Mills on the Rase

Jon Sass

At first sight the Rase seems an insignificant little river, an oversized stream would be a better description, but from time immemorial it has been harnessed by man to drive corn, fulling and paper mills and serve other small industries. It is now difficult to imagine that no fewer than ten water wheels once worked between Tealby and Bishopbridge where the river flows into the Ancholme.

TEALBY

The Rase rises from abundant springs high on the side of Bully Hill overlooking Tealby. This picturesque village nestles under the western escarpment of the Lincolnshire Wolds, three and a half miles east of Market Rasen. There is a considerable fall of nearly 250 ft from the site of the uppermost paper mill on Bully Hill to Thorpe corn mill, a distance of just over two miles (Fig. 1). Because of its geographical location Tealby has been an important centre for water power since before the Norman Conquest. The Domesday Survey records fourteen mills at Tavelsbi, as it was then named, and five in the three villages of Market Rasen, Middle Rasen and West Rasen. These are listed below in Appendix A. With the dissolution of the monastic houses in 1536 several grants of monastic lands and other properties in Tealby were made by the King, including a water mill which had belonged to Newstead Priory near Bingley, which he gave to Richard Heneage.

Fulling Mills

Many mills were for grinding corn but other crafts also relied on the Rase for their power source. The fulling of cloth, to make it heavier and more compact through shrinking and beating or pressing, flourished in Tealby for several centuries. Fulling and weaving were natural by-products of the county’s major industry in medieval and later times, wool. Its pure spring waters and fast-flowing river made Tealby quite a centre for the fulling industry and it vied with other centres at Louth and Lincoln. Evidence for this trade in Tealby is entirely documentary. For example, an indenture of 1585, describes a John Suddabbe of Tealby as a fuller with a watermill. A fulling mill is recorded as late as 1792 and a weaver in 1802.

Paper Mills

Paper manufacturing was also an important industry and flourished in Tealby during the latter half of the eighteenth century and the early nineteenth century, when up to four paper mills were at work at one time. The earliest reference to paper making so far uncovered is of 1731 when William Hemsworth, paper maker, was married.3 (There are records of a paper mill at Caistor in 1677 but it was probably defunct by 1703). By 1800 Tealby, together with Houghton near Grantham, Leasingham near Sleaford and Louth were the main centres of paper production in Lincolnshire. During this period the paper mills at Tealby would probably have been single or no more than two-vat mills. The principal ingredients for making white writing and printing papers were fine linen and cotton rags. Although rag houses were noted here and at least one of the mills was advertised as ‘adapted to manufacture paper of the best quality’ it is doubtful whether quality writing paper was ever made at Tealby.5 A more likely product would have been the common brown, whitened brown and blue papers which were used for wrapping and packing. Coarser raw materials such as poor rags, old rope, netting, canvas and bagging were used in their manufacture.6

The pure water from springs was essential for good paper making and Tealby was an ideal site for the industry. Only about eight reams of paper could be made in a single vat mill per day. Many small-scale producers of paper, similar to those recorded in the area, would often combine the production of paper with another occupation such as farming or corn milling and fulling, the latter two sometimes being carried out under the same roof.

An old saying states that ‘rags make paper, paper makes money, money makes banks, banks make loans, loans make beggars, beggars make rags’.7 This could well have been applied to the paper makers in Tealby as it was clearly a precariously craft to be involved in. Records show many fluctuations in the price of paper and the bankruptcies which resulted. In 1800 for example it was reported in London that ‘the memory of man cannot produce an incidence of such an enormous rise in the price of paper as at the present. Paper has risen 10% in one week and the rise is not likely to stop here’.8

Paper making declined in Tealby during the first quarter of the nineteenth century and had completely died out by the 1840s. This was possibly caused by improved mechanised processes at the larger, more established centres and the remoteness of Tealby from the large centres of popula-

Fig. 1 Mill Sites in the Tealby area as shown on Bryant's map of Lincolnshire, 1828.
tion and consequent excessive transport costs.

For much of the nineteenth century the majority of mills were owned by the Tennison D'Eyncourt estate and operated by tenants. Many interesting details are to be found in the estate records now housed in the Lincolnshire Archives Office at Lincoln Castle, which show the changes in use of the mills and their tenancy. Springside Mill as it was known in the nineteenth century was the first mill below the spring line high on Bully Hill. It stood off to the right above Paper Mill Lane as it winds down to Tealby from the Caistor-Horncastle top road. Tradition has it that it Peter one day saw a mill, probably supplying the fuller or paper makers in the area. It was converted to paper making before 1768 when it is recorded that Thomas Houghton insured his mill and utensils. Expertise in paper making frequently came from outside the district and Thomas Freeman who succeeded Houghton in 1770 came from Tamworth in Staffordshire. In the articles of agreement for the lease of the mill Freeman expected certain repairs to be made to the machinery and was allowed four guineas to repair the rag (storing) house.

