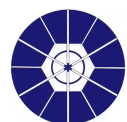


**R. THOMPSON & SON,
MILLWRIGHTS of ALFORD, LINCOLNSHIRE**

**Preliminary report on the foundry patterns collection
in the workshop at Parsons Lane, Alford**

Luke Bonwick

Version 2
March 2017



**R. Thompson & Son, Millwrights of Alford, Lincolnshire
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Catherine Wilson, for sharing her knowledge of the firm and her work on the documents.

1. INTRODUCTION

Thompsons were the last operational firm of the many hundreds of similar small businesses once to be found in Britain. Descended from a long line of 'master millwrights', the Davies family continued their work of repairing and restoring our traditional wind- and water-powered mills until Tom Davies' retirement in late 2012.

For more than 700 years, the millwright was a key member of the rural community, as depended upon as the local stonemason, carpenter, baker, wheelwright or blacksmith. In fact, the traditional millwright combined the skills of all these trades to maintain mills at a time when the power sources of wind and water were depended on by the community for its daily bread. In later years, as mills became recognised for their heritage value, Thompsons' work took on an even greater significance.

By the mid-20th century, Thompsons' work was no longer confined to their local area, covering a wide swathe of the country. The firm was responsible for the restoration of mills in Anglesey, Kent, Lancashire, Tyne and Wear and most other counties in between.

Important features of the Thompson workshop are its array of templates and hand tools as well as an unrivalled collection of wooden patterns for gear wheels, shafts and bearings – a collection now extremely rare in the UK.

In view of its completeness and excellent level of preservation, Thompsons' workshop is of regional significance as a representative example of a small-scale local business with 19th-century origins.

However, in view of its contribution to the mill preservation movement in Britain throughout the 20th century, the firm's collection is considered of exceptional significance nationally.

The handwritten records of the firm's work have also been preserved in their entirety, completing Thompsons' unique UK millwrighting legacy. Further analysis of these will reveal more information about the patterns collection, the jobs undertaken by the firm and the people who worked there.

Two former employees of the firm, Neil Medcalf and Steve Boulton, still operate a millwrighting business near the town. Having learned the craft from Jim and Tom Davies, they are the last traditionally trained millwrights working in the UK.

2. BRIEF HISTORY OF THE FIRM

The origins of millwrighting at Parsons Lane can be traced back to the late 18th century when Richard Oxley began working for the Louth millwright, William Scargall. The poll book for Lincolnshire records that Richard Oxley had established his own millwrighting business in Alford before 1818. In 1820, Oxley completed the fitting out of the superb five-sailed tower mill at East Kirkby, succeeding Boston millwright Sam Ward who had been declared bankrupt while building the mill.

John Oxley, Richard's son, took over the business and yard after his father died, aged 70, on 7th March 1829 (Stamford Mercury 14/03/1829). Richard, christened in March 1801, met an unfortunate although not inappropriate end by falling from the sails of a windmill at Barrow on Humber in the summer of 1850. Severely damaging his spine in the fall, he survived in great pain for a further two months. Although illiterate, John was deemed "a man of superior natural ability" by his local Methodist minister.

John's widow, Anne, continued running the business using a foreman millwright, Edward Wheatcroft, who had been at the firm since his youth in the 1830s. By 1868 Wheatcroft was in sole charge (Kelly's Directory).

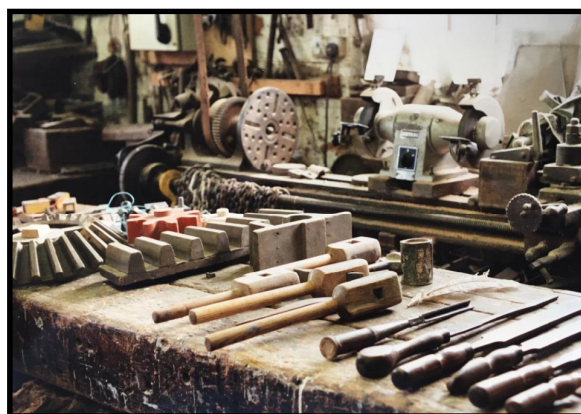
Robert Thompson had served his apprenticeship with Boyds, millwrights of Hull. George and William Boyd had taken over an existing firm in 1810, and the business operated into the 1870s having been run by George King Boyd since 1855. In 1877, perhaps when his employer ceased trading, Robert Thompson decided to branch out on his own and acquired Wheatcroft's millwright's yard in Alford (Gregory 1985: 91).

Robert was 26 at the time of the 1881 census. Robert Thompson's son John Edgar, known as Jack, joined him as a 14-year-old apprentice in 1899 and took over the running of the firm on his father's death in January 1933 (Sass 2012: 122). Robert's stepson, Bob, born in December 1896, was a junior partner of the business for many years, having started work for the firm in 1911.

Robert Thompson senior maintained links with north Lincolnshire and the East Riding of Yorkshire, and in 1913 the firm was asked to take responsibility for the maintenance and repair of Skidby Mill near Beverley. This association continued until the firm's closure in December 2012.

Jack Thompson died in January 1974 at the age of 89. His foreman, James Charles (Jim) Davies, took over the firm, purchasing the workshop and yard. Jim had joined the firm on a temporary contract after World War II. 29 years later, he had to ask whether it would be a permanent job!

Jim's son, Nigel T (Tom) Davies joined the firm on 1st August 1978 and gradually took over the running of the business. One of Tom's first jobs was assisting his father in the repair of the local windmill at Alford – generally considered to be one of the finest windmills in the country. Jim continued to be actively involved in the firm's activities until shortly before his death in October 2002. His last major project would be to advise and assist with the comprehensive restoration of Heapham windmill near Gainsborough.



Hand tools and patterns on display, 1993

3. THE YARD AND WORKSHOP AT PARSONS LANE

Situated on the north side of Parsons Lane, the millwrights' yard measures approximately 80ft alongside the road and 90ft at right angles to it. When Robert Thompson purchased the Parsons Lane yard it was more spacious than today. He later built a house in the southern corner, the house and side garden occupying a significant portion of the road frontage. The remaining working space is L-shaped and rather cramped when populated by a pair or more of windmill sails.

Located in the area behind the house and garden are a timber-framed shed (now demolished) in which materials and large patterns were stored, a small brick-built workshop, the skeleton of a small wooden shed, a toilet cubicle and an open-sided wood store.

The principal workshop occupies the northern corner of the site and measures approximately 20ft x 35ft in plan. It is built of yellow brick with a tiled roof. An integral hearth and chimney breast, disused in later years, form part of the north east end. A pair of double doors in the south east side wall of the building open outwards into the yard.

The ground floor of the workshop houses a handful of large, power-driven machines including a woodworking lathe, a planer/thicknesser and a circular table saw. Adorning the walls and workbenches are a wide selection of hand tools and equipment. The latter includes small patterns and templates, as well as orders intended for suppliers or sub-contractors which, instead of paper, are written on flat pieces of timber.

The unlit roof space forms a spacious pattern loft, separated into a larger area at the north eastern end and a smaller area at the south western end, with a gap in between which is open to the rafters.

