

THE PRODUCTION AND DISTRIBUTION OF PEAK MILLSTONES FROM THE SIXTEENTH TO THE EIGHTEENTH CENTURIES

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Most of the recent work on millstones has concentrated on eighteenth and nineteenth century production, apart from a transcript of some medieval quarry accounts. Many unpublished documents are available for the intervening centuries, from which it is possible to derive information about the scale, organization and trade outlets of the peak millstone industry: they include tithe cases, probate records, port books and municipal accounts.¹

There are records from the eleventh century onwards of small quarries throughout England and Wales which produced inexpensive millstones: among them from the thirteenth century were Rivelin quarry in Yorkshire and Rowcliff quarry in Derbyshire and during the fourteenth and fifteenth centuries peak millstones were also made at Hathersage and at Baslow. Native millstones were satisfactory for grinding oats, barley and rye, but for wheat milling it was better to import millstones and domestic quernstones: those made of dark Rhenish lava from the neighbourhood of Cologne produced fine but discoloured wheat flour; more expensive french stones were necessary for white flour.²

Interruptions in the supply of imported millstones in the late sixteenth century increased demand for the best native stones, notably the conglomerate stones made in the Wye valley in the west and the millstone grit peak stones in the east. Hathersage was well placed to exploit the enlarged market because it had good access to a new shipment point at Bawtry on the Idle which had replaced Stainforth on the Don. The surviving records suggest that peak millstone making was concentrated in the Hathersage area before the end of the sixteenth century, although a millstone quarry was leased with part of Darley manor for 44s 8d per annum between 1574 and 1582, some millstones were still made at Rivelin and the lack of references to quarries in the post medieval Baslow court rolls does not preclude their continued use on a small scale by a millstone maker who died there in 1634.³

Thirteen millstone makers were working regularly in Hathersage parish in 1590 when the vicar, Everard Digby, brought cases against them in Lichfield consistory court for non payment of tithe. The produce of mines and quarries was not normally subject to tithe in England, despite the customary payment of tithe on Derbyshire lead, so the vicar's claim was for the personal tithe payable by merchants and artificers on their clear profits; this took the form of a *modus* or fixed composition of 4d per annum, not only in Hathersage but in other parts of the diocese. Millstone tithe does not appear as a separate item in the *Valor Ecclesiasticus*, but the Hathersage glebe terriers of 1698, 1719 and 1726 make it clear that it was one of the items included in the Easter roll; a copy of an earlier terrier, that of 1662, confirms that tradesmen including millstone makers were expected to pay 4d at Easter in addition to their other dues.⁴

In June 1590 ten of the thirteen millstone makers were cited for withholding their tithe payments and the proceedings, briefly noted in the court books at fortnightly intervals, continued until the following February. Associated with the court books are the cause papers prepared for each case individually: every cause paper bundle contains a lengthy statement or libel setting out the vicar's case; most also include a rough account of the millstone maker's answer and an additional allegation from the vicar; for three of these ten cases there is a further document extant, a Prohibition removing the case to a lay court where the recalcitrant tithe payer might expect

more favourable treatment. Entries in the court books for another group of three millstone makers and a prominent Hathersage recusant began in September 1590: each of these four sets of cause papers contains the vicar's libel and an account of his expenses.⁵

The vicar would not have been very knowledgeable about the millstone trade so the quantities and values of the millstones made in Hathersage which he gave to the court must be regarded as maximum credible estimates; those given by his parishioners were invariably lower. The production figure suggested by the vicar was that five hundred millstones had been made by each man since March 1581, that is nearly fifty stones a year. In reply the makers claimed that one man could only make twelve pairs in a year which is compatible with medieval production. The annual production of Hathersage in the late sixteenth century was therefore at least three hundred millstones and may have been double that figure.⁶

Whereas the vicar thought millstones were worth £3 each, the makers claimed that taken one with another they were only worth 12s at the quarry. At Baslow in 1427 prices for single stones had ranged from 6s 8d to 11s though about 1479 stones at Baslow quarry were only worth 7s a pair. In 1466 Yarncliff millstones were similarly valued at 7s a pair in the edge but 'draught' stones cost double that amount. The prices of labour intensive millstones seem to have risen in the fourteenth century during a time when population levels fell; conversely sixteenth century population growth prevented rises in prices of industrial products matching those of foodstuffs during a period of general inflation. The late sixteenth century values admitted by the quarrymen are comparable with inventory valuations of 5s to 10s each in 1664 and of 18s each in 1677.⁷

The vicar's figure of £60 rent must have been intended to represent the total rent of the quarries if it is to bear any relation to the makers' claim that they had each paid 26s 8d per annum rising to 41s 0½d in the last two years. In the late fifteenth century the rent of each half of a Hathersage millstone quarry was 11s and the right to use one pick in the lord's quarry at Baslow was 13s 4d plus a pair of millstones in the case of one tenant although another tenant, a recent widow, was not required to make the additional payment in kind. Evidently quarry rents had doubled during the century preceding 1588 although the increase was much less than that of some Derbyshire agricultural rents. The reality behind the apparent increase in rent in 1588 could have been a total rent of £26 13s 4d or forty marks divided among twenty millstone makers at first, which had to be redivided among only thirteen survivors after that date; the vicar's allegation that 6s 8d of his predecessors' income had derived from millstone tithe also points to twenty workers paying 4d each.⁸

The millstone makers named in 1590 were Robert Botham, William Butler, John Cotton, Robert Hawksworth, Thomas Heywood, Dennis and Thomas Hodgkinson, Richard Moseley of Eyam, Nicholas Redferne of Hope, John Wainwright of Bakewell parish, John and Anthony Yelde and Hugh Yellott. Unfortunately search for other information about them has not proved very fruitful. There are no parish registers for Hathersage before 1627 and the Hathersage probate records do not include any of the thirteen, although many of the same names appear in neighbouring parishes. A Richard Moseley was mentioned in the 1596 will of Thomas Moseley of Eyam, one of the sons of Henry Yellott of Totley was named Hugh, the will of a Robert Botham of Baslow was proved in 1620 and Nicholas Redferne may have been the man involved in a Hope (Nether Padley) tithe dispute in 1622. But whereas some of the names in the fifteenth century Yarncliff accounts reappear in the contemporary Baslow court rolls in connection with the millstone trade, it is impossible to make positive identifications of the tithe defaulters of 1590.⁹