Edward Whitehead bought the mill in 1816 or earlier, letting it to a series of tenants. He sold up in 1839 and paper making was finally abandoned there in 1841. An insight into the insecurity of the craft can be gained from observing the partnership turned of two tenants Haddock and Robinson. The *Stamford Mercury* on December 20th 1828 relates:

John Haddock of the firm Haddock and Robinson, paper manufacturers of Tealby in the county of Lincoln, called at the counting houses of Messrs Browne and Pretty at Chamberlains Wharf, London, got writted authority to draw upon the firm £105 and £77. He has not been heard of since. All persons warned against dealing with John Haddock. A reward is given for information of his whereabouts.

The *Stamford Mercury* also records the final outcome of their financial difficulties on February 20th 1829 with a notice of bankruptcy proceedings.

Only one week later the mill was advertised in the *Stamford Mercury*. It was described as 'a single vatted paper mill and requisite drying houses, engineers house, . . . with spacious dam and good descents'. It is known that the last tenant, master paper maker Henry Wright, improved the mill in 1833 when he returned it to operation after standing idle for some time. By 1839 when the property was advertised again it was described as a 'freehold and commodious mill situate upon a powerful stream of water and drying lofts, drying shades, store rooms, rag house, store room, barn, stables and wagon houses, besides two cottages for the occupation of workmen'. After 1841 the machinery was removed and the building was converted into two cottages and the waterways diverted. A photograph of 1939 shows a two-storey building of local stone and with a thatched roof. When Exley visited the cottages in 1940 he could still trace the track of the old waterway to the wheelpit. The building has since been demolished.

The stream crosses Papermill Lane below the site of Springside Mill and cuts a course roughly parallel to and left of Papermill Lane. Its rushing waters next powered High Mill. The earliest evidence we have of this mill is in an insurance policy which was taken out by paper maker Michael Grasham in 1794 when he insured the utensils and stock in the High paper mill and the Lower paper mill. He probably overstretched his resources in running two mills for we learn that by January 1799 he was bankrupt.

John Clarke from Louth followed Grasham and insured the 'brick built and tiled mill, moveable utensils and stock in trade' for the princely sum of £700 in 1801. It is interesting to reflect upon the dangers associated with the operation of the early steam engines, which were then taking over from the more traditional forms of power such as wind and water, for in the same insurance policy it is emphatically stated 'warrefted no steam engine'. Even so, hazzards abounded in the well-tried and familiar plant and machinery and the *Stamford Mercury* on February 5th 1802 reported that 'William Brown, journeyman to Mr. Clarke, paper maker of Tealby was caught by the wheel of the mill and bruised in so shocking a manner as to cause his death in a few hours.'

Sometimes unexpected problems brought the downfall of these hardworking and long-suffering businessmen, often hamstrung for the lack of working capital. Edward Clarke, grandson of John Clarke (and 80 years old in October 1939) related the story to Mr. Exley of his grandfather's downfall and eventual bankruptcy in 1804. He said that John Clarke sent a consignment of paper to America by a sailing ship which foundered in the Atlantic and presumably, through lack of insurance cover. Clarke lost £1,000 which crippled his creditworthiness. When Exley visited the site of High Mill in 1939 he found the building converted to a cottage. The track of the mill race was still visible and also the wheel house arch. In the garden was a stone building with a large fireplace which had been the former drying room for the racks of newly formed paper. He was informed that this mill made blue paper amongst other types. Only the brick culvert of this mill remains today, aside the stream with the outline of the mill dam above it.

Further down the valley there is a small waterfall, the last vestiges of a former leather working mill or small tannery. In 1828 it was occupied by a John Tyson but even at that early date it was disused or dismantled.

The next mill the Rase powered was Lower Mill, thought to have been built by the ill-fated Michael Grasham and purchased by Christopher Dinsdale in 1800, who at that time was described as 'mercer and grocer of Tealby'. He owned the mill until 1834 presumably letting the paper making to successive tenants. An insurance policy of 1802 described it as 'his water paper millhouse containing one stone but no steam engine, brick built and tiled.' There exists among the papers of the Tennison D'Eyncourt estate specifications of a drying shed (for paper) for Barnett paper mill as it was being called by 1837. The cottages had long been abandoned when the site was inspected in 1975. The ground floor was of local stone with an upper storey of brick with a tiled roof. The main walls were falling and overgrown with ivy; in the gardens were the remains of outbuildings which could once have served as drying houses and rag house.

Little remains in Tealby today to remind the visitor of the former thriving paper making industry; the skills, pride and heartaches of generations of craftsmen are now but a faded memory to the older inhabitants of the village.