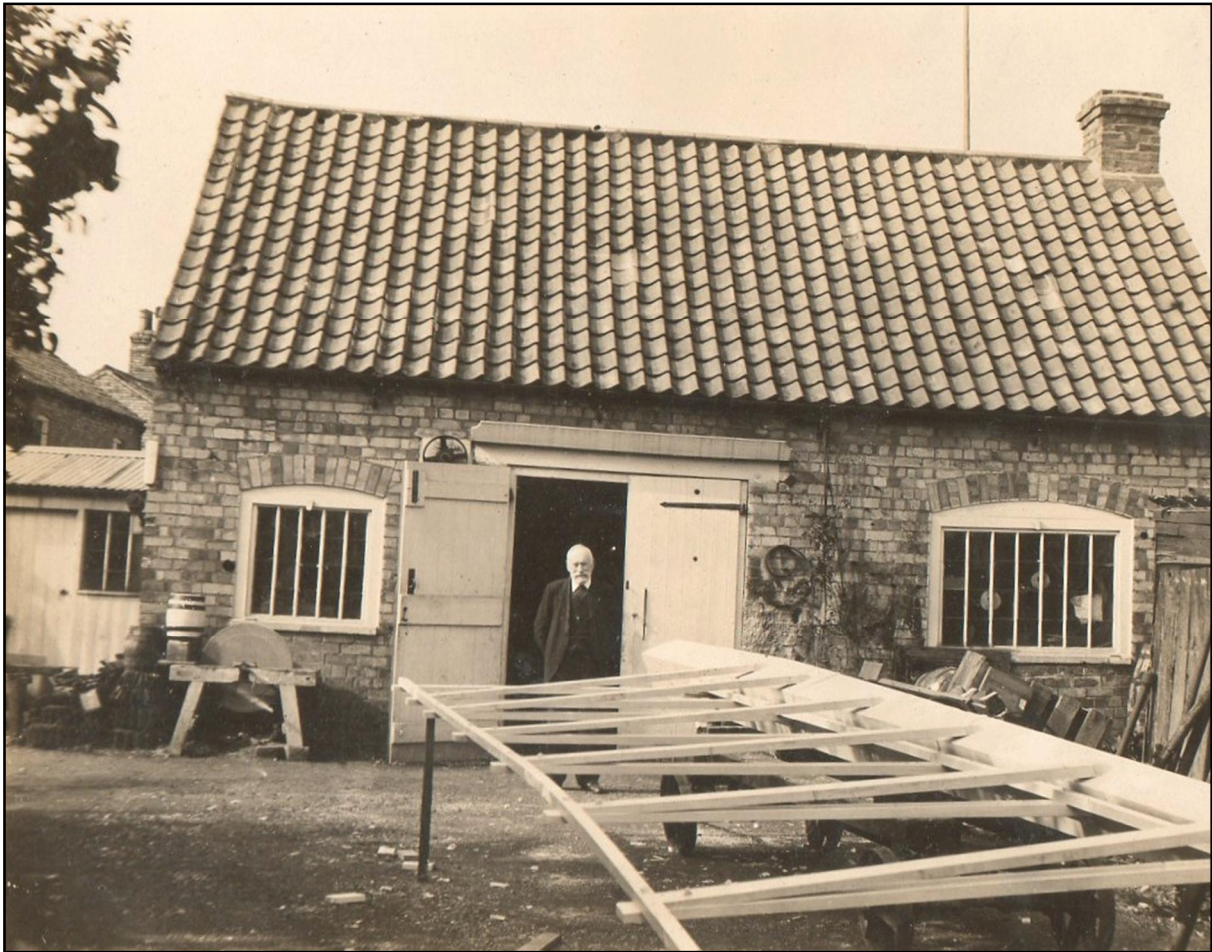
The south western gable end of the workshop faces the road, and a small weatherboarded engine house was built against this end of the workshop, adjoining the northern boundary of the site. The engine was a twin-flywheel oil engine, and this operated line shafting inside the workshop which conveyed power to the various machines used in the trade. The line shafting, slung from the first floor, remains in position and doubtless incorporates castings made from various patterns originally manufactured for various mill jobs.

On the road side of the engine house, a long low shed stood alongside the northern boundary which was used for the storage of long timbers. The side wall of this shed was formed from discarded sail shutters from long-vanished windmills. These were originally decorated with white lead paint which had gradually weathered to grey.



The workshop and yard, Winter 2016

When the firm was closed down the long shed and engine house were demolished and the oil engine was sold to an enthusiast. The ground floor window in the gable end of the workshop was removed and the opening enlarged to accommodate a roller shutter door. This now allows the front end of the workshop to be used as a vehicle garage.



One of the earliest photographs taken at the yard shows Robert Thompson Senior standing at the door to the workshop, possibly c1931. On the left is a grindstone for sharpening tools, positioned so it can be driven by a flat belt from the pulley wheel just visible behind the open door.

There must have been more space available in the yard at this date, as the sail under construction is placed parallel to the road at the back of the site.

This is an unusual left-handed or clockwise sail. Possible destinations are limited; likely recipients are Dobson's five-sailed mill at Burgh le Marsh, Wallis's four-sailer by Alford Station or Myers' six-sailed mill near the centre of Alford (see page 42).



The workshop in December 2016



Bob Thompson and a young Jim Davies are pictured at work inside the rear of the cap of Skidby tower mill. Bob was Jack's stepbrother and may have been disappointed not to eventually inherit the business. This photograph must have been taken soon after Jim joined the business once he had been demobbed following WWII.

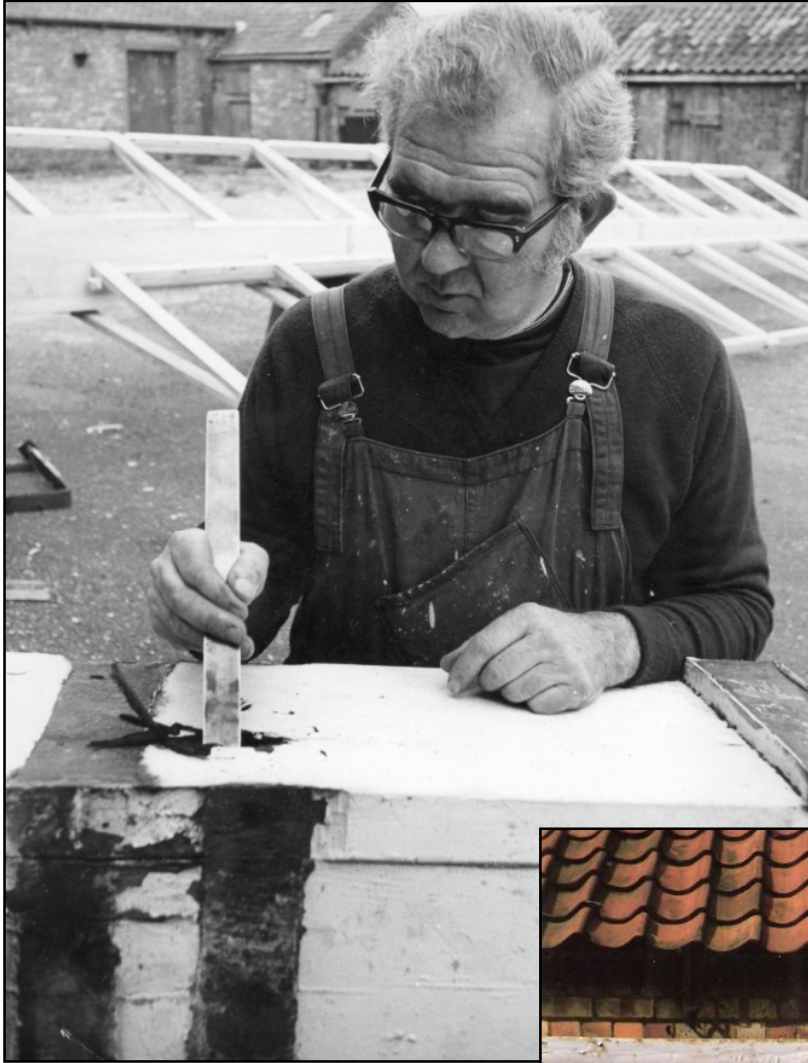


Jack Thompson at the workshop door with a template for the ogee-shaped cap roof of Dobson's Mill at Burgh le Marsh, c1947.

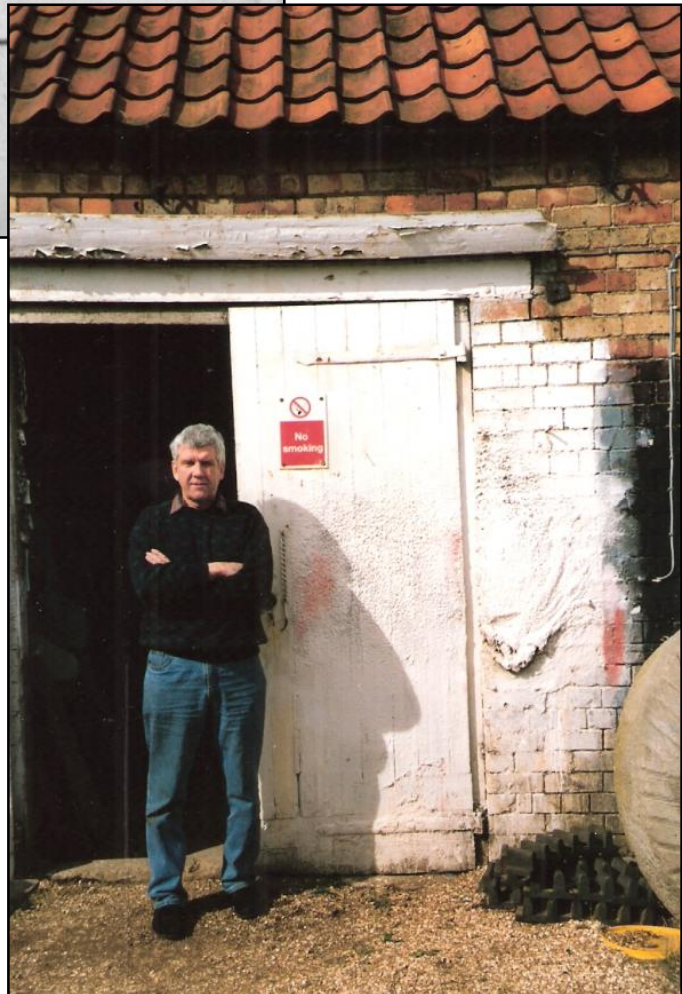


Enthusiast Frank W Gregory took this transparency on a visit to Parsons Lane in April 1965. Jim Davies and Jack Thompson are pictured.