The sixteenth century millstone makers appear to have been independent manufacturers with a net income after deduction of quarry rent of about £12 a year, equivalent to a six day week, forty eight weeks in the year, at 10d per day. Builders' wages in southern England doubled in the second half of the century from 4d to 8d per day for a labourer and from 6d to 12d per day for a craftsman but food prices rose faster than wages during this period. Building workers at Hardwick about 1590 were paid at roughly the same daily rate as the millstone makers, so the

latter, having continuous employment, should have been relatively more comfortable. Unlike the indoor trades usually associated with dual occupations, millstone making was incompatible with part time farming and quarry rent was based on the assumption that a full time worker was available throughout the year. The rarity of probate material in relation to the number of millstone makers suggests a pattern of consecutive rather than concurrent involvement in industry and agriculture, with quarrying providing an occupation for younger men who might later inherit, buy or lease an agricultural holding. This was of course more likely to be possible for a childless man like the John Wainwright—not necessarily the millstone maker of 1590—who died in 1610 having recently bought a small property in Beighton which he left to a Hathersage nephew. Between 1624 and 1626 Thomas Siddall, millstone maker, arranged to lease some agricultural land for three lives including that of his son John, and a John Siddall of Hathersage Booths died in 1687 with millstones and tools in Yorkshire worth £10 as well as a haystack and animals worth £15 and household goods worth about £10. Similarly in 1634 a Baslow millstone maker, John Brightmore, had an inventory total of £100 of which £60 was out on loan and the remainder included twelve pairs of millstones worth £13 10s and five animals also worth £13 10s as well as quarrying tools and domestic equipment.¹⁰

Millstone makers who not only used their own tools but retained ownership of the finished stones were sometimes able to become carriers or merchants. Between 1623 and 1625 Francis Dakin supplied 42 millstones after representatives of King's Lynn rode from Bawtry to the Peak and payment was made on delivery at Bawtry to Thomas Dakin for the use of Francis: both names can be traced in the Hathersage registers, a Thomas Dakin was one of the four appraisers of John Brightmore's inventory in 1634 and a Francis Dakin was buried in 1644; the 1663 inventory of Simon Dakin of Hathersage Booths included not only millstones but nine picks, twenty-five wedges and other quarrying tools. In 1653 Thomas Rodiard of Hathersage left a pair of millstones lying in the townhead to his nephew Thomas and the rest of his millstones lying in Booth edge to his cousins; in 1664 another nephew, John Ryddyard, had a half share worth £2 15s in eleven stones, a one third share worth 8s 4d in another five stones (divided between his partner and Humphrey Siddall and himself) his own working tools worth 16s and a share of other tools worth 12s 6d. The 1662 will of Francis Wilcockson left all his goods, interest, right and title in Booth edge or any other quarries to his sons Matthew and Anthony; another son named John may have been the John Wilcockson who was described as a millstone getter or millstoneman when he apprenticed three sons to cutlers between 1678 and 1683. It is more difficult to identify eighteenth century millstone makers because they had lost their independent status, but among them were Matthew Wilcockson who died in 1729, Richard Hibbert whose son was apprenticed in 1739 and John Littlewood who was killed in the edge in 1754.¹¹

The tools and methods used to prepare building stone in antiquity hardly changed until the late nineteenth century, so it can be assumed that millstone making techniques remained static. However some of the earlier peak stones were made thin with rounded edges and were notably convex or mushroom shaped, whereas nineteenth century peak stones were thicker and cylindrical like edge runners although they usually differed from grindstones in having one slightly convex side. As numerous early medieval millstone grit stones excavated recently are cylindrical, the large domed mushroom shaped peak stones may have been a late medieval or early modern innovation. The very few used ones which have survived are dressed and worn on their flat sides only.¹²

The millstone men would prepare stone for other purposes when required: the Hathersage overseers' accounts record a small gratuity to them for breaking stone for the highways and in 1675 a stone trough accompanied a shipment of peak millstones and quernstones to Colchester. Quernstones were still made in the eighteenth century, but were mainly used for malt grinding. Most of the quarries were in exposed situations so small shelters were built among the rocks, often associated with the smithies which were necessary to sharpen tools at frequent intervals.

A shelter and smithy on Gardom's edge with its characteristic water catchment basin was chosen for excavation in 1964 and others can be found in the Hathersage area.¹³

Millstone quarries usually belonged to the lord of the manor who could exploit them directly under the supervision of a steward or indirectly through a lease. The manors of Over Padley and Hathersage belonged to the Fitzherbert family in the late sixteenth century but their recusancy led to many claims on their estates, especially by the Earl of Shrewsbury and his dependants and successors, one of whom attempted to sell Hathersage to Sir Edward Leech in 1637. After further financial complications arising out of the civil war, the Fitzherberts and Leech were bought out by the Pegges and Rowland Morewood in 1656. Documents associated with the sale state that millstones were made on the open moors as well as on four named edges: Booth edge, not just at Hathersage Booths as shown on recent maps but also including the present Millstone edge; Reeve edge which included the area now known as Burbage Rocks; Stanage; and Yarncliff by Burbage brook above Upper Padley. Edward Pegge estimated in 1669 that his half share of the manor and millstones was worth £40. In 1671 the Ashtons who already owned Nether Padley bought Over Padley which descended to the Spencers and Shuttleworths, but the Pegges then acquired Morewood's share of Hathersage manor. It was sold to the Duke of Newcastle in 1705 and passed to the Duke of Devonshire in 1743.¹⁴