**Corn Mills**

At the southern end of the village stands the picturesque and heavily remodelled Watermill House. It is still referred to by many in the village as *Tyson's Mill* in memory of the last family of millers there. An insurance policy of 1790 describes the mill and the adjoining house as being stone built and thatched. Edward Wheatcroft is the earliest recorded proprietor of this corn mill; and his initials are still to be seen carved in one of the roof rafters. He appears in several adverts advertising for journeymen millers but was reported bankrupt by 1799.
In 1823 the mill was sold by auction when it was described as a ‘water corn mill, three storeys high, with two pairs of stones running in spur gear, a full sized flour machine, a corn scree and sack tackle’. It is interesting to speculate whether the mill had been remodelled or rebuilt since Wheatcroft’s bankruptcy as the mill was also described as ‘all that newly erected water corn mill’. It was a stone built mill with adjoining mill house and a tiled roof. The banks of the river Rase were pushed back and raised forming a moderate dam or mill pond to provide a sufficient head of water for the waterwheel.

The mill was powered by a breastshot water wheel for much of its working life but a turbine replaced this during the twentieth century. This conversion was probably thought desirable when the flow of water in the Rase was considerably reduced, after the Market Rasen Water Board had obtained rights in 1886 to extract water for that town’s use from Bully Hill Springs, on condition that the company installed facilities to supply water to the Bayons Manor Estate. By 1914 the amount of water thus being extracted was causing concern to the corn millers of Tealby and Market Rasen an act was instigated in that year by the Tennyson D’Eyncourt to secure the right of water, and to ensure that sufficient water remained in the River Rase to operate Tyson’s, Thorpe and Hill’s Mill in Market Rasen. Particular concern was expressed about the deficiency during the summer months. The Tyson family, in addition to operating the corn and flour mill, also operated a bakery on the premises. (The commodious ovens were commanded on the days of the annual village show to roast an ox to the delight of the participants.)

Thorpe Mill is undoubtedly the most exciting mill for the visitor seeking out the surviving mills on the Rase today. It has been lovingly repaired and is maintained by the present owner, John Sivill and his family, ably assisted by the former miller Percy Richardson who came to the mill in 1927 and retired in 1962. The mill is still worked occasionally and is open for public inspection on certain days in the summer months. As far as is known Thorpe Mill has always been a corn mill and was sold in 1772 for £444 complete with ‘Klin and onsett and utensils of mill’. The klin or ‘shooting mill’, as it was frequently referred to, was used for roasting oats or barley and several of the corn mills on the Rase were known to have them at one time. It was rebuilt in 1849. The mill like others in the vicinity was owned by the Tennyson D’Eyncourt estate throughout much of the nineteenth century and when the estate was broken up in 1944 the tenant miller Percy Richardson had the opportunity to purchase the mill and the accompanying eleven acres of land.

The mill with adjoining mill house is of mellow brick with a pantiled roof, in a delightful setting as one approaches across a ford. It is three storeys high with an enclosed wheel house (Fig. 3). The water wheel is a most interesting feature of this mill. It is what Miller Richardson called a three-quarter breast wheel with two valves. The upper valve or gate allowed water into the buckets of the wheel making it a high breast shot wheel whereas the lower gate made it a breast or low breast shot wheel. This enabled the hard-pressed miller to make maximum use of the limited supply of water in his small mill pond. The octagonal wheel axle was hewn from an oak tree grown in Tealby Park and was fitted by Edward Clarke, grandson of master paper maker John Clarke. The cast iron rim is mounted on oak arms, which were renewed in 1967.

On the first floor a pair of French stones, used for making superior wholemeal wheat flour, and a pair of millstone grit or ‘peak’ stones, both of four feet diameter, could be underdriven via the usual arrangement of pit wheel, wallower, spur wheel and stone nuts. The shafting is of wood. The wallower is cast iron whereas the spur wheel is of wooden-clasp-arm construction with applewood cogs in it and the mating stone nuts.

The top floor within the attic of the mill was used to receive the grain hoisted to the top of the mill via a slack-belt driven friction sack hoist. The roof laths are plastered on the outside to soak up any rain water which could find its way beneath the pantiles above and so spoil the drying grain, which was spread out on the floor if it was received from the farm in too moist a condition for grinding, which was often the case before the advent of modern corn dryers.

A previous miller incorporated a novel safety feature to help in times of flood or high water, caused by such vagaries of the weather as melting snows or heavy rains. It comprised an iron pulley with an outer rim of metal elevator buckets secured to it to form a miniature water wheel. It was set in the wall of the mill so that at times of sudden flood, it rang, by means of a string, a warning bell in the miller’s bedroom. The relatively small header pond had occasionally to be lined with clay to prevent excessive seepage (as were other Tealby mill ponds).

Before leaving Thorpe mill it is amusing to relate a story Mr. Richardson tells against himself. He was miller at Tealby mill for thirty-six years but started his milling career in Hemswell’s ancient post mill affectionately referred to by its miller as Roving Molly for it had during its long life been twice moved bodily (the last time being from Gringley-on-the-Hill, Nottinghamshire, in 1855). By the time young Percy Richardson knew it, it was showing considerable signs of ‘wear and tear’ and would sway excessively and creak and groan when driven hard in a good wind. After a very windy day one day he reported that he was going home. Thereafter he stuck to water mills!