New single- and double-sided sails are under construction. The four on the left may have been intended for Marsh Mill at Thornton in Lancashire which Thompsons repaired during that year. The sail in front of Jim appears to be a lighter, stock-mounted sail of nine bays, presumably made for a mill in the south of England.



At Skidby Mill, East Yorkshire, Jim Davies inspects the condition of one of a pair of sails removed for repair. Its counterpart, stripped of its shades, is visible in the background.



Jim's son, Tom Davies, stands at the workshop door c1990. Note the accretions of paint on the brickwork to the right of the door. This was where excess paint was 'brushed out' when work finished for the day.



A press shot from 1957 shows Jack Thompson at work on site at Burnham Overy tower mill, Norfolk. He is using a brace and bit to bore a hole for one of the king bolts which fastens the sail whip to its stock.



Peter Dolman's 1978 photograph shows a quiet moment in the yard, with two sails—perhaps old ones removed from Alford mill—stored vertically to maximise space. In the foreground, the timber store roofed with corrugated tin and with a side wall made out of old shades (sail shutters) can be seen, with the weatherboarded engine house behind it.



This photograph, dated 1985, shows just how much room a pair of sails occupied when they were laid end to end on their supporting stock. Employees Tim Farnsworth and Denis Moore are shown working on a pair of common sails for Green's Mill, Sneinton, Nottingham. Thompsons completed the restoration of this mill to working order, lifting the sails into place in July 1986. Flour has been milled successfully there ever since.

4. OPERATION OF THE FIRM AND SCOPE OF WORK

The following table summarises the main windmill repair projects carried out by Thompsons over six decades from the mid C20 to the early C21. Although incomplete, the list shows the geographical spread of the mills restored by the firm, and the extensive nature of many of these works. The table does not include minor works such as repainting and regular maintenance.

By the 1950s, most mills had become disused, and the firm were being asked to dismantle as many mills as they repaired. During the 1960s and 70s the restoration movement began in earnest. At this time, the majority of mills were being repaired as static landmarks and were not required to work.

The 1980s was a turning point for mill repairs, as more and more mills were returned to full working order. More extensive repairs were required in order to achieve this, increasing the millwrights' workload.

Overall, the sheer amount of work undertaken by the firm can be appreciated. The geographical spread and the number of miles travelled in order to achieve this is quite remarkable. In addition to the repair and maintenance of local mills, those spread from the Tyne to the south coast and from the Lancashire Fylde to the Norfolk Broads have benefited from the firm's efforts during the late 20th and early 21st centuries.

The number of sails built at Parsons Lane during this 60-year period is close to 200.

A detailed review of the day books and ledgers would provide additional information.

| Year | Mill location & name | Scope of work | Distance from Alford (miles) | Sails made at yard | Reference |
|------|---|---|------------------------------|--------------------|------------------|
| 1947 | Burgh le Marsh (Dobson's), Lincolnshire | New cap roof | 11 | | Sass 2012: 72 |
| 1948 | | | | | |
| 1949 | Wainfleet St Mary, Lincolnshire | Removal of 2 sails | | | Sass 2012: 68 |
| 1950 | | | | | |
| 1951 | | | | | |
| 1952 | Alford (Myers), Lincolnshire | 6 sails and fantail removed | 0 | | Moore, Ledger #6 |
| 1953 | Heckington, Lincolnshire | 4 second hand sails from Wainfleet St Mary & Old Bolingbroke | 37 | | Brown 1976: |
| | Boston, Lincolnshire | 5 new sails | | 5 | Brown 1976: 122 |
| 1954 | | | | | |
| 1955 | Fulwell, Tyne & Wear | 4 new sails, new cap, new fan frame | 181 | 4 | Brown 1976: 222 |
| 1956 | Rolvenden, Kent - September | Body repairs, new roundhouse, 4 new sweeps | 196 | 4 | Brown 1976: 106 |
| | Stock, Essex | 2 new sails & 1 stock | 154 | 2 | Brown 1976: 80 |
| 1957 | Burnham Overy, Norfolk | 4 new sails, 2 stocks, fan stage & skeleton fantail | 81 | 4 | Brown 1976: 235 |
| 1958 | Alford, Lincolnshire | Repairs to working order | 0 | | Brown 1976: 122 |
| 1959 | | | | | |
| 1960 | West Kingsdown, Kent - completed April | Cap repairs, re-boarding smock, 4 new sweeps | 161 | 4 | Brown 1976: 112 |
| | North Leverton, Nottinghamshire | 4 new sails, new curb | | 4 | Brown 1976: 160 |
| 1961 | Cley, Norfolk | 4 new sails, 2 stocks, fan stage & fantail, cap repairs | | | Scott 1977 |
| | Barnack, Cambridgeshire | New aluminium cap roof on original frame, window repairs | | | Stainwright 1991 |
| | Whissendine, Rutland | Remove windshaft, new aluminium cap roof on original frame. | | | Moore, Ledger #6 |
| | Paston, Norfolk (completed 1963) | New fan stage & skeleton fan, cap repairs, 2 stocks and 3 sails | | 34 | Scott 1977 |