Although other successful merchants like the Morewoods may have wished to control the means of production by buying or leasing the quarries, the seventeenth century probate material shows that family groups and small partnerships of millstone makers leased individual quarries and were not merely employees. A change occurred about 1684 when John Rotheram junior paid £80 per annum to the Pegges for all the Hathersage millstone quarries; in 1687 he was prepared to pay £85 to cover up to twenty workers in Hathersage and Dore. In 1695 he began to pay £4 per annum for a millstone quarry in Chatsworth park and in 1710, having leased the Rivelin quarries, he closed them in order to protect Hathersage. By 1722 the only Hathersage quarry worked by the Rotherams was at Booth edge; they were still leasing it from the Duke of Devonshire between 1744 and 1751 although they abandoned the quarry in Chatsworth park after 1745. The independence of the millstone makers was diminished by the Rotherams' control of so many quarries; low wages were accepted in return for the provision of working tools and some men became indebted to their employers.¹⁵

Suitable outcrops of millstone grit encircle the carboniferous limestone of Derbyshire so small quarries to the south and west continued to produce millstones for markets which were unaffected by the eighteenth century promotion of Booth edge. Millstones in the making were seen by the Browne brothers near Chatsworth in 1662; there are pre nineteenth century millstones nearby on Dobb edge and Defoe gives the impression that they were being made even closer to the house. Although the term grindstone was not as ambiguous as the Latin word *mola* had been, a grindstone quarry in Ashover in 1662 may have been the one listed by Farey at the beginning of the nineteenth century as a former millstone quarry. Other earlier quarries listed by Farey were at Curbar, Eyam and Matlock, but their periods of use are unknown. In the eighteenth century Bamford edge was controlled by the Ashtons, as was Yarncliff; although it proved difficult to find buyers, some millstones were made in Offerton edge and others were made at Kinder and at Mow Cop on the Cheshire border.¹⁶

A contraction in the demand for peak stones began at the end of the seventeenth century as long lasting imported cullen stones became available again after a long period of disturbances in Europe and in the North Sea. Demand for peak stones diminished further because the proportion of wheat bread eaten increased during the eighteenth century. In a case concerning the compulsory use of Fairfield mill in 1727 evidence was given that both pairs of stones were grey peak stones and unfit to grind wheat and one witness claimed that wheat was always ground on black stones despite another who said there were no black stones used nearer than Ashford and it was usual in that area to grind wheat on grey. But although blue-black cullen stones were

more satisfactory than peaks they discoloured the flour and were themselves superseded by french stones. The preference for white wheat flour was an indicator of general prosperity but nevertheless particular local resentment was shown against the french stones used by the Derby millers during the grain shortages and riots recorded throughout northern and midland England in 1755-6. By the end of the century the grain exports encouraged by bounties since 1689 had ceased, and regular wheat imports were necessary to feed the enlarged manufacturing population, no longer willing to eat bread made from inferior grains.¹⁷

The contraction of the peak millstone industry is illustrated by successive reductions in the rent of Booth edge, from the £53 paid by the Rotherams between 1744 and 1751 to £33 paid by Samuel Watson in 1755-6 and to £15 paid by an unnamed tenant between 1784 and 1790. In the latter year John and Anthony Lowe of Hathersage were working the quarry used by their late grandfather John Lowe of Calow, but their advertisement in the *York Herald* does not specify its exact location and the Gainsborough firm associated with the Lowes for sales of both peak and french stones was not that usually used by lessees of Booth edge. In 1792 Richard Oddy leased Booth edge for £60 but as he was unable to pay more than half this rent, the arrears were eventually written off and the rent reduced to £35. Demand for peak stones only revived a little during the Napoleonic wars because imports of french burrs continued, including some under licences granted in 1809 and 1810, and other acceptable alternatives made from Derbyshire chert had been developed by Henry and Samuel Watson. Smaller cylindrical millstones may have been reintroduced so that they could be used together with french stones, as french runners were being used with Monmouthshire ledger stones. Various new industrial uses were found: an example can be seen at Cheddleton flint mill in Staffordshire of a mushroom shaped peak face runner which was used to grind flint for the pottery industry for a short time before 1726 when wet grinding was introduced. Although Farey only listed sandstone quarries as sources for grindstones, very coarse grindstones for the cutlery trades were made in Hathersage from millstone grit and during the eighteenth and nineteenth centuries enormous edge runners were made for crushing lead ore.¹⁸

Sales of millstones were sometimes made direct to the consumers who visited the quarries themselves to choose their purchases but as few millers could visit quarries at a distance, middleman carriers or merchant traders were necessary to exploit the potential market. The letters found inscribed on domed millstones were sometimes cut into them after sale to locally resident dealers: the 1647 will of Francis Curtis stated that his millstones in the edge had identifying letters on them and in 1466 some Yarncliff stones were similarly marked by the buyer. Fairs, where large numbers congregated, were obvious sales points so millstones were sold during the February mart at King's Lynn, but like corn, millstone sales could be negotiated privately at inns during fair time for later delivery, thus escaping toll.¹⁹

The large stocks held at King's Lynn acted as a unique stimulus to sales in East Anglia throughout the year for no individual merchant could have afforded to keep so many. Their peak stones were obtained through Bawtry merchants initially until direct contact was made with the quarries in the seventeenth century. Stones were often chosen and paid for by millwrights on behalf of millers living far away from Lynn; cultivating an acquaintance among the millwrights was mentioned as a means of selling stones from Offerton edge in 1722 and a Shrewsbury millwright was making french stones near the end of the eighteenth century. Advertising in newspapers was also suggested in 1722, although it was hardly respectable at this time for well established concerns; even in 1790 the Lowe brothers made a point of the fact that they had only recently taken over their grandfather's quarry.²⁰

Millstones could be carried overland for long distances in the fifteenth century: in 1412 a pair from Baslow was delivered in the winter months to Harlaston in Staffordshire and in 1466 two pairs were taken about fifty miles from Padley to Loughborough. The millstones shipped outwards from Boston in the fourteenth century may have been peak stones because Derbyshire

lead was shipped through this port. However, these medieval records may be misleading because Grimsby was counted as part of the port of Boston although after 1565 it was part of the port of Hull: it is therefore possible that goods shipped down the Trent were entered under the port of Boston although it is equally possible that millstones were taken overland or used inland water transport when the Fossdyke and Witham route was open. The roads were good enough in the post medieval period for them to be taken overland to Bawtry and to Hinckley in Leicestershire so the inland distribution area can be assumed to include other places within about forty miles of the quarries.²¹