There were, at one time, three water corn mills within the parish of Tealby. An advert in the Stamford Mercury of 1788 gave a prospective miller the opportunity ‘if he chuses, to occupy two other water corn mills in Tealby’ beside the one advertised in detail. The mill was Little Mill, situated midway between Tyson’s Mill and Tealby. Thorpe. Only a waterfall remains to indicate its site by the side of a path through the fields. In 1826 Robert Winn, listed in White’s Lincolnshire Directory as corn miller, flour dealer and baker, held both Thorpe and Little Mill. It is not certain which of these mills is referred to in an article which appeared in the Stamford Mercury on 6th August 1824:

On Friday the 30th ult. a fire broke out at the house of
Mr. Winn, miller and baker, at Tealby, which entirely destroyed the same with a great quantity of corn and part of the furniture. The remainder and the mill (which adjoins) was saved by the exertions of neighbours.

Despite the ample water power available to run these three corn mills a post windmill also competed for trade in Tealby for many years. It was described as a ‘newly erected post windmill’ in 1836.1 It stood about 500 yards above five cottages on Cow Hill. It had a brick round house and was winded by tailpole. It contained one pair of French stones, one pair of peak stones and a flour-dressing machine and was informally advertised in the second half of the 1840s. George Oliver, its miller and baker in the 1840s, entered an advertisement in the *Stamford Mercury* that he would not be responsible for his wife’s debts!

**MARKET RASEN**

After serving the Tealby mills the Rase flows on to the busy little town of Market Rasen. *Peck Mill* was on the eastern outskirts of the town, on what was undoubtedly an ancient mill site. Probate records show a Thomas Hudson at this mill as early as 1609. The mill was operated for many years by the Horsefield family but it went out of commission during the First World War and was demolished many years ago. It stood behind the present petrol farm, itself on the site of the former foundry in Foundry Lane.

**Fig. 3 Mill sites in Market, Middle and West Rasen, as shown on Bryant’s map of Lincolnshire, 1828.**

Inspection of the mill site in 1976 revealed only an outline of the foundations, the brickwork sides of the sluice and an extensive depresion in the adjacent field all that remained of the former mill pond. No pictures of other details of the mill are known to the author except that a Mr. Mainprize demolished the mill.

*Church Mill*, often referred to locally as *Hill’s Mill*, starkly displays its plain functional Victorian industrial architecture and stands within sight of the ancient church of St Thomas (Fig. 4). The venerable walls and embattled and pinnacled tower of the church knew of an earlier, smaller mill on, or near, the site which in 1747 was assigned in mortgage together with its adjoining roasting kiln or shooting mill.2 The present building owes its existence to an ill-fated plan to cut a canal from Bishopsbridge on the River Ancholme to Market Rasen in the 1830s. The large red brick building of four storeys, with slate roof and iron-framed windows was built c.1850 and intended for use as a warehouse at the river head of the proposed canal. The scheme was finally abandoned with the opening in 1848 of the Manchester, Sheffield and Lincolnshire Railway branch line between Barnby and Lincoln. Behind the present mill the foundations of a similar-sized building are still to be seen but with the abandonment of the canal scheme it was never erected.

**Fig. 4 Hill’s Mill, Market Rasen, in the early years of this century. (From the author’s collection).**

The mill was originally powered by an undershot iron wheel approximately eight or nine feet wide, placed in the single storey brick wheelhouse adjoining the main building. It was never a great success and the tail race channel was constantly dredged to enable the water to get away and avoid a back log which could stall the wheel. The wheel could only drive one pair of stones at a time and the head of water in the tiny dam would only last approximately one and a half hours. Until the closure of the rival water mill on the turn of the present century, Church Mill suffered like many others in a similar situation. It was only a short distance below Peck Mill and its head of water was often curtailed until Peck Mill had made use of the same water which it had dammed up in its own pond. The wheel was, therefore, removed about 1930 and replaced by a more efficient Armfield turbine. This was used until 1959 for auxiliary purposes when a coupling broke, never to be renewed. To supplement the water power a gas engine was installed, powered by town gas. The engine could drive two pairs of stones at one time. There were at one time seven pairs of mill stones in a row on the second floor, the power being transmitted to them by belt and pulley. Some of these stones were removed in 1907 when the mill was remodelled with ‘Tattershalls Complete Roller System’. Flour milling continued until 1939 mainly for ships biscuits for the large trawler fleet based at Grimsby. Wartime restrictions brought the milling to a halt and the mill continued until comparatively recently producing animal and poultry feeds and cleaning and dressing corn for seed. A discarded peak millstone was put back to work when Wrawby Post Mill, near Brig, was restored. Miller, Fred Banks, expertly redressed the stone to run in the opposite direction to the way it had done in Hill’s Mill.