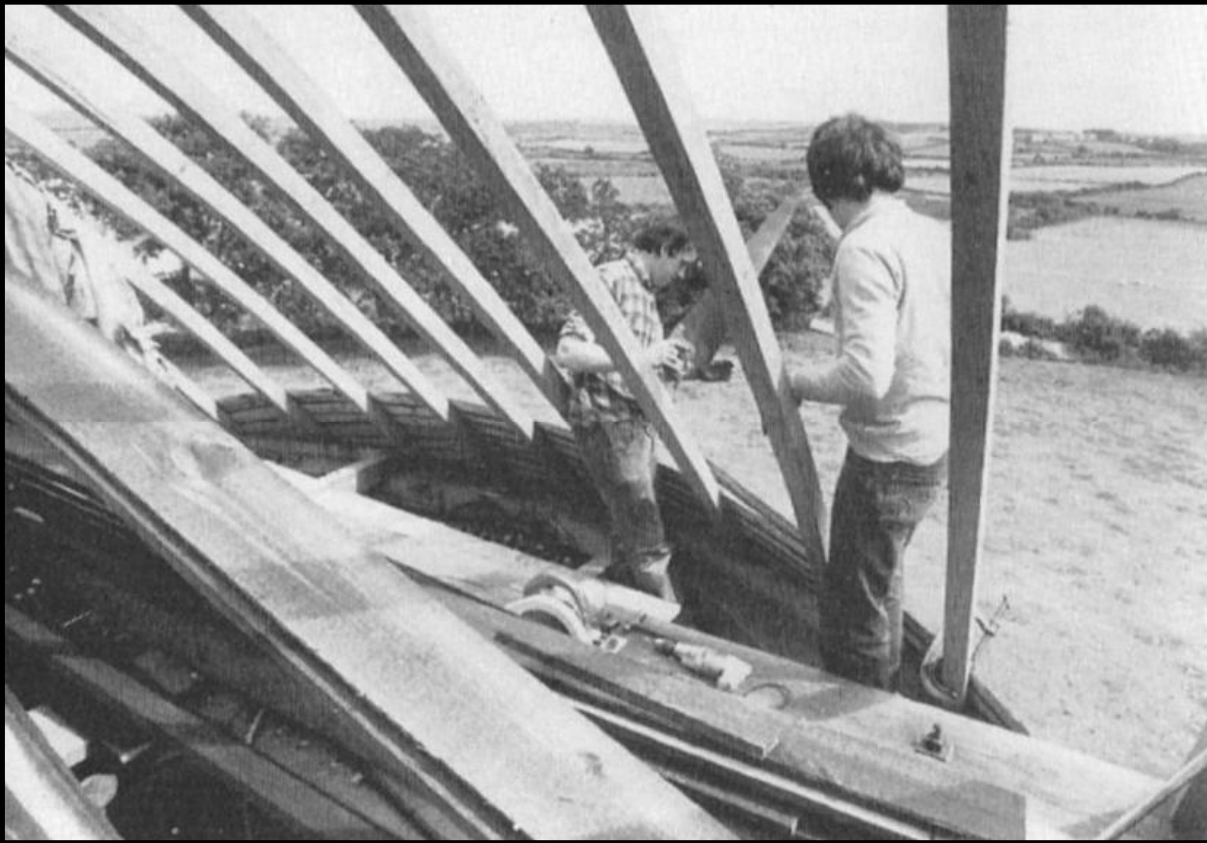
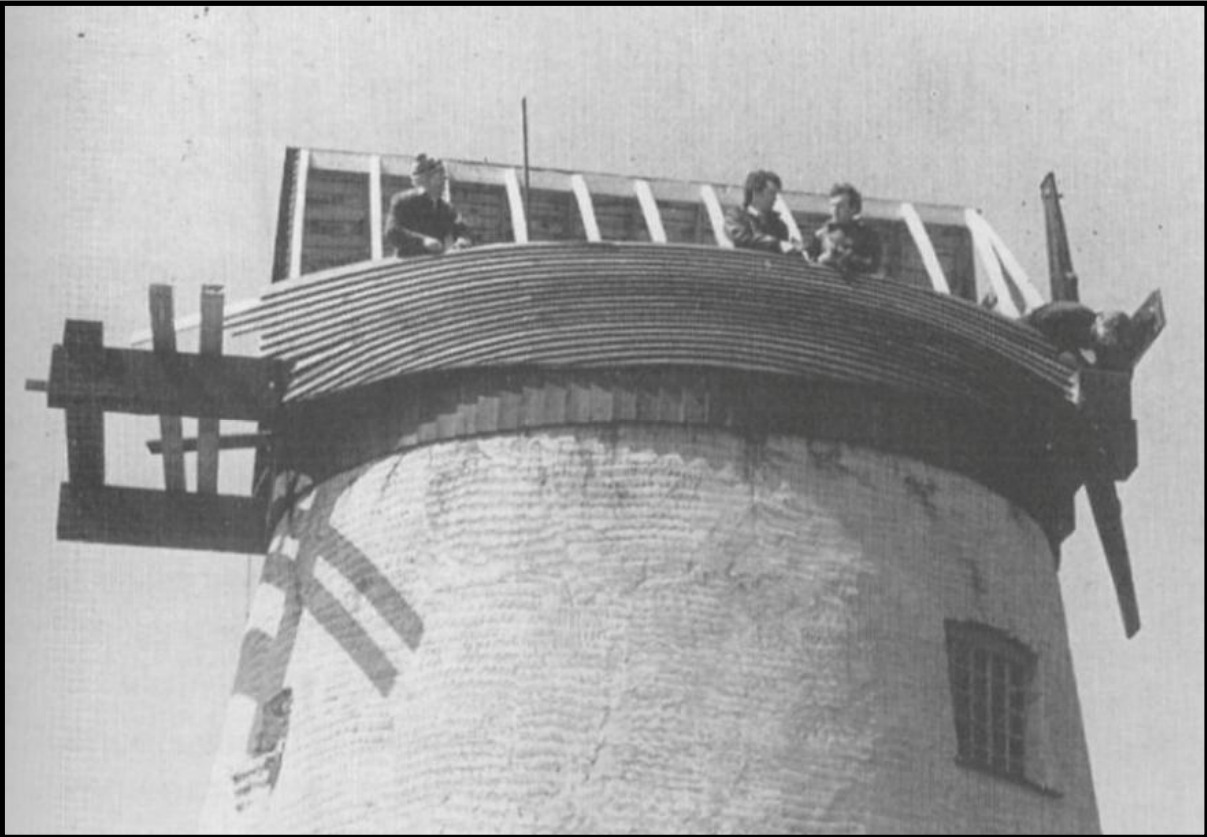
| | | | | | |
|------|---|---|-----|---|---------------------------|
| 1961 | Cley, Norfolk | 4 new sails, 2 stocks, fan stage & fantail, cap repairs | | | Scott 1977 |
| | Barnack, Cambridgeshire | New aluminium cap roof on original frame, window repairs | | | Stainwright 1991 |
| | Whissendine, Rutland | Remove windshaft, new aluminium cap roof on original frame. | | | Moore, Ledger #6 |
| | Paston, Norfolk (completed 1963) | New fan stage & skeleton fan, cap repairs, 2 stocks and 3 sails | 34 | | Scott 1977 |
| 1962 | Wrawby, Lincolnshire | New crosstrees & quarter bars, new brake & tail wheel rims | | | Brown 1976: 92; Sass 2012 |
| | Billington, Norfolk (started February) | Four new sails & 2 stocks, new fan stage and fantail, cap rebuilt. | 106 | | Scott 1977 |
| 1963 | Billington, Norfolk (completed by August) | Four new sails, new fan stage, cap rebuilt. | | | Scott 1977 |
| | Pakenham, Suffolk | New cap and fantail, 1 new stock, 2 new sails | 2 | | Brown 1976 |
| 1964 | Burgh le Marsh (Hanson's), Lincolnshire | Removal of gearing below curb | | | Sass 2012: 59 |
| | Brixton, Greater London | Installation of gearing from Hanson's Mill, Burgh, new brake wheel, cap rebuilt, four new sails | 156 | 4 | Dolman 1986 |
| 1965 | Thornton, Lancashire | 4 new sails, skeleton fantail, reefing stage | 184 | 4 | Brown 1976: 118 |
| 1966 | Great Chishill, Cambridgeshire | New trestle, re-weatherboarded, 4 new sails and 2 stocks | | | Brown 1976: 52 |
| 1967 | Waltham, Lincolnshire | New fantail frame & cap roof | | | Brown 1976: 90 |
| 1968 | Icklesham, Sussex | 4 new sails, new weather beam | 206 | 4 | Brunnarius 1979: 48 |
| | Little Marton, Lancashire | 4 new sails, brake wheel repairs | 181 | 4 | Brown 1976: 233 |
| 1969 | Weybourne, Norfolk (completed April) | 4 sails & 2 stocks, skeleton fantail | | | Scott 1977 |
| | Heckington, Lincolnshire | 4 new sails, new fantail | | 4 | Guide book |
| | Heage, Derbyshire | New cap, fan stage & skeleton fantail | 85 | | Brown 1976: 66 |
| 1970 | Sibsey, Lincolnshire | New cap, 6 new sail frames (28 Sept) | 20 | 6 | Brown 1976: 130 |
| 1971 | Heckington, Lincolnshire | 2 new sails | | 2 | Guide book |
| 1972 | Heage, Derbyshire | 6 new sails | | 6 | Brown 1976: 66 |
| | Heckington, Lincolnshire | New cap roof on original frame, 2 new sails. | | 2 | |
| 1973 | Mountnessing, Essex | Sail repairs | | | Brown 1976: 76 |
| | North Leverton, Nottinghamshire | 2 new sails, new fantail, tower tarred | | 2 | Brown 1976: 160 |
| 1974 | Bradwell, Buckinghamshire | Old cap removed, poss. New brake wheel and wallower | | | Guide book |
| 1975 | Bradwell, Buckinghamshire | New cap (August), 4 sail frames & stocks (November) | | 4 | Vince 1976 |
| | Lytham, Lancashire | 4 new sails & cloths | | 4 | Brown 1976: 116 |
| 1976 | Polegate, Sussex | 2 new sails & 1 stock | | | Brunnarius 1979: 87 |
| 1977 | | | | | |
| 1978 | Alford, Lincolnshire | 5 new sails, new cap & fantail | | 5 | Brown 1976: 122 |
| 1979 | Heckington, Lincolnshire | cap repairs? | | | |
| 1980 | Ellis', Lincoln | 4 new sails, winding gear, fantail, internal work | | 4 | Dolman 1986: 20 |
| 1981 | Sibsey, Lincolnshire | 264 new shades, return to working order | | | Dolman 1986 |
| | Lllynonn, Anglesey | Full reinstatement - 'fishing' exercise, new curb and upright shaft | 258 | | Guise & Lees 1992: 53 |
| 1982 | Lllynonn, Anglesey | Full reinstatement - new cap and brake wheel | | | Guise & Lees 1992: 53 |
| 1983 | Lllynonn, Anglesey | Full reinstatement - new machinery and sails (August) | | 4 | Guise & Lees 1992: 55 |
| 1984 | Thaxted, Essex | New wooden wallower, repairs to brake wheel | | | Guide book |
| 1985 | Sneinton, Nottingham | New brake wheel, reinstate machinery. | | | Dolman 1986: 34 |
| | Great Gransden, Cambridgeshire | New trestle, 4 new sails | | 4 | Dolman |
| 1986 | Sneinton, Nottingham (completed December) | New fan frame & fantail (March), four new sails (June). | | 4 | Guide book |
| | Heckington, Lincolnshire | 4 new sails, 192 new shades, return to working order. | | 4 | Dolman 1986: 17 |
| | Great Chishill, Cambridgeshire | New trestle, sail repairs | | | Waterfield |
| | Willingham, Cambridgeshire | Remove cap (by Thompsons?) | | | Sale particulars |
| | Fulwell, Tyne & Wear | 4 new sails, new neck carriage & brass, skeleton fantail | | 4 | Tom Davies 2015 |