In the sixteenth century many peak millstones which were not sold locally were sent overland initially to Stainforth on the Don and later to Bawtry to be shipped down the Idle and the Trent. By 1723 some of the opponents of an improved Don navigation regarded the carriage of millstones via Rotherham and Doncaster as a myth, because by then all the quarries were located south of Sheffield, but new quarries were opened at Rivelin before 1767. It seems unlikely that the trade was ever monopolised by Chesterfield for until the opening of the Chesterfield canal in 1777 there was little incentive for either Hathersage or Rivelin products to be diverted from more direct routes further north. In 1720 John Rotheram's stones were stacked between Hathersage and Bawtry at Dronfield and at Oldcoats and at Tickhill where there is still a Millstone Inn.²²

There is another Millstone Inn at Hathersage Booths and although it is impossible to assess the antiquity of names which are not recorded until the nineteenth century, they include Millstone Hole at Rivelin, Millstone Car at Totley, Millstone Bridge east of Baslow, Millstone Sick on Beeley Moor and Millstone Close at Darley. An early route across the east moor can be identified from millstones abandoned alongside it; a 'mylneston waye head' was mentioned in the Baslow court rolls in 1592 and a millstone gate on the east moor was recorded in 1714; the millstone track shown on modern sketch maps above Curbar edge does not appear to be related to this earlier route. East of Chesterfield the inhabitants of Calow, seeking extra-parochial aid for mending their highways in the mid seventeenth century, claimed millstones as one cause of excessive wear; a Millstone Yard at Palterton suggests a continuation of the route towards Mansfield. Southwards a Millstone Lane leads from Oakerthorpe towards Ripley which together with the location of a carrier at Oakerthorpe before 1618 suggests use of this route south towards Derby, Nottingham and Leicester. Another Millstone Lane near Ashford mill suggests the use of the Portway, although it may be associated with the french type stones made from local chert rather than with peak stones.²³

It is well established that in the nineteenth century millstones were carried on wheeled vehicles and the loading bays found in the quarries where cylindrical millstones were made confirm this practice. The use of sledges for moving millstones is not documented although they were used near Rivelin for wall building materials in the early eighteenth century and an ox sled appears in a late seventeenth century millstone carrier's inventory among his agricultural equipment. About the same time Defoe described another method whereby pairs of peak stones were coupled together with a wooden axis. Some confirmation comes from the will of Francis Curtis who in 1647 left four pairs of stones lying in Reeve edge to his son in law: 'three pair axeled the other pair not yet bored'. A large axletree was necessary to set up the stones in a mill so the thirty 'axiltrees for mylnestones' valued at only 7s 6d in William Barlow's inventory of 1610 were more likely to have been smaller ones inserted at the manufacturing stage. It does not follow that all peak millstones were axled and rolled many miles cross country, for lead travelled by cart to Bawtry in the seventeenth century and axled pairs of cylindrical millstones are believed to have been loaded on to wheeled vehicles later. However, in Scotland single large millstones were rolled for long distances supported by a millwand inserted through the eye. Peak stones bought by Lynn were almost invariably in matched pairs as far as diameter was concerned, although they were usually sold singly; in 1688 payment was made for the mending of an axletree

before a pair of stones could be taken from Bawtry hill down to the wharf. However payments were also made for boring wood out of the millstone eyes, which was perhaps necessary before unloading with the Lynn crane which had a special needle for millstones and in 1646 the accounts included a payment for a pair of wheels for carrying millstones at Lynn.²⁴

Among the few known millstone carriers was Thomas Sutton of Oakerthorpe in South Wingfield, whose father Christopher Sutton had left him his whole draught of ten oxen worth £26 8s 8d in 1584. Thomas died on his last journey in 1618 when his half share of two pairs of millstones was £11 5s; the moiety of another pair of millstones standing at Hinckley was valued at £4 and his fifteen oxen were worth £95. Although his inventory total was over £276, he owed £113 of this sum which was roughly the amount invested in his millstone business. Carriers were wealthier than millstone makers and some could be regarded as merchants, but it was unusual to own so many draught animals: Francis Curtis who had millstones in Reeve edge awaiting transport in 1647 only owned five oxen; in 1677 Francis Sykes, a Dronfield husbandman described as a millstone carrier in his will, owned four oxen together with cows and a calf worth £32, seven pairs of stones worth £35 standing at Bawtry and another sixteen and a half pairs of stones worth £30 in the edge. At the beginning of the seventeenth century it was considered essential for a husbandman in Kent to have additional uses for his oxen besides ploughing; between two and eight were kept on holdings in north east Derbyshire although major landowners kept enormous numbers of draught oxen. At the end of the century they were still used in this district but were being replaced by horses.²⁵

Assuming that they were of similar sizes to those left at the quarry, the cost of transport to Bawtry more than doubled the value of Francis Sykes' millstones. The heavy cost of overland carriage can also be found among the accounts for work at Ecclesall mill about 1680 when payment for a pair of stones was £4 16s and carriage of them added another £3 12s. Although size and provenance were not given these were almost certainly peak stones and the total price of £8 8s was comparable with the £9 10s paid in 1676 for millstones taken to North Elmsall from Bradfield. A Derby correspondent reported in 1693 that millstones were available at £8, £9 or £10 a pair and in 1722 the usual rate for making a pair of 18 hand millstones was £2 10s with overland carriage from Offerton edge to Derby adding another £4 10s. Prices of peak millstones available at Bawtry in 1727 were £5 for a pair of 14 hands diameter, £7 for 16 hands, £9 for 18 hands and £11 10s for 20 hands. Both native and imported millstones were measured in hands between the fifteenth and seventeenth centuries but the size of the hand then in use is not known. By the eighteenth century imported stones were measured in inches whereas the hand by which peak millstones were sold at Bawtry was defined as $3\frac{5}{8}$ inches so that a 16 hand millstone was 58 inches in diameter; they must have been measured across the flat side because the degree of curvature of the domed side is so variable. In 1811 Farey commented that the cost of peak millstones increased by a guinea a stone for each 3.6 inches in diameter, a measurement almost identical with $3\frac{3}{8}$ inches; nevertheless he chose to quote prices in feet and inches, from £10 10s for a 5ft pair, £12 12s for 5ft 4in, £14 14s for 5ft 8in, to £16 16s for a 6ft pair.²⁶