At one time there were eight mills powered by wind, water or steam in this thriving little market town and the importance of farming and the corn trade was reflected in the building of two rival corn exchanges in 1854/5 each costing about £1800. The two companies amalgamated in 1856 to become the Corn Exchange and Market Hall Company Limited. The Hill family played a leading role in the milling industry of Market Rasen during the nineteenth and twentieth centuries. The founder of the family business, Thomas Hill, operated a post mill off the Willingham Road until it was struck by lightning in 1897, whilst in use and was consumed by fire. The Hills commissioned a local carpenter, Mr. Marshall, to make several fine pieces of furni-
ture from the salvaged oak which remain in family possession.

Two other mills were taken over to produce flour and feedstuffs. One, the steam mill on Jameson Bridge Street, regularly sent twenty tons of flour to Manchester by train each week. In 1901 Church Mill was rented by the late Thomas Hill J. P., who had served his apprenticeship at the large Sonning Mill in Oxfordshire, where he rose to become foreman miller before returning home. The venture was a success and the Hill family, who bought the mill after a number of years, retained it until recent times. The Hills also owned the eight-sailed tower mill in Market Rasen until in 1920 it was sold because the cost of upkeep was too high in relation to its output. It apparently needed new sails and other repairs at the time. The mill was destroyed by fire in 1923.

The water mills in Market Rasen needed to impound water for their operation, and were often blamed when a rush of water down the Rase led to flooding of properties in the lower parts of the town close to the river. Flooding might occur after heavy rainstorms and usually the swollen waters abated after several hours. Occasionally, as was the case in December 1909, a rapid thaw of snow and ice accompanied by incessant rain, caused severe flooding. It was reported that one house had been flooded three times in twenty-eight years.\(^3\)

Over the years the ratepayers and Council of Market Rasen spent much time in debate, occasionally heated, on the causes and possible remedies of this periodic flooding and millers were often blamed, rightly or wrongly, for holding up the water unreasonably. However, the flooding was often averted or diminished by prompt and diligent attention to the weather by the miller, sometimes even having to leave the comfort of his bed in the middle of the night to open his mill sluices and floodgate to their full extent along his stretch of river to allow as much passage as possible for the torrent.

The Town Clerk in a report to the Council in July 1913 noted that:

It was obvious to them that a large quantity of water coming suddenly from the hills will, as soon as it reaches a lower level and had to flow along a course which has but little fall, move more slowly than it did before ... locks, weirs, mills, bridges and dams of all kinds, although beneficial in very dry seasons, are all conducive to flooding in wet seasons, and in respect of such obstructions or checks the Rase has several. There are two water mills and several bridges, in addition there is the sitting up of the bed of the stream (owing to the mills) to the level of the mill sill, and this can only be remedied by the regular and systematic cleansing of the stream. The duty of keeping the stream open by the cleansing of its bed falls upon the various owners and occupiers of the land through which the stream flows . . . .

MIDDLE RASEN

Leaving Market Rasen the Rase meanders through quiet fields to the village of Middle Rasen. Historical records show that a Richard Berrose was a miller there in 1597.\(^4\) In more recent years the water mill at Middle Rasen was an estate property owned by the Dixons at nearby Holton-le-Moor, the mill being operated by a succession of tenants. The date of construction for the mill is unknown but in 1827 the ‘old established and well accustomed water mill’ was advertised and had clearly been remodelled as the description stated that ‘most of the works are new’. During that year further modifications were made for in the first description (which appeared in the *Stamford Mercury* on 16th February) it had only two pairs of millstones. By November of the same year, when it was advertised again two extra pairs had been installed.

![Middle Rasen water mill in the 1960s. (J. Sass)](image)

The mill was last operated commercially by the late Frederick Cottingham in the 1950s. A member of the Cottingham family also served as millwright for the area. The disused mill is still virtually intact and used by its present owner as a store (Fig. 5). It is a three-floor rectangular mill of red brick with a pantiled roof and enclosed wheelhouse. A leat took water from the river through the mill and returned it downstream. Since the mill ceased production this has been blocked at its entrance and the mill is dry. The undershot water wheel has iron rims and brackets and is mounted on an iron axle by means of an eight armed iron hub socketed to carry wooden spokes. The pit wheel is also of composite construction composed of an iron segmented ring gear bolted to a wooden rim. Eight wooden spokes are in turn bolted to an iron hub or spider on the wheel axle.

A pair of French burrs and a pair of peak stones are still in situ on the first floor. There formerly were also a pair of ‘cullin’ or blue stones made from lava stone quarried near Andernach on the Rhine in Germany and an additional pair of peak stones made of millstone grit. The stones were overdriven via iron quent and morticed stone nuts turned by a cast iron spur wheel mounted on the twelve inch square wooden upright shaft. The wallower, or crown wheel, which took the drive from the pit wheel was also of cast iron welded on the upright shaft. The upright shaft was extended via a dog clutch into the top storage floor where it terminated in a wooden clasp arm wheel, on the upper surface of which could be driven a wooden friction drive sack hoist pulley. This pulley has a tyre of leather to give it extra grip.