| | | | | |
|------|---|--|-----|---------------------|
| 1987 | Boston, Lincolnshire | 3 new sails, new fan frame | 3 | Waterfield |
| | Thaxted, Essex | Existing 2 sails, 2 new sails & 2 new stocks installed | 2 | |
| 1988 | | | | |
| 1989 | Willingham, Cambridgeshire | Re-cog brake wheel, reinstate cap | | Sale particulars |
| | Kirton in Lindsey, Lincolnshire (or 1990?) | 4 new sails, new cap, new fantail and frame | 4 | Guide book |
| 1990 | Swaffham Prior (smock), Cambridgeshire | New cap and windshaft, 4 new sails and 2 stocks | 4 | |
| 1991 | Swaffham Prior (tower), Cambridgeshire | 4 new sails and stocks | 4 | Guide book |
| | Thaxted, Essex | Shutters fitted to 2 sails | 2 | Guide book |
| 1992 | Addlethorpe, Lincolnshire | Removal of machinery prior to truncation of tower | | Sass 2012: 41 |
| 1993 | Haddenham, Cambridgeshire (October onwards) | New cap and skeleton fantail | | Guide book |
| | Thaxted, Essex | 2 new sails with shutters | 2 | Essex MG newsletter |
| 1994 | Haddenham, Cambridgeshire | New cap and skeleton fantail (14 December) | 4 | Guide book |
| | Heapham, Lincolnshire (June onwards) | Remove old cap, full repair of machinery, new cap & fantail, 4 new sails | | Hewitt 1997 |
| 1995 | Heapham, Lincolnshire (all year) | Remove old cap, full repair of machinery, new cap & fantail, 4 new sails | | Hewitt 1997 |
| | Soham (Northfield), Cambridgeshire | Remove cap, smock tower repairs | | LB photos |
| 1996 | Heapham, Lincolnshire (completed December) | Remove old cap, full repair of machinery, new cap & fantail, 4 new sails | 4 | Hewitt 1997 |
| | Haddenham, Cambridgeshire | New brake wheel and wallower, new fan and sail shutters | | LB Photos |
| | Soham (Northfield), Cambridgeshire | Smock re-weatherboarded, new cap, 4 new sails | 4 | LB photos |
| 1997 | | | | |
| 1998 | | | | |
| 1999 | Pakenham, Suffolk | Remove cap and sails (March) | 96 | SMG newsletter |
| 2000 | Pakenham, Suffolk | Cap repairs, new fan stage, cap installed (10 March), internal repairs, new windows & doors, existing sails & stocks installed | | SMG newsletter |
| 2001 | Waltham, Lincolnshire | 6 sails and cap removed, new cap frame & fan stage, existing roof and sails installed | | Essex MG newsletter |
| | (or late 2000) Thaxted, Essex | Cap and sails removed, new curb and upper brickwork, new fan stage and cap frame repairs, sails and cap installed. | | Essex MG newsletter |
| 2002 | | | | |
| 2003 | Heckington, Lincolnshire | 8 sails and cap removed (June) | | LB photos |
| 2004 | Heckington, Lincolnshire | New curb, cap frame & fan stage, existing cap roof and sails installed | | LMG newsletter |
| | Hessle, E Yorkshire | Re-tarring, new windows | | LMG newsletter |
| | Sibsey, Lincolnshire | Remove 6 sails after 1 fell off 4th March | | LMG newsletter |
| 2005 | Sibsey, Lincolnshire | 5 new sails (February) | 5 | LMG newsletter |
| | Skidby, E Yorkshire | 1 new sail | | LMG newsletter |
| 2006 | Wicklewood, Norfolk (May) | New cap and fantail, new upright shaft | 92 | LMG newsletter |
| 2007 | Holgate, Yorkshire | New curb | | LMG newsletter |
| | Heapham, Lincolnshire | 4 sails & fantail removed | | LMG newsletter |
| 2008 | Hull, E Yorkshire | 4 new sails | 60 | 4 LMG newsletter |
| | Skidby, E Yorkshire | 4 sails & fantail removed | | LMG newsletter |
| 2009 | Skidby, E Yorkshire | Cap removed (21st Jan) | | LMG newsletter |
| | Ellis', Lincoln | 2 sails removed | | LMG newsletter |
| | Holgate, Yorkshire | New cap & brake wheel installed (December) | 98 | LMG newsletter |
| 2010 | Ellis', Lincoln | 2 new sails | | LMG newsletter |
| | Skidby, E Yorkshire | New cap & existing sails on | 59 | LMG newsletter |
| | Holgate, Yorkshire | 5 new sails (this year?) | 5 | LMG newsletter |
| 2011 | Heckington, Lincolnshire | First 4 new sails completed | 4 | LMG newsletter |
| 2012 | Heckington, Lincolnshire | Second 4 new sails completed | 4 | LMG newsletter |
| | Thaxted, Essex | | 116 | LMG newsletter |
| | | | | |
| | | | | 193 |



Assisted by one of the Friends of the Windmill, Tom Davies adjusts part of the front striking gear at Holgate Mill, York. The photograph shows the operating gear and fixings for five double-sided cross-mounted sails. Here, all the cast iron and steel (formerly wrought iron) components are decorated black.

Favourite jobs #1: Melin Llynnon, Llanddeusant, Anglesey, 1980-83



The restoration of Llynnon windmill was an 'ideal' job as it could be phased over several seasons and almost all of the working parts of the mill could be made on home turf at Parsons Lane.

The clients, Anglesey Borough Council, were sensitive to the millwrights' needs when they were working on site, 265 miles from Alford. To make their job as easy as possible, tools, materials, equipment and workshop facilities were made available. The local people were very welcoming and supportive, particularly the Hughes family at whose farm the millwrights were accommodated while they were working at the mill.

At the start of the project, the mill was inspected by Jim and Tom Davies in company with Rex Wailes, former Chairman of the SPAB Windmill Section and the driving force behind the mill restoration movement in the UK. By 1980 the cap of the mill had disappeared, the machinery had collapsed in a heap inside the tower and the mill was a spectacle of decay and neglect. Tom Davies recalled, "When we first set eyes on the mill and looked through the ground floor doorway our hearts sank at the sight before us."

When asked by the Council if it would be feasible to restore the mill, Jim Davies replied, "If we have got the time and you have got the money then it can be done". Fortunately, detailed surveys of Melin Llynnon's contents had been made in the 1950s. This information, together with the surviving fabric, provided the guidance that the millwrights needed to faithfully re-create a working windmill in the style favoured by the old millwrights of Anglesey.

Nevertheless, it proved a daunting challenge. Jim Davies was undeterred, saying "We haven't been beat yet, and we're not starting now."

The rescue of the mill entailed:

- 'fishing' the collapsed machinery and floor remains out of the tower;
- repairing and re-pointing the tower stonework and fitting new windows and doors;
- redecorating the tower internally and externally;
- making and installing new internal floors;
- manufacturing a new curb and 'well frame' for centring the cap;
- making and installing a new upright shaft and spur gearing;
- re-dressing and installing two pairs of millstones and their furniture;
- making and installing a new brake wheel and brake;
- cleaning the cast iron windshaft and cross and lifting them into position;
- building and installing a new cap frame;
- installing new hand winding gears;
- fitting the roof rafters and boarding the cap in situ, and
- making and installing four new common sails complete with canvas sail cloths.

The accompanying photographs show the four millwrights, Jim & Tom Davies, Tim Farnsworth and Denis Moore, at the top of the mill applying weatherboards to the curved cap rafters 'overhand'. This was the traditional method of completing the job, before the availability of mobile cranes. In later projects, such as the restoration of Heapham mill in Lincolnshire, Thompsons would complete the construction and cladding of a mill cap at ground level and lift it, in one piece, into position.

More information about the project can be found in *The Windmills of Anglesey* by Barry Guise and George Lees, published in 1992.

Favourite jobs #2: Hewitt's Windmill, Heapham, Lincolnshire, 1994-96

Thompsons originally quoted for the restoration of this windmill in 1956 for George Hewitt after the sails and sail cross had been destroyed in a storm. The work was not carried out until the mill was inherited by Mr Hewitt's son, Frank.

The restoration of the mill was privately funded with working order as the end goal. The process of commissioning the work was therefore straightforward. Any decisions relating to materials or costs that needed to be made could be made quickly, without the need to gain consensus from a committee. As with the Llynonn Mill project, the owner provided assistance from his employees and space in his outbuildings to build the cap frame and other parts under cover.

The work was carried out over several seasons. New parts of the millstone drive were needed to replace components that had been sold after the mill cased work. An entirely new cap and fan stage were constructed. The windshaft was renewed and a new cross was cast to carry the sails. Four new double sided sails complete with their striking gear and a full set of shutters were made and installed.