Long distance inland routes over forty miles were rarely used for peak millstones before the canal and railway eras: the early improvement of river navigation within the Humber basin reinforced the use of the established coastal route so that the turnpiking of major roads began later than elsewhere. On the earliest 1739 road from Worksop to Chesterfield tolls of 2s were payable for each pair of millstones and on the Sheffield to Wakefield turnpike road the toll to be charged for a pair of millstones or for a single millstone requiring five or more draught animals was 2s 6d, whereas only 1s was charged for a waggon with four horses. No millstones can be identified in the daily accounts of a tollbar keeper on this road between 1760 and 1762, perhaps because all the millstone tolls were paid at another gate. However it is also possible that millstone carriers, like cattle drovers, avoided the payment of tolls by using alternative unimproved roads; or that they stopped drawing axled pairs of stones on roads whose toll structure encouraged the

use of waggons. From 1759 until 1825 there was a special concession on the turnpike road between Chapel en le Frith and Sheffield whereby grindstones could pass free of toll.²⁷

Whilst little is known about the inland trade in millstones, both coastal and overseas trade can be traced through the port books which recorded the inward and outward trade at each major port and its dependencies to ensure that the appropriate national duties were paid. They should not be confused with the local toll books which exist for some ports. From 1565 both ships and cargoes were described in detail and although goods going coastwise did not pay duties they were still recorded, usually in separate books, to prevent their unauthorised export overseas. The port books of Hull have survived intermittently up to 1670 and are available for most years thereafter.²⁸

The port books distinguish between various types of stones which were listed and given approximate values in a series of books of rates. These were updated at infrequent intervals so the prices at which goods were bought and sold were often much greater than the nominal values on which duties were paid. The value of a millstone was increased from £1 in the early sixteenth century to £2 in 1558 and to £3 6s 8d in 1604. The basic subsidy payable was 1s in each £1 of value plus another 3d custom in the case of alien merchants. In the early seventeenth century, instead of continuing to revise the books of rates, new impositions were put on certain goods including millstones at twice the basic rates of subsidy and custom so that altogether indigenous merchants paid 3s and aliens 3s 9d in the £1. These duties applied to imports must have helped to make peak stones more competitive in England. Imported millstones were revalued at £10 each in 1660.²⁹

The numbers and destinations of millstones recorded in the Hull coastal books between 1565 and 1690 are given in Table 1. All years end at Christmas except 1592, 1598, 1600 and 1602, the latter covering a half year only. The figures for 1636, 1667 and 1672 are substantially complete although the books were slightly damaged, but the books for 1676, 1678, 1681 and 1689 were all in such poor condition that figures for these years have not been included. The figures given for 1687 are incomplete because one consignment of millstones for Lynn and another for London were partly illegible. The numbers of stones are usually but not always expressed in pairs in the port books but they are all given in the table as single stones to avoid confusion.³⁰

No millstones were recorded before 1592 although the coastal books extant cover more than half of the years between 1565 and 1586; yet consignments of peak millstones are known to have gone to Lynn from Bawtry in some of those years as well as in the years between 1586 and 1590 and between 1602 and 1625 when the Hull customs were farmed. The deficient record in the sixteenth century must be associated with complaints that lead loaded at Bawtry often escaped registration at Hull, although some lead carried in the *Bartholomew* of Stockwith on behalf of the Earl of Shrewsbury was entered in the book for 1573 and several consignments of scythestones and grindstones were recorded. In the seventeenth century scythestones continued to be carried coastwise from Hull but grindstones almost invariably came from the Newcastle area. As millstones made in the northern Pennines had separate outlets by the Tees and the Wear, all the millstones recorded in the Hull port books can be assumed to have been peak stones.³¹

London and King's Lynn were the most usual destinations for peak millstones until the middle of the seventeenth century. The main competition in eastern England came from the relatively expensive imported stones but there were several other millstone quarrying areas that supplied western England and Wales. In 1627 a consignment of twenty millstones was sent to London from Liverpool and it was during this decade that Lynn stopped importing cullen stones. After the mid century disturbances more peak millstones went to London and some began to go to the Essex ports to supply such mills as the peak mill at Writtle, where one was in use in 1693. Direct shipments to south coast ports were initiated by William Wimbleton of Andover in 1674: he arranged for two ships to collect 24 millstones each, one consignment for Poole and the other

	1592	1598	1600	1602	1625	1627	1628	1634	1636	1645	1655	1664	1667	1672	1673	1674	1675	1677	1679	1680	1683	1684	1685	1686	1687	1688	1690
Berwick	4																										
Whitby																									2	6	
Boston				16																							
Lynn	34	26	(4)	18	66	18	68	22	38	38	38	32	14	17	34	42	2	6	22				(?)	14	16		
Wells									16			38															
Blakeney								18																			
Yarmouth									2																		
Ipswich												18															28
Colchester									38			33	18	34					43	34					26		
Maldon									12					11			18								20		
London	34	4	4	8	5	12	18	36	28	84	6	14	29	68	86	52	66	95	92	57	34	91	(46)	34	10		
Shoreham												20															
Chichester												20							12								
Southampton												24	24					52	32	21				24			
Poole												24	20														
TOTALS	34	38	30	(4)	38	74	23	80	40	92	82	136	38	28	57	150	283	88	120	153	179	134	34	91	(90)	76	60