Because of the inadequate supply of water power the mill was also adapted to be powered early this century, initially by portable steam engine. The remains of the cast iron belt pulley can be seen on the ground floor outer wall near the wheel house. The power was transmitted via horizontal shaft and bevel gears upwards to the great spur wheel. Remains of the by-pass sluice gate can still be seen across the fields where the mill leat was formerly taken from the main stream.

A four sailed tower mill, built on the hillside to the South of the main road from Market Rasen to Caenby Corner, competed for trade with its older established rival until the 1920s.
WEST RASEN

West Rasen had a manorial water mill for hundreds of years. The moated site of the ancient hall can still be traced in the fields behind the present mill building and many interesting documents are preserved in the estate records. Glimpses into feudal milling sakes and the workings of the ecclesiastical and manorial systems in medieval England can be gleaned from the documents relating to the land of the family of Maxwell, Constable of Everingham. On 4 May 1226, in an award by the Abbot Prior and Dean of Jarrow (Leicestershire) judges were appointed by the Pope to settle a dispute between the Abbot and convent of Owston (Leicestershire) and Sir Hugh Paynel in West Rasen. The award ordered Sir Hugh to pay the Abbot and convent an annual rent of half a mark from his mill at West Rasen. A quitclaim dated 1285 records John, son of Hugh the miller as living at West Rasen. In a gift after 1290 Thomas de Graynesby of West Rasen was allowed to have his own corn ground at the watermill free of multure (tol) for life.

A West Rasen account book surviving from the period 1633–40 throws light on the repairs and operation of the mill. In April 1758 miller Matthew Milriss of Cawood (near Selby, Yorkshire) leased the mill for seven years at an annual rent of £8. On the expiry of this lease the mill was closed, and accounts and vouchers still surviving in estate papers record in detail the erection of a new water mill on or near the original site (see Appendix B).

The new mill was erected in 1766 and is essentially the building still standing today behind the mill or Manor Farm close to West Rasen church (Fig. 6). It is now heretof waterwheel and machinery and has been relegated to serve as an outbuilding for the farm. As it stands in the middle of a meadow with all traces of the former watercourse erased from the landscape it is difficult to imagine that it was once a busy water mill, a hub of activity in the past life of the village.

Frank Thompson, followed by his son Arthur, farmed Manor Farm and ran the mill as tenants for nearly 80 years until 1932. Then the last miller, Joseph William Jackson, came to live at the farm and worked the mill until the splashing wheel and stones turned for the last time during the Second World War and the dust was allowed to settle on nearly 1000 years of industry. The machinery was removed in the 1950s but Mr. Jackson, now living in retirement, recalled details of his charge in an interview in 1976. When he came to the mill in 1932 he commissioned R. Thompson & Sons, the Alford millwrights, to renovate the waterwheel and re-dress the millstones. A leat brought water from the river Rase to the external undershot waterwheel which was housed under a wooden lean-to wheelhouse with a brick sluice and by-pass. The wheel comprised wooden spokes and buckets with iron rims. It was mounted on a wooden axle with iron gudgeons let into each end. Three pairs of millstones could be driven through the usual arrangement of pit wheel and great spur wheel on an upright shaft, all cast in iron. The two pairs of French stones and a pair of cullin stones were situated on the first floor and were overdriven. One of the cullin stones bearing the date 1778 is retained as a garden ornament by Mr. Jackson. They were popular up to the late eighteenth century for grinding wheat into wholesome flour but were replaced by the more suitable French stones which were harder and did not discoulour the flour as the blue volcanic stone tended to. The top floor contained a sack hoist and the grain storage bins. The mill was also equipped with a flour dresser and cleaning screen or 'bobber.'

Fig. 6 West Rasen water mill in the 1930s. (From the author's collection)

BISHOPSBRIDGE

The Rase drove two more mills before discharging into the larger River Ancholme at Bishopsbridge. John Clough who held the mill and property on the east side of Bishopsbridge basin, was listed in several mid- and late-nineteenth century trade directories as a 'corn and seed, oil cake, coal, lime, salt, gravel and manure merchant, corn miller and bone crusher, wharfinger, vessel owner and farmer'. He was a man of some substance in the locality but all trace of his mill, wharf and warehouses has now gone. Even by the 1870s he was relying on steam rather than water for power.

On the west bank there still stands the former mill building of Mr Thomas Darley. It is a four-storey red brick building with a shallow roof. The water wheel and milling plant were removed long ago. It is difficult for the present day observer of this little beck, quietly draining a vast acreage of some of the finest agricultural land in the realm, to appreciate that it was for hundreds of years a hive of activity vital to the local economy.