More information about the project can be found in *Hewitt's Windmill* by S. Frank Hewitt, published in 1997.



(above) Tea break at Heapham windmill, 1996.

Right to left:

Mark Davies (Thompsons)

Tom Davies (Thompsons)

Steve Boulton (Thompsons)

S Frank Hewitt (Mill owner)

Jim Davies (Thompsons)

Neil Medcalf (Thompsons)

?

John Winter (Hewitt's)

Neil Medcalf and Steve Boulton are the UK's last generation of traditional millwrights, both trained 'on the job' at Thompsons by Jim and Tom Davies.



This sequence of photographs shows the manufacture of a new cast iron fantail hub to replace the original which was damaged in high winds in October 2006, shortly after the new sails had been installed.

The top photo shows Steve Boulton making a new wooden pattern for the hub out of MDF. This material is ideally suited to the purpose as it is more resistant to splitting than regular timber.

On the right, the new casting is being fettled using an angle grinder to remove any sharp edges and inconsistencies created by the casting process. The central hole in the casting to accommodate the axle has already been bored out.



On the left, Jim and Tom Davies test-fit one of the prepared fantail blades to the hub. A fantail blade comprises an oak stock with an angled slot, into which a softwood blade is fitted. Three bolts secure the blade to the stock, and a further two bolts secure the stock to the hub. A stiffening ring between hub and blade provides additional strength.

SEED CLEANING
MACHINERY
SUPPLIED
AND FIXED

R. Thompson & Son

(Partners : J. E. Thompson : R. Thompson)

Millwrights & General Engineers

ALFORD - LINCOLNSHIRE

MILLSTONES
GRINDING MILLS
FOOD PREPARING
MACHINERY, ETC.

July 21st. 1956

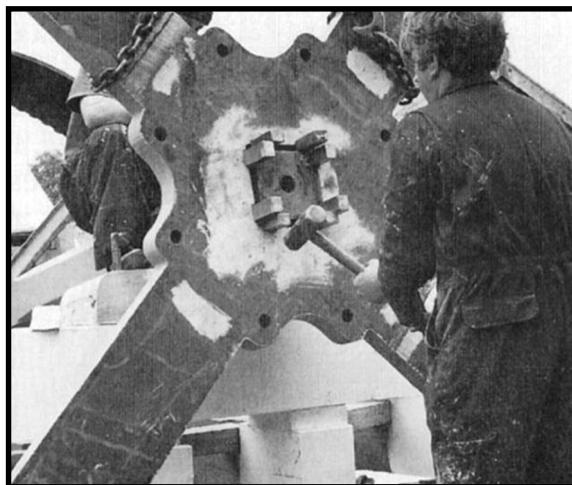
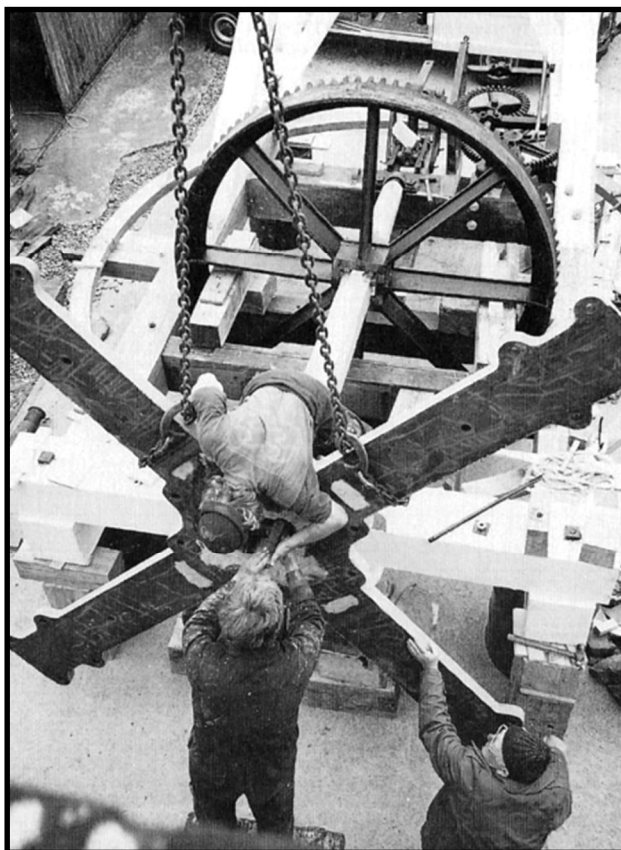
Dear Mr Hewitt.

Enclosed is our report and estimate of Damage. If you have any comments to make we shall be pleased to have them.

The Estimate is given for everything New but should you consider reinstating the Mill we would certainly look round for 2nd hand Cross & Axle, Striking Irons, Shackles &c. which would of course come much cheaper.

Should you be contemplating a Hammer Mill Installation in place of the Mill or any other Machines we should be glad of the opportunity to Quote.

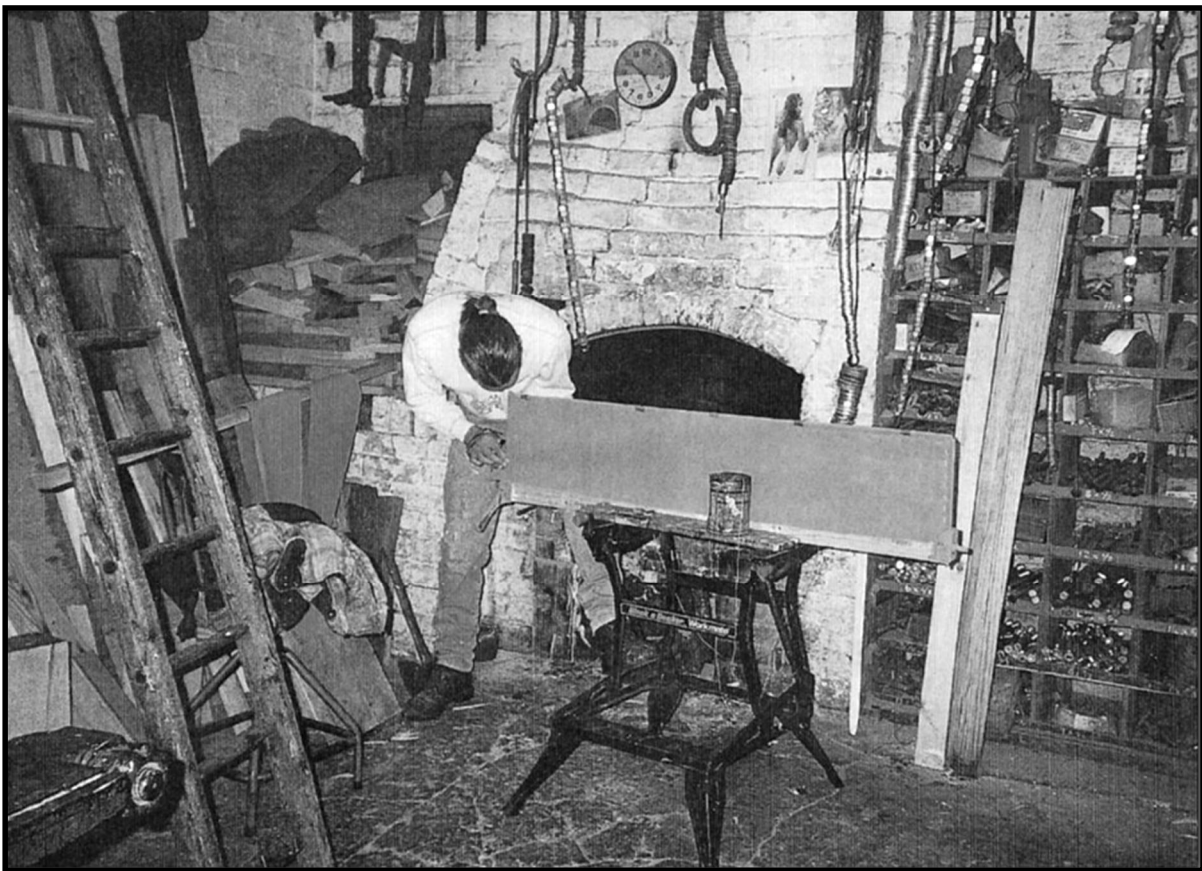
Yours faithfully

J. E. Thompson

(Top) Jack Thompson's original letter to Mr Hewitt following his survey of the extensive storm damage to the windmill at Heapham.

(Above) Restoration is well advanced in 1996. Tom Davies and his assistants fit the four-armed cast iron sail cross to the forward end of the windshaft. The sail cross is suspended from a crane jib. Once in position, the cross is secured to the windshaft with metal keys hammered into place.

(Right) Two views taken at Parsons Lane showing the process of building the sail frames in the yard and stitching a covering of canvas to the shades in the workshop.