Table 1: Millstones shipped out coastwise from the port of Hull

for Southampton; the following year when a spectacular total of 283 stones went coastwise, 64 stones went to Chichester, Poole and Southampton and another 22 to London in his name, and 20 stones went to Shoreham for a different merchant.³²

After 1680 a distinction was made between goods under bond which had to be entered in the port books and those which were allowed to pass coastwise with less formality. Because imported millstones paid duties, peak millstones were evidently regarded as a dubious category so many continued to be registered. However the coastal books after 1690 have not been examined systematically, an additional reason being that the total volume of trade recorded is so large that the task of extracting figures for a single commodity would be excessive. Shipments of peak stones to Southampton continued into the eighteenth century but there was a permanent reduction in the numbers going to Lynn coastwise. The harbour at King's Lynn was silted up for some years and the reopening of the medieval route from the Trent to Boston may have prompted the passage of millstones to East Anglia by inland waterways, for five tons of millstones paid toll on the Fossdyke in 1715.³³

Many small batches of millstones sent to London were registered under the names of the owners of the principal cargo, who were often Derbyshire lead merchants. So long as aliens did not engage in trade under cover of indigenous merchants, the authorities were not very particular. Consignments for Lynn tended to travel alone, sometimes under the name of the person responsible for the borough's millstone stock and at other times under the name of their supplier. Although smaller ships could load millstones at Bawtry, the usual routine was for the use of lighters down the river Idle with transshipment at Stockwith on the Trent. Drainage schemes for the Hatfield and Axholme areas benefitted Bawtry at the expense of Stainforth because the Bickersdyke branch of the Idle was kept open, although the control of trade by the lord of the manor of Bawtry caused considerable irritation. In 1655 and 1664 the home ports on the lower Trent were named in the port books more specifically than usual and included Burringham, Althorpe and Kinall (Owston) Ferry as well as Stockwith and Gainsborough, showing that the managing shipowners lived in all these riverside villages. The location of the custom house at Hull where ships had to unload into lighters for inspection was another cause of discontent, revealed by a 1682 petition from Gainsborough and Stockwith, some of the signatories of which correspond with the names of masters of millstone carrying ships in the previous decade.³⁴

Certain shipmasters appear to have favoured millstone cargoes and perhaps some ships were more suited to their carriage than others. The *Content* of Stockwith habitually carried millstones to Lynn in the 1620s under a succession of masters, one of whom reappeared engaged in the same trade as master of the *Grasshopper* in the 1630s. There are five examples of indigenous masters carrying peak stones on their own account in the seventeenth century. Each master had to pass an oral examination to qualify as a pilot for the Humber and for whichever ports he visited so millstones destined for south coast ports were usually collected by ships from that area or transhipped at London: towards the end of 1675 the merchant who had already sent 32 pairs to Southampton, Chichester and Poole loaded a further 11 pairs into William Burton's ship which only went as far as London. Ships normally reached their destinations within a few days of registering their cargoes, although certificates of arrival were not always returned promptly to Hull. Anyone who deliberately took goods overseas without paying duties might forfeit the whole value, but nevertheless ships were occasionally driven overseas by unfavourable winds or taken by pirates and in 1645 during the Civil War a cargo including millstones was captured by 'a Dunkerker having the king's commission'.³⁵

According to Defoe millstones and grindstones were exported to Holland, yet examination of the Hull overseas port books for 1634 and 1684 shows that no millstones were exported direct from Hull in either year. As large numbers were taken coastwise to more southerly English ports in both years, further investigation is needed to discover whether some of those sent to London or Southampton were taken overseas in larger ships or whether the export of peak millstones to

Europe and America only began in the eighteenth century. The increase in the coastal trade in response to shortages of continental millstones caused by war and piracy in the seventeenth century suggests that an export trade would have been hampered for the same reasons. Reduced demand for peak stones for grinding wheat once superior millstones were again available may have stimulated a search for foreign markets at the end of the seventeenth century although the cost of freight would have tended to make peak millstones less competitive abroad than they were at home and ultimately less profitable for the makers.³⁶

The records at King's Lynn concerning the trade in peak millstones have been used to confirm and illuminate the evidence from other sources: as it was the most regular destination in the seventeenth century it is fortunate that detailed accounts have survived. The records begin near the end of the thirteenth century when the merchant gild of the Holy Trinity held a stock of 80 millstones associated with a stock of gravestones. The profits from trading were part of the endowments of the gild in the same way that they and other town gilds managed a common fund derived from property. A more regular series of account rolls covers about thirty of the years between 1375 and 1509. Retail sales were listed and sometimes the wholesale prices paid to named merchants, but the places of origin of the stones were not given. They were probably all imported cullen stones because sizes never exceeded 15 hands, whereas at Padley in the fifteenth century the merchantable sizes of peak stones were 15 or 16 hands; this difference in sizes of cullen and peak stones was equally marked in the sixteenth century. The fifteenth century retail prices of Lynn's millstones were about double the prices paid wholesale, and the nominal valuation of the stock was the mean of the buying and selling prices: 12 hand millstones were valued at 15s, 13 hands at 30s, 14 hands at 40s and 15 hands at 50s.³⁷

In 1548 the borough of King's Lynn recovered the confiscated property of their gild including the millstone stock then worth £40. It proved convenient to buy and sell millstones directly by the senior town dignitaries or through a salaried official rather than to farm the millstone trade for fixed sums, and the accounts were usually audited annually at meetings in the common hall. A municipal monopoly was enforced against burgesses dealing in millstones on their own account which can be traced through the fining of the recalcitrant, but the ordinances were not directed against non burgesses who regularly paid fees for landing their millstones and quernstones at Lynn. Brief entries in the hall books are the only record of the borough's millstone trade before 1590: at first they do not distinguish between different types of millstone, but in 1558 a stone bought by the town was lying at 'Stanforth' which suggests Stainforth on the river Don. In 1566 they bought millstones in Flanders and in 1570 the town miller had not yet paid for two peak stones delivered to him. In 1573 during hostilities in the Low Countries royal permission was given for Lynn to obtain millstones from Emden; 80 cullen stones and 42 peak stones were added to the stock between 1576 and 1580.³⁸