Footnotes
1. Some of these mills were possibly shared and the term 'mill' is thought to represent a pair of millstones rather than a complete building which may have contained more than one pair of stones, each driven by a separate waterwheel.
2. Lincolnshire Archives Office (subsequently LAO) Tennyson D'Eyncourt Papers, 'a message, a paper mill, falling mill-6½ acres in 5 closes to Thomas Freeman from Michael Grasahan of Tealby-farmer'.
3. Ibid., Thomas Clifton, weaver of Tealby, 1802.
5. Lincoln Rutland and Stamford Mercury (subsequently LRRM) 27 February 1829.
8. LRRM, reported in London, Wednesday 22 January 1800.
10. LAO, Tennyson D'Eyncourt papers, Tealby LV12.
11. LRRM, 5 April 1839.
12. LAO, Exley survey on Lincolnshire paper mills.
17. LAO, Tennyson D'Eyncourt papers, small bundle of estate papers.
18. LRRM, 31 January 1823.
19. Ibid., 25 January 1788.
MILLS ON THE RASE

APPENDIX A

Domesday Mills

Mills on the Rase recorded in the Domesday Survey are as follows:

Tealby Mills
On the land of Bishop of Bayeux one mill valued at 2s. 0d.
On the land of Ivo Tailbois one mill valued at 3s. 0d.
On the land of Roger of Poitou four mills valued at 16s. 4d.
On the land of Ralf Paganel three mills valued at 12s. 0d.
On the land of Gocelin son of Lambert three mills valued at 16s. 0d.
On the land of Alfred of Lincoln one mill in the soke of the Bishop of Bayeux.
On the land of Raine de Brimou one mill (value not recorded).

Rasen Mills
On the land of the Bishop of Bayeux two mills valued at 6s. 0d.
On the land of Ralf Paganel one mill valued at 2s. 0d. rental
On land of Roger of Poitou one mill valued at 3s. 0d.
On land of Alfred of Lincoln one mill valued at 12s.

APPENDIX B

Building West Rasen Mill 1766

A collection of accounts, bills and vouchers exist recording details of the building of a new water mill at West Rasen for William H. Constable Esq., Lord of the Manor of West Rasen. They are preserved among estate papers in the Brymner Jones Library of the University of Hull under the reference DDEV/56/147

The mill was built to replace an earlier mill of which surviving accounts reveal details of maintenance such as 'in moneys disbursed ... Mayday 1634 till Mayday 1635' an item,

Mill stones 1 paeire, mill axel tree charge £7. 18s. 0d.
25 Robert Booth for three times
May billing Mill bills sharpening 6d.
1634 May Day, 6 dosen 9d.
9 To Simpson for sharpening billes 5s. 0d.

Billing is the term used for the periodic dressing of the mill stones grinding surfaces. The refacing and deepening of the furrows (grooves) using steel chisels or bills held in a wooden handle or left.

1766: Expence of Building a water
Corn Mill at West Rayson

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bricks 21,5000 at 16d per thousand</td>
<td>17</td>
</tr>
<tr>
<td>Pan Tyles 1,500</td>
<td>3</td>
</tr>
<tr>
<td>ridge Do. 30</td>
<td>7</td>
</tr>
<tr>
<td>leading Brick, Tyles, Timber, etc.</td>
<td>13</td>
</tr>
<tr>
<td>Smiths work, nales etc as per Bills</td>
<td>1</td>
</tr>
<tr>
<td>Laboures Wages</td>
<td>4</td>
</tr>
<tr>
<td>Glastiers Bill</td>
<td>17</td>
</tr>
<tr>
<td>A. Mill Stone Bot. at Gainsborough</td>
<td>0</td>
</tr>
<tr>
<td>Leading Do. and Warfage</td>
<td>1</td>
</tr>
<tr>
<td>Leading 2 Mill Stones from Lincoln</td>
<td>10</td>
</tr>
<tr>
<td>Bolting Bill</td>
<td>2</td>
</tr>
<tr>
<td>Mill Wrights Boarding 41 weeks at 5s.</td>
<td>10</td>
</tr>
<tr>
<td>W. Medley for Iron Work as per Bill</td>
<td>3</td>
</tr>
<tr>
<td>2 New millstone Ropes</td>
<td>1</td>
</tr>
<tr>
<td>Bricklayer for workmanship and Lime</td>
<td>15</td>
</tr>
<tr>
<td>Mill Wrights wages</td>
<td>20</td>
</tr>
<tr>
<td>Do for making wheels etc as per Bill</td>
<td>37</td>
</tr>
</tbody>
</table>

To complete the Oatmeal Mill will cost about £5. 15s. 0d.
Other articles 22 10 0
To Building and completely finishing a Drying Kiln as per Estimates 29.10.6
Tho Ellis 1 5 1

To 249 squares of COMAN glass 16s.6d.
To 16 squares of new glass 1s.4d.

Received the contents in full by me Nicholas Bellamy

Details of the mechanism of the mill and the type of millstones can be gleaned from the accounts of the millwright, blacksmith and sundry other accounts:
An account of Robt Atkin Millwright:

One cog wheel (illegible)
two pair of wallowars heads £2. 0s. 0d.
Three pairs of trundels do @ 5s. 6d. 16s. 0d.
190 coggs @ . . . . . . . . . 10s. 10d.
59 spindles @ 5d. £1. 4s. 7d.
One French Stone £8. 0s. 0d.
One black do £61.6s. 0d.
A mill stone and leading £1. 4s. 0d.

