolonged; or that meadow and pasture were now being marled, as well as arable.

By the end of the eighteenth century, the waste in Lancashire was still extensive, despite centuries of enclosure: but only the most difficult land remained. At this period, there is evidence of ‘industrial-scale’ marling carried out in association with major land reclamation projects in the region: but this was the last flurry of the practice. By the mid-nineteenth century, faced with the cheaper alternatives of lime and imported mineral fertilizers, marling came to a full stop. Most of the pits shown on contemporary maps were by then redundant, having been dug, and abandoned, at least a generation previously, if not many hundreds of years earlier in some cases. In some parts of the county, the old pits were now filled and levelled – many of the pits visible on Map 7, for example, do not appear on the Six Inch map, surveyed only ten years or so later. Elsewhere, the old pits became the ponds that remain so prevalent throughout the Lancashire lowlands to this day. The marl moment was over – but its legacy remains in the considerable impact that the historic getting of marl still has upon the landscape of today.

Whether the marl balance sheet would show an overall credit or debit is now impossible to say. Clearly, applying a package of measures that began with draining and continued through ridding, paring and burning as well as marling, followed by ploughing and sowing, greatly increased the value of the land: but how much of that benefit was due to marl alone

¹⁰² R. Middleton *et al.*, *The wetlands of north Lancashire* (North West Wetland Survey 3, Lancaster University Archaeological Unit, 1995), p. 114.

¹⁰³ Young, *Six month tour*, III, p. 180; Pieter de Graef, ‘The peasant route to innovation: Fertiliser improvement in the smallholding economy of

eighteenth-century Flanders, Belgium’, *Agricultural Hist.*, 91 (2017), pp. 488–512.

¹⁰⁴ Fitzherbert, *Boke of Surveyeng*; Middleton *et al.*, *Wetlands of north Lancashire*, p. 114; R. Middleton *et al.*, *The wetlands of south west Lancashire* (North West Wetlands Survey 7, Lancaster Imprints, 2010), ch. 5.



MAP 7. Extract of Tithe Map of Ingol & Cottam (1838), showing marl pits. The word *Marlfield* has been added to the field so named. The fields to the right are in the former open field of Ingol, with strips running east-west, enclosed in the late-medieval/early-modern period. The central block of fields are similarly dated or later enclosures from Ingol Moor. The fields to the left of the through road are later still (eighteenth century?) enclosures from Cottam Moor. (Reproduced by permission of Lancashire Archives, LA DX/2048/7)

is unknowable. Nor is it possible to say whether all the substances described as marl that were dug out and spread upon the land had even vaguely similar benefits from one district to another. All that can be said is that, for many hundreds of years, farmers in lowland Lancashire were convinced of those benefits: yet nevertheless they speedily dropped marl once the far more effective lime became readily available.

Appendix I. What is Marl?

The *Oxford English Dictionary* defines ‘marl’ as ‘Soil consisting principally of clay mixed with calcium carbonate and forming a loose unconsolidated mass, valuable as a fertiliser’.¹⁰⁵ It should be noted that American sources tend instead to refer to calcareous lake sediments, or to a geological bedrock strata of sedimentary mud-stone (such as the Triassic Keuper Marl in this country).¹⁰⁶ The German ‘*mergel*’ similarly seems to relate to the bedrock rather than marl as we understand it, although the same word in Dutch appears to refer to the same substance which we in Britain call marl.¹⁰⁷

As far as Lancashire is concerned, the best description of marl is provided by one of the monographs produced by the Soil Survey, that of Crompton, referring to the soils of the Preston district (sheet 75), which notes the large number of marl-pits in the county, and states too that many of the surface soils at the date of the survey still showed traces of the marling, which had actually ceased more than 100 years previously.¹⁰⁸ The local soils themselves are largely derived from the reddish-brown till which covers so much of the lowland parts of the county, and beyond: and in discussing one of the local soil series, the Cottam Series, Crompton describes the location and appearance of Lancashire marl thus:

The surface horizon is a dark greyish brown, friable clay loam to loam with a granular to fine sub-angular blocky structure, merging at about 10 in. into slightly stony, brown or yellow-brown clay loam to clay with some pale grey mottling and with a weak blocky or prismatic structure. At about 24 to 30 in., this merges into reddish brown, slightly stony clay with grey or pale coloured mottling on structure faces. The prismatic structure, usually becoming increasingly coarse, continues to considerable depth. Between 3 and 5 ft. calcium carbonate usually occurs in the form of small pinkish white concretions or as a deposit of dendritic pattern on structure faces. This horizon has been frequently excavated in the past for marling.¹⁰⁹

Of some of the other local soil series, the Salwick Series ‘has large calcium reserves at depth’, the Clifton Series has ‘a horizon of carbonate accumulation in the form of small concretions ... below 4 ft.’; while the Oakland Series has ‘calcium carbonate, in the form of concretions and dendritic depositions on structure faces ... between 3 ft. and 5 ft.’: finally, the Salop Series, a ‘Reddish brown, medium to fine textured, slightly calcareous till, mainly derived from Triassic rocks’, which is perhaps the most widespread soil of the Lancashire plain, has ‘at depths of

¹⁰⁵ *Shorter Oxford English Dictionary* (5th edn, 2002), I, p. 1704.

¹⁰⁶ ‘Custom compels me to use the name marl for our deposits of fossil shells’, J. C. Sitterson (ed.), *Edmund Ruffin, Essay on Calcareous Manures, 1832* (repr. Harvard Press, 1961), p. 169; I. D. Whyte, *A dictionary of environmental history* (2013); ‘Marl’, en.wikipedia.org/wiki/Marl (accessed 24 Mar. 2020); Calcareous lake deposits are not unknown in Britain, as for example the ‘freshwater silty marl with a high mollusc shell component’ noted at Whorley’s Moss, near Nether Kellett

(Lonsdale hundred) in Middleton *et al.*, *Wetlands of north Lancashire*, p. 183.

¹⁰⁷ De Graef, ‘Peasant route’.

¹⁰⁸ E. Crompton, *Soils of the Preston district of Lancashire* (Agricultural Research Council, Harpenden, 1966). See also B. R. Hall and C. J. Folland, *Soils of the south-west Lancashire coastal plain: Sheets 74 and 83* (Agricultural Research Council, Harpenden, 1967) and *id.*, *Soils of Lancashire* (Soil Survey Bulletin 5, Agricultural Research Council, Harpenden, 1970).

¹⁰⁹ Crompton, *Soils of Preston*, pp. 61–2.

between 3 and 5 ft. calcium carbonate ... in the form of a white deposit of dendritic pattern and below this horizon the till is generally slightly calcareous'.¹¹⁰ More recently, the report on the *Wetlands of North Lancashire* reported that marl-pits in the vicinity of Stalmine and Rawcliffe 'tended to be excavated ... to a depth of over 4m to reach calcareous clay deposits'.¹¹¹

As to where the calcium carbonate came from in the first place, local geologist Thornber, writing in 1857, rejected the old association of marl with the Deluge in favour of a supposed marine origin, although also proposing for the first time that the lower till had been deposited by 'glaciers and icebergs, which probably floated in our ancient seas'.¹¹² The glacial origin is now not disputed, the greater part of lowland Lancashire having been covered in glacial drift deposited by the two ice sheets which met here, the Irish Sea and the Ribblesdale Ice Sheets, both of which had passed over and eroded limestone areas, as well as bringing with them limestone erratics.¹¹³ Thereafter, Hall & Folland describe the marl formation process thus:

Decalcification of the surface horizons of the boulder clay and the subsequent accumulation of calcium carbonate in the upper parts of the C horizon gave rise to a calcareous clay at no great depth which was easily dug out and spread on the surface at varying rates to correct a tendency to acidity and to improve aggregation of the surface soil.¹¹⁴

As regards its use, possibly the best guide comes from the authors of *The Complete Farmer*, who were writing at the time of its final flourishing.¹¹⁵ Although the extreme variability from place to place made generalizations all-but impossible, the best marls (perhaps stating the obvious) were 'such as contain the largest proportion of calcareous earth'. The consensus then was that marl was most efficacious when applied to land that had never been ploughed (and indeed had no beneficial effect at all on rich soils, or land which had been recently marled): and that an application of 50–60 cu yds per acre would give good results within a year or two, with its effect lasting for up to twenty years.