5. THE FOUNDRY PATTERNS COLLECTION

The workshop loft houses hundreds of wooden foundry patterns of a variety of sizes as well as piles of spare castings, most of which comprise small gear wheels and brackets. The items do not appear to be arranged in a particular order in the loft, but have simply been placed where space allows.

5.1 What exactly are the patterns?

The pattern collection comprises hand-crafted wooden versions of many of the main cast iron components of windmills (and, to a lesser extent, watermills as well as those driven by steam or engine power). These are the parts that most frequently became worn out, destroyed, damaged for a variety of reasons, or were missing entirely. Broadly, the parts of windmills which require replacement most often are those found most frequently in the patterns collection.

Most windmills had **fantails**. The fantail reduction gearing would become worn out or damaged, and prior to a mill's restoration it had very often been removed entirely. The collection contains a large number of fantail gears which vary in size, angle and tooth pitch.

The **curb** ring, a circular rail at the top of a windmill tower on which the wooden cap roof rested and turned, could not be cast in a single piece due to its size. It was therefore cast in several segments, usually eight, from the same pattern. Curb designs vary subtly, and Thompsons had patterns for curb segments with outward-facing, upward-facing and inward facing rings of gear teeth.

Most windmills had Cubitt's patent sails of 1807 containing adjustable shutters known locally as **shades**. Their operating gear (**striking gear**) can be separated into the items found at the front or the rear of the cap (see photo page 15).

Less numerous are patterns for the larger items of principal machinery within the mills which rarely have to be replaced. The key element of machinery is the **windshaft** at the top of the mill which carries the sails at its forward end.

Thompsons had a pattern for a windshaft with a **poll end** or **canister** at the front. The usual type of sail mounting found in southern England, this comprises a pair of open-ended boxes set at right angles which carried a pair of stocks to which the sails were fixed.

In Lancashire, Yorkshire and the East Midlands, stocks are not used. Instead, the sail frames themselves are more heavily constructed. Their inner ends are bolted and clamped to the **sail cross**, an ingenious feature introduced by John Smeaton during the 18th century which allows more than four sails to be fitted to the windshaft if required. When creating a casting for a sail cross, a pattern for only one arm of the cross is needed. The pattern is rotated about the centre point by as many degrees as is required to produce a cross casting with the desired number of arms (see photo page 20).

The principal machinery of the windmill comprised the **brake wheel** mounted on the windshaft which transmits power to the wallower (locally termed the **crown wheel**) mounted on the upright shaft; the **upright shaft** which conveys power downwards through the mill and the **great spur** wheel mounted near the lower end of the upright shaft.

Patterns for brake wheels comprise the cast iron centres for large wheels with (usually) 8 radial arms. The remainder of the wheel, apart from its teeth which would be cast in segments, would be made of timber, usually elm. A pattern for half a wheel would be needed; two identical castings would be bolted together.

In relation to a gear wheel, the terms **teeth** and **cogs** are often confused or used interchangeably. **Tooth** relates to a projection which is an integral part of the casting of the gear wheel itself. A **cog** is a removable tooth which fits into a rectangular mortice cut or cast into the rim of the wheel.

Some wheels are fitted with rings of teeth cast in segments of ten or more. Cast iron gear wheels with wooden teeth are known as **mortice wheels**. Examples are found in the patterns collection; these required separate **cores** to ensure that the wheels were cast with apertures in the right places. To ensure quiet running and to make replacement in the event of a breakage simple, millwrights often favoured a cast gear wheel driving one with wooden cogs. In Lincolnshire, for example, great spur wheels were typically huge one-piece castings driving stone nuts with removable wooden cogs.

Smaller **bevel** (ie. angled) and **spur gears** would be used at upper and lower levels of the mill to convey power from the upright shaft to secondary items of machinery: devices used to **clean the grain** prior to milling, and to sieve or '**dress**' the flour after it had passed through the millstones. Several patterns for medium-sized bevel and spur gears survive; the shafts they were mounted on would have been made to size in wrought iron so patterns for these were not required.

The **millstone** assemblies contain several small components and these are reflected in the patterns collection. The drive gearing from the great spur wheel to a pair of millstones comprising the **stone nut**, the **quant** (locally called the **top spindle**), the **glut box** into which the upper end of the top spindle fitted and the **millstone spindle** which carried the upper millstone (runner stone) are all represented.

Beneath the millstones, the apparatus which allowed the gap between the stones to be adjusted was known as the **tentering gear**. The main cast iron elements of this are the **bridge trees** and the brackets which suspend them from the floor timbers.

The millstone and tentering gear assemblies tend to survive in mills and, where they have not been removed for their scrap value, are virtually indestructible, so patterns were infrequently needed.

Photographs of patterns for many of the components described above appear on pages 27-39.

5.2 Initial survey of the patterns collection

The contents of the pattern loft were viewed and photographed in December 2016. By annotating some of the photographs the following list was compiled. This should be interpreted as a very brief initial survey, which will be eventually superseded by a detailed inspection and identification by the Manor House team, assisted by Tom Davies. The process of removing, cataloguing, identifying and storing the patterns had already commenced in December 2016.

Most of the items listed below are patterns; spare castings are noted specifically.

Key:

| | |
|-----|--|
| W | Windshaft |
| C | Curb & associated parts of cap |
| M | Millstones & their drive |
| TG | Tentering gear (below millstones, for their control) |
| PG | Principal gearing |
| SG | Secondary gearing |
| S | Sails |
| FSG | Front striking gear - patent sails |
| RSG | Rear striking gear - patent sails |
| F | Fantail gearing |

Small loft

| | | |
|----|-----|---|
| 1 | M | Stone nuts x13 + solid pinion |
| 2 | C | Cap skid blocks (aka pigs) x6 |
| 3 | PG | 8-arm brake wheel centre x 1 |
| 4 | SG | 6-arm mortice bevel pinion (c24" diam) - water/steam mill? |
| 5 | SG | 4-arm bevel pinions c 45 degrees (c24" diam) x2 - water/steam mill? |
| 6 | SG | Solid bevel pinions (c 18" diam) shallow angle x2 - water/steam mill? |
| 7 | SG | 8-arm bevel pinions, wallower size, shallow angle x 2 - water/steam mill? |
| 8 | PG | Wallower (c36" diam) x1 |
| 9 | F | 6-arm spur pinion (c36" diam) x1 |
| 10 | F | 8-arm spur pinion c36" diam x 1 |
| 11 | FSG | L-shaped harp iron x1 |
| 12 | FSG | U-shaped stump iron x 1 |
| 13 | FSG | V-shaped stump iron x2 (a handed pair?) |

Large loft – SW end

Lower level

| | | |
|----|----|--|
| 14 | PG | 8-arm very large wheel centre (brake wheel?) x 1 |
| 15 | PG | 8-arm brake wheel centre x 1 |
| 16 | S | Sail cross arm x 3 (2 charred) |
| 17 | TG | Pile of hanging brackets (presumably for bridge trees) x 7 |

Upper shelf, yard side

| | | |
|----|---|---|
| 18 | M | Footstep bearings (toe pots) x 2 |
| 19 | M | Circular toe pot? X 1 |
| 20 | W | Neck bearing chair x 2? |
| 21 | W | Tail bearing chair x 1 |
| 22 | | Pair of templates for ogee cap roof (J E Thompson photo, page 7?) |

Upper shelf, boundary side

23 FSG Pile of front striking gear components

Apex of roof

24 M Top spindles (quants, crutch poles) x 8, charred

Large loft – NE end

Upper shelf, yard side

25 FSG Harp iron (triangle)

26 Various brackets

Upper shelf, boundary side

27 M Glut box

28 FSG Harp iron (triangle) x2 (red for Holgate mill York?)

Main loft floor and area adjacent to access hatch

29 RSG Large 6-arm purchase wheel for Holgate Mill, York, red x1

30 Pile of boxes for small castings on top of small chest of drawers
(contents unknown)

31 C Pile of curb segments with upward-facing rack

32 C Curb segment with inward-facing rack, red (Holgate?) x1

33 SG Mortice bevel gear, shallow angle, c24" diam x1 - water/steam mill?

34 ? 4-arm stumpy cross with small bore (not a sail or fan cross) x1

35 PG Lower part of upright shaft x1

36 M Mace x1

37 ? Assorted brackets including an arch supporting a slim shaft

38 F Plate bracket similar to a worm spindle end bearing

39 PG Large bevel gear (bore possibly too small for wallower) c3' diam

40 PG Upright shaft intermediate bearing chair x1

41 M Glut box x1

42 F Small solid bevel gear

43 PG Bearing cap for (40)

44 F 4-arm bevel gear – one of top pair for fantail (Holgate)

45 RSG Set of nesting weights x1

46 W Tail bearing brass (Holgate)

47 F Flanged final drive pinion x1 (Holgate) and 3 others

48 F Undercut final drive pinion x1

49 M Part of gimbal rynd

50 C Outward-facing curb track section x2

51 C Inward-facing curb track section x2, 1 old (Sibsey?), 1 red (Heapham?)

- 52 C Upward-facing curb track section x 1 (Holgate?)
- 53 M Millstone spindle
- 54 W Neck bearing chair & brass x1
- 55 PG Quarter great spur wheel x1
- 56 FSG Spider cross x1 (Holgate?)
- 57 ? Bracket marked 'Hec' (Heckington?)
- 58 TG Assorted tentering gear patterns – some charred – from Saundersons?
- 59 C Cap centring wheels x2 (1 Holgate?)
- 60 F 6-arm fantail hub x1
- 61 Reefing stage (balcony) support bracket x2