A French stone refers to a millstone made up of blocks of burr stone quarried mainly near la Ferte sous Jouarre in France and renowned for its excellence in grinding wheat into wholemeal flour from which is extracted white flour.

A black stone presumably means one which is usually referred to as a blue or 'cullin' stone made out of one piece of shaped blue-black lava quarried in Germany in the Rhine Valley near Andernach, 'Cullin' being a corruption of Cologne which was the main dispersal centre for this type of millstone. The original pair of these stones obtained in 1766 still exists, much worn by constant use and redressing; one bears the date 1778.

The reference to wallower heads, trundels and spinndals signifies that the gearing was of the earlier form lantern pinions and trundle gears. A lantern pinion is a gear consisting of wooden slates or spindles held between two flanges or wallower heads instead of the later engineered cog and hub. The staves of the lantern pinions meshed with crude shaped pegs on the trundel wheel.

This early wooden gearing was replaced by cast iron gearing in most of the mill during remodelling in the nineteenth century.

Further invoices give details of the purchase of the millstones:

May 3rd 1766 rec’d of Mr John Time 6 Pound for one 17 hand millstone . . . . . . . . .

[A hand = 4” giving a diameter of 5’8”]

June the 28th 1766 then rec’d of John Tim the sum of £1.3s.6d. for the carregd of a millston from Gainsboro to West Raseyn by me Francis Spencer.

Wharfage and tonnage paid at Gainsborough on the above stone was 5s.0d.

Richard Medley furnished and fitted the iron work for supporting the runner stones.

<table>
<thead>
<tr>
<th>£</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>To a mill Rine 21lbs @ 10d.</td>
<td>17.</td>
<td>6</td>
</tr>
<tr>
<td>To the Spindle laying &amp; toeing &amp; heeling</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>To the spindle Turning &amp; mending</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>To 2 chizels steel 3½lb</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>To a mill Rine 13½lb @ 10</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>To the spindle laying &amp; toeing &amp; turning &amp; mending</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>_</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

The mill rine (rynd) was let into the eye of the upper (or runner) stone to take the drive before the later mace and bar were introduced.

The steel chisels were used to recut the furrows and grinding face of a millstone, usually referred to as dressing a stone.

The price gives an indication to the cost of iron work in country districts at that time. This is in contrast to the cheapness of carpentry work.

Millwright Robt. Atkin supplied further iron work including spindles, rynds gudgeons and 57lbs 14ozs of new brass @ 16d per lb.

As flour was to be produced at the mill, cloth for the flour dresser and bolter were purchased.

1766 July 19th Mr Timm bought of Robt. Atkin

<table>
<thead>
<tr>
<th>£</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Flower Cloth No, 400</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>1 do No, 300</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>1 do No, 12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>1 Bran double and twisted</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

The four dresser was a machine to grade the flour and remove the bran from wheatmeal.

A large undertaking was the remaking of the Wash - the water courses for the water to drive the millwheel; one bill for labour involved 13 weeks work. The mill dam was dressed with clay to prevent seepage at a cost of £2. 9s. 5d.

A kiln was built to facilitate the drying of grain prior to grinding. This was an essential addition to a well equipped mill in the days before corn dryers and combine harvesters. An item of expense for the kiln was the purchase of 800 Kilin Rockins, at a cost of £2. 10s. 0d. Kilin Rockins are perforated tiles which form a floor section in the drying kiln on which the damp grain was spread out to dry; heated air percolates through from the heating ducts below.

Two new millstone ropes weighing 160lbs and costing 6d per lb. were purchased at a cost of £1. 10s. 0d. These could be used with pulley blocks to raise the upper mill stones periodically for dressing them.

Interesting comparisons are to be obtained from the wage bills of the men employed in building the mill and cutting its water courses. The master builder Richard Carter was the highest paid craftsman employed; he earned 2s. 6d. per day. His man Bingley earned 2s. 3d. and his labourers earned 1s. 3d. per day.

Millwright Robert Atkin was paid at 2s. per day and his three men each earned 1s. 6d. per day. The millwright and his men obtained board and lodging in the village and during the months of May, June and July they often worked seven days a week. By May the main building work was completed and the millwright would be able to concentrate on fitting it out with plant and machinery. They would also no doubt make use of the long daylight hours. They may well have returned home for a short holiday during the week starting 28th June as the four men only worked two to three days that week.

The labourers employed in carrying material for the building and working on the wash etc were paid 1s. 0d. per day. One of these men, John Grantham, however received an extra 3d. per day for six days while (pit) saving timber. The rates of pay for the main craftsmen were constant throughout the whole time they were employed.

The collection of the accounts give the modern reader an intriguing insight into the rural economy of the eighteenth century and the lives of some of the artisans that made it tick.