In the final decades of the sixteenth century two other types of millstone were stocked by Lynn: there was a large pair of loggerd stones at the town's rye mill in 1581 and in the following year there were 50 white stones in stock. 32 white loggerd stones were bought in 1587, three pairs of which were still lying at the waterside in Stockton upon Tees in 1589. The following year 28 peak and 52 cullen stones were bought and 6 loggerds, 4 peaks and 45 cullens were sold. In 1593 12 peaks and loggerds were sold, 4 more loggerds in 1594 and the last two loggerd stones were supposedly sold in 1595, although an old peak or loggerd, apparently indistinguishable, was among the millstones sold at the Mart in 1597. Millstones were made at high altitudes in the northern Pennines and their availability explains why so few peak stones were ever sent northwards. Lynn's trade in french stones began after 1587 when the mayor bought five pairs for sale on his own account and paid a nominal fine of 40s for encroaching on the borough monopoly. Evidently the venture was a success for about 50 french stones were bought and sold by the borough between 1595 and 1646.³⁹

From 1590 to 1810 about two thirds of the years are covered by separate millstone accounts

associated with the common staithe accounts, from which it is possible to extract the numbers of millstones bought and sold for the benefit of municipal funds. They usually run from Michaelmas to Michaelmas in the seventeenth century and from 25 March in the eighteenth century. A table by decades of the new millstones added to the stock shows a change from cullen to peak stones followed by declining sales of peaks. The table has been derived solely from the millstone accounts and has not been supplemented by information for the missing years that can sometimes be found in the contemporary hall books. After the middle of the seventeenth century the King's Lynn records stop illustrating the overall trends in the millstone trade, because the municipal monopoly was not enforced and no foreign stones were stocked by the town; nevertheless a slight increase in sales of peak stones at the beginning of the nineteenth century reflects shortages of imported stones.⁴⁰

	PEAK STONES			CULLEN STONES	
	Y*	M*	M/Y*	M*	M/Y*
1591-1600	5	140	28	100	20
1601-1610	2	34	17	32	16
1611-1620	9	192	21	128	14
1621-1630	9	264	29	54	6
1631-1640	9	214	24	All Cullens sold by 1630	
1641-1650	8	146	18		
1651-1660	2	85	42		
1661-1670	2	16	8	FRENCH STONES	
1671-1680	2	46	23	About 50 French bought 1595 to	
1681-1690	6	100	17	1633 and the last sold in 1646	
1691-1700	5	76	15		
1701-1710	1	0	0		
1711-1720	10	41	4		
1721-1730	10	58	6		
1731-1740	10	76	8		
1741-1750	8	66	8	*KEY	
1751-1760	7	56	8	Y =	numbers of years for which
1761-1770	6	50	8		accounts are available
1771-1780	7	29	4	M =	numbers of millstones known
1781-1790	9	57	6		to have been bought
1791-1800	9	34	4	M/Y =	average numbers of millstones
1801-1810	9	80	9		bought each year

Table 2: Millstones bought for resale by the borough of King's Lynn.

The dates when millstones were nominally added to the stock do not necessarily correspond with either first or final payments or with their actual receipt at Lynn which might be delayed for over a year, thus making identification with the entries in the port books difficult. A single order might travel in separate batches and conversely stones from separate suppliers might travel together as in 1651 when each shipload from Bawtry was made up with a range of sizes taken from more than one supplier. In addition the Lynn accounts often fail to distinguish the suppliers from the intermediaries to whom payment was made. Sometimes speculative cargoes of cullen stones were brought into the haven but more often Lynn merchants were asked to make arrangements to replenish the stocks. In 1595 the erection of rails - called a bayard in 1613 - for peak stones to stand against in the common staithe yard signalled an increase in the proportion of English to foreign stones. After this the current accountant for the millstone stock frequently trav-

elled to Bawtry or to Derbyshire to choose saleable stones himself. He could also draw on the expertise of the lessee of the town mills and in 1600 Richard Bunting, owner of a mill which had been copied for Lynn in 1595, was responsible for buying peak stones on behalf of the borough.⁴¹

In the fifteenth century most sales had been made to mills within twenty miles of Lynn and almost all to within forty miles. In the early seventeenth century peak stones were sold within this same area whereas cullen stones also attracted regular buyers from the inland counties of Leicestershire and Northamptonshire. Peak stones could be taken directly overland to Leicestershire and perhaps some other millstone quarries were still working because stones bought for Cambridge malt mills between 1585 and 1640 averaged only 22s each which was very much cheaper than any available at King's Lynn. When cullen stones became virtually unobtainable as a result of continental warfare, especially after 1624, buyers came from further afield in search of the dwindling stocks. The eastern parts of Norfolk and Suffolk were not normally supplied from Lynn, having equal access to imported stones through their own ports; the existence of a millstone maker who died at Norwich in 1656 suggests that unless there were millstone quarries in the vicinity, he might have been constructing french stones out of the burrs for millstones which were regularly imported about this period. No attempt was made to renew Lynn's cullen stocks after 1630 although a few millstones were brought from Rotterdam to Boston in 1639 and about the same time the town miller of Lynn insisted on having a new pair of cullens despite an exorbitant price of £57 7s 9d which he had to pay in instalments.⁴²

The retail prices of both cullen and peak stones varied according to diameter and thickness and were reduced for cracked or flawed stones which were nevertheless saleable. None of the cullen stones at Lynn in the early seventeenth century exceeded 17 hands and most of them were 14 or 15 hands, whereas peak stones ranged from 15 hands to 21 hands, most being 17, 18 or 19 hands. Direct comparison is therefore mainly confined to the 16 hand size: about £3 10s was charged for a peak stone and more than double for a cullen; 14 hand cullens were sold at about the same price as 18 hand peaks. At Bawtry a century later peak millstones were only one third the price quoted for imported stones of similar sizes but this must reflect their lower transport costs up to the point of shipment.⁴³