Appendix II. The Onomastics of Marl

Almost any tithe map of lowland Lancashire shows the same extensive scattering of pits and ponds as do the old Ordnance Survey maps. Thus the tithe map of the hamlets of Ingol and Cottam (Amounderness hundred), covering some 877 acres to the west of Preston, shows almost 100 ponds, all coloured blue, scattered widely across the map except upon the unenclosed lowland moor.¹¹⁶ To the east, on the better land, there is scarcely a field that does not have one. Why then is just one of these fields called *Marlfield*? (Map 7)¹¹⁷ The usual explanation for

¹¹⁰ Ibid., pp. 62–6; Soil Survey of England and Wales, *Soil Association Map of the County of Lancashire* (1970).

¹¹¹ Middleton *et al.*, *Wetlands of north Lancashire*, p. 77.

¹¹² Rev. W. Thornber, 'On the Geology of the Fylde District', *Trans. Historic Soc. Lancashire and Cheshire* 10 (1857–58), pp. 187–98.

¹¹³ D. Price *et al.*, *Geology of the country round Preston* (Memoirs of the Geological Survey of Great

Britain, HMSO, 1963), Ch. VII, 'Pleistocene and Recent', pp. 83–93.

¹¹⁴ Hall and Folland, *South-west Lancashire coastal plain*, p. 99.

¹¹⁵ A Society of Gentlemen, *Complete farmer*.

¹¹⁶ TNA IR 30/18/195; LA DX 2048/7.

¹¹⁷ No 767 on the Apportionment, IR 29/18/195; LA DRB 1/123.

this fairly common field name is ‘Land on which marl was spread, or from which it was dug’: but that will not do, as by that definition almost every field in Amounderness could or should be called *Marlfield*.¹¹⁸ Wainwright, writing of the ‘Field-Names of Amounderness Hundred’, noted that ‘the countryside is still dotted with hundreds of marl-pits’, adding that ‘names like Marled Field, Marled Croft and Marled Hey occur frequently’ on the tithe maps – but he did not comment as to why any one particular field, rather than its neighbour, should be so named.¹¹⁹

In the case of the Ingol example, the field concerned is located within the former open field of the hamlet, where most of the fields are in long narrow strips of a couple of acres. Marlfield however is square, and, at six acres, is more than twice the size of its neighbours. Clearly, this represents a different, presumably later, episode than the general enclosure of the former open field, which had probably occurred early in the sixteenth century. The old field-boundaries have been removed and a new field made, and marled. Possibly all the other neighbouring fields had been marled several generations earlier; and so it is the *novelty* of both the field and its recent marling that is being commemorated in the field name.

A similar question is raised by a five-acre field named by Basil Eccleston as ‘Great Marled Earth’.¹²⁰ Given the frequency of his references to marling, there had to have been something exceptional about this particular field for him to have named it so. We therefore have to conclude that the field-name *Marlfield* and its variants does *not* merely record that it was ‘Land on which marl was spread, or from which it was dug’ – but records rather the fact that at the time that that *particular* field was marled, such activity was unusual, the exception rather than the rule – either because it was the first field in the district to be marled – which could have been the case of Eccleston’s example – or, as in the Ingol example, it was a late event, occurring some (perhaps considerable) time after all the neighbouring fields had been so treated.

¹¹⁸ Cavill, *Dictionary of English Field Names*, p. 272.

¹¹⁹ F. T. Wainwright, ‘Field-Names of Amounderness Hundred’, *Trans. Historic Soc. of Lancashire and*

Cheshire 97 (1945), pp. 181–222.

¹²⁰ Gritt, *Memoranda books*, p. 114.