The prices paid by King's Lynn for peak millstones at Bawtry can be separated from incidental expenses and freight charges, but it is still difficult to define the price trends because the sizes can rarely be identified. In the 1590s payments for each pair of peak stones ranged from £4 13s 4d to £7 6s 8d and two decades later prices had been reduced slightly, the cheapest being £3 13s 4d. By the 1630s when cullen stones were in short supply, peak stones were usually over £6 at Bawtry; after the civil war they rose to £8 in 1647 and to £11 in 1648. In the 1680s John Rotheram's millstones ranged from £6 to £8; his policies aimed at cutting down excess production seem to have been successful in forcing prices upwards for they were from £7 10s to £9 10s between 1714 and 1731 despite competition from imported millstones. In 1727 the usual prices of peak millstones at Bawtry were published in round figures: £5 for a 14 hand pair, £6 for 15 hands, £7 for 16 hands, £8 for 17 hands, £9 for 18 hands, £10 for 19 hands and £11 10s for 20 hands. Prices paid by King's Lynn in 1737 and 1741 confirm the large differences in value between sizes and show that in practice they were slightly lower for 16 and 17 hands and slightly higher for the 18 and 19 hand sizes.⁴⁴

At first Bawtry merchants supplied most of Lynn's peak stones until contact was made directly with the lessees of the millstone edges in Derbyshire. Richard Richardson provided peak stones in 1595, 1598 and 1599, on the latter occasion in partnership with William Mariot. In 1597 Peter Wasse, Yorkshireman, was paid for four pairs and Thomas Abbott for ten pairs, and Thomas Short sent another ten pairs in 1598. The lords of the manor of Bawtry or agents acting on their behalf were sometimes merchants in their own right as well as claiming tolls and freight charges on the river Idle. Richard Richardson of Bawtry was an officer of the Earl of Shrewsbury and negotiating in 1599 with other leading inhabitants including William Mariot and Thomas

Short concerning the tolls and wharfage due to his master and also concerning the blockage of the highways leading to the river by lead and millstones. He was described as a merchant in his will of 1623 when small legacies were to be paid to his keelmen and to each of their boys, and also to the porters, the ketchmen and their boys and the regular daily labourers. The 1602 will of William Mariot of Bawtry, yeoman, listed his keels and ketches. He owned two ketches and part of another, also a quarter share in the keel called the *William* and one eighth shares in four other named keels as well as an interest in 'one other new keel that is now upon the stocks at Bawtry'. The *William* of Hull of 24 tons carried millstones to Berwick in 1598, but clearly Richardson and Mariot were general merchants and shipowners and millstone sales were only a small part of their business. Less is known of Thomas Short of Bawtry, a yeoman who died in 1613 without making a will or of Thomas Abbott, a fishmonger of East Stockwith in Lincolnshire opposite the point where the Idle flowed into the Trent. As for Peter Wasse, Yorkshireman was probably a misnomer, for although a Lynn port book for 1597 also called him 'Petrus Walshe de Stavelie Netherthorpe in Com. Ebor.' the 1613 will of a Peter Walsh of Staveley, Derbyshire is extant.⁴⁵

For the first twenty years of the seventeenth century Richard Richardson dominated the peak millstone trade to Lynn. In the next decade peak stones came from Lindley Richardson and from Thomas Lidyard of Bawtry. An attempt to obtain cheaper supplies through John Noble of Bawtry was initially unsuccessful but with cullens almost unobtainable, steps were taken to increase Lynn's stocks of English millstones and in 1623 he accompanied a representative of Lynn to Derbyshire and secured a supply from Francis Dakin; other consignments came from Richard and Thomas Mynes of Chesterfield and between 1630 and 1650 William Revell of Coal Aston was the principal supplier although Sir John Lister, lord of the manor of Bawtry, and his son Samuel also had a direct interest in the trade; in the 1650s merchants included George Holmes, William Calgrave of Normanton, Samuel Whittington and Edward Marchland. John Rotheram of Dronfield was first named as a supplier in 1688 and was in association with Mr Sully at Bawtry in the 1690s; Lynn representatives travelled to Dronfield in 1716 and millstones were ordered from Samuel Rotheram in 1737; between 1748 and 1754 they came from the Rotherams through Mr Blakiston of Gainsborough. After 1755 Samuel Watson, the new lessee of Booth edge, continued to supply Lynn through Blakistons; from 1778 payments for the freight of the Watsons' stones to Lynn was made to John Castleton who continued to freight millstones from a Davenport Blackwell between 1785 and 1787. After 1788 supplies came from Thomas Greene of Baslow and also from Richard Oddy of Bubnell who was the lessee of Booth edge after 1794. The channelling of sales through the Gainsborough firms that controlled access to shipping occurred before the opening of the Chesterfield canal which finally bypassed Bawtry in 1777.⁴⁶

In conclusion, the medieval tradition of making millstones out of the millstone grit rock of the Peak district continued throughout the early modern period, with Hathersage becoming a principal centre of production. A coastal trade to London and King's Lynn developed in the second half of the sixteenth century when the supply of superior imported millstones became erratic and during long periods of warfare in the seventeenth century peak millstones found new markets in East Anglia and along the south coast. With a return to normal overseas trading towards the end of the century, cullen stones with their reputation for quality and longevity were once again imported: there was a sharp fall in the demand for peak stones so total production had to be reduced to a level where most of it could be absorbed near the manufacturing area to avoid incurring uncompetitive transport costs. Further contraction in the second half of the eighteenth century arose out of the fashion for white wheat flour, to which peak stones were unsuited. The impact of the loss of the whole millstone market apart from the stones used to grind animal feed can be seen at Lynn in a further reduction of stocks and in Derbyshire in the reduction of quarry rents. The nineteenth century revival of the peak millstone quarries was associated with increased demand for coarse grindstones for industry and the availability of new forms of inland transport.

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National grid references have been included in the notes for places not indexed in the Ordnance Survey Motoring Atlas of Great Britain (2nd ed 1985) although the location of most quarry sites can only be approximate.

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