North gable end wall shelves

Assorted spare castings of various sizes including;

LHS

- 62 F Small spur gears for fantail drive, flanged and regular type
- 63 Bearing brasses
- 64 F Small worm gear pattern x1
- 65 Various small patterns

RHS

- 66 F Small bevel gears for fantail drive
- 67 Sleeves
- 68 Bearing brasses
- 69 F or SG Dog-clutch coupling x1

Watermill parts

- 70 Waterwheel shrouds (outer rings) x 2

Shelf above main door

- 71 Bearing shells (spares?)
- 72 M Mill bills and picks for millstone dressing
- 73 W Tail bearing keep (?)

Hung on nails on floor beams

- 74 PG & SG Timber / plywood / MDF patterns for cog blanks

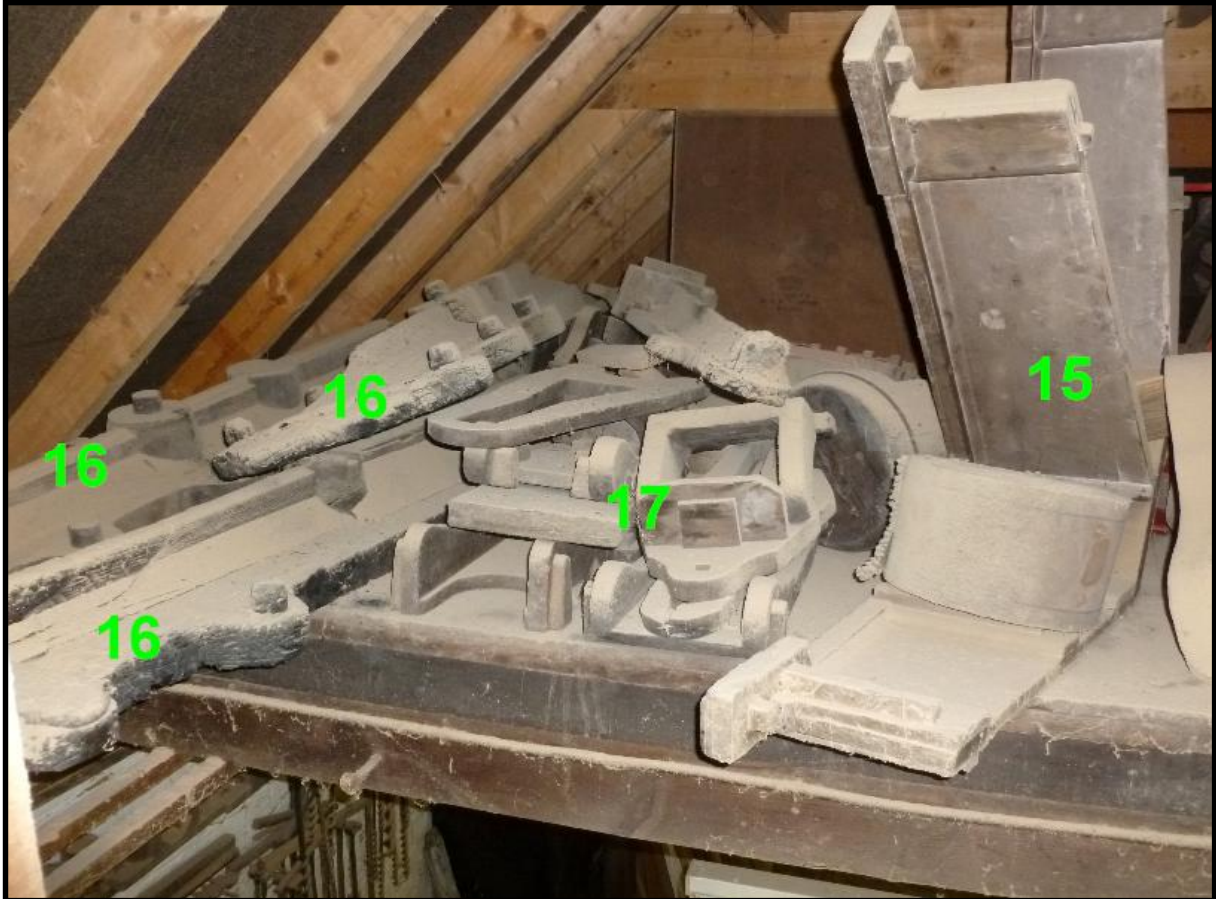
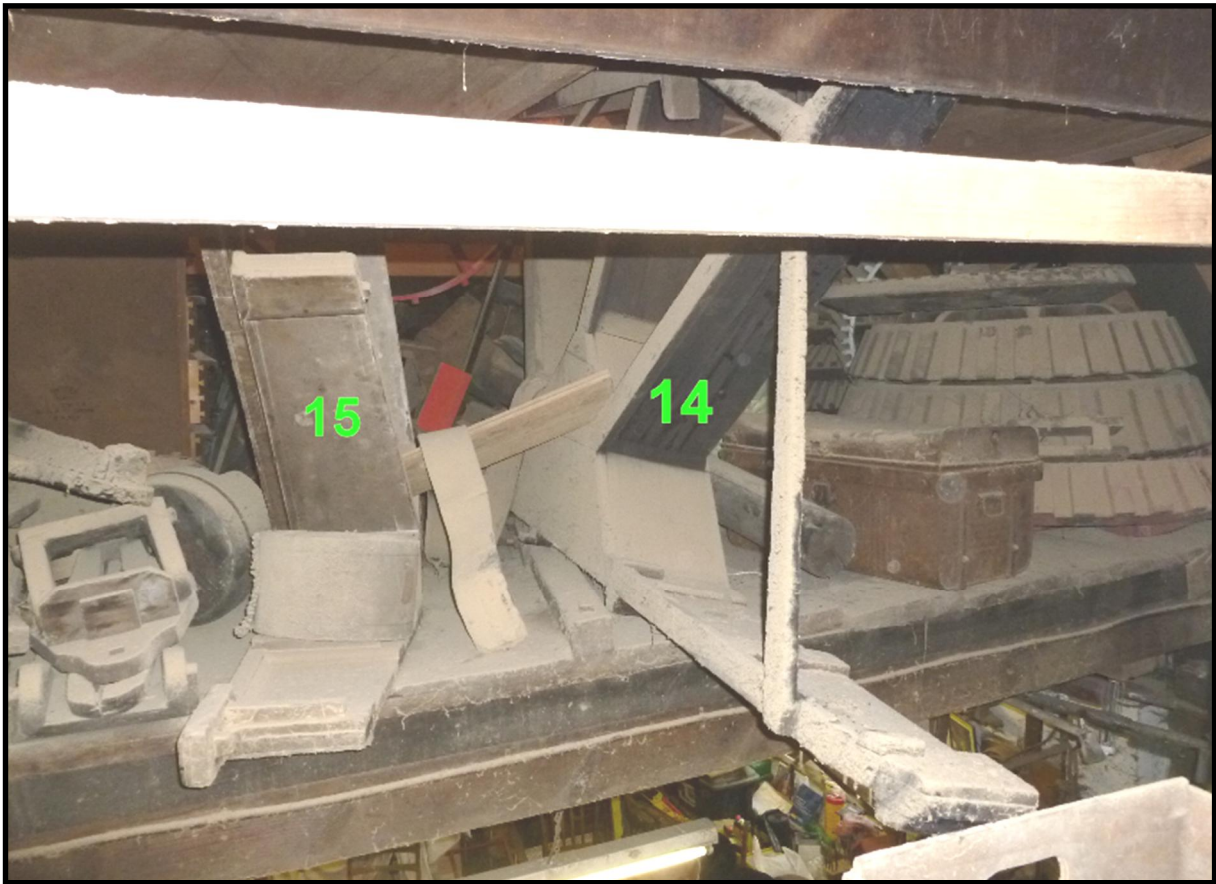
Above workbench at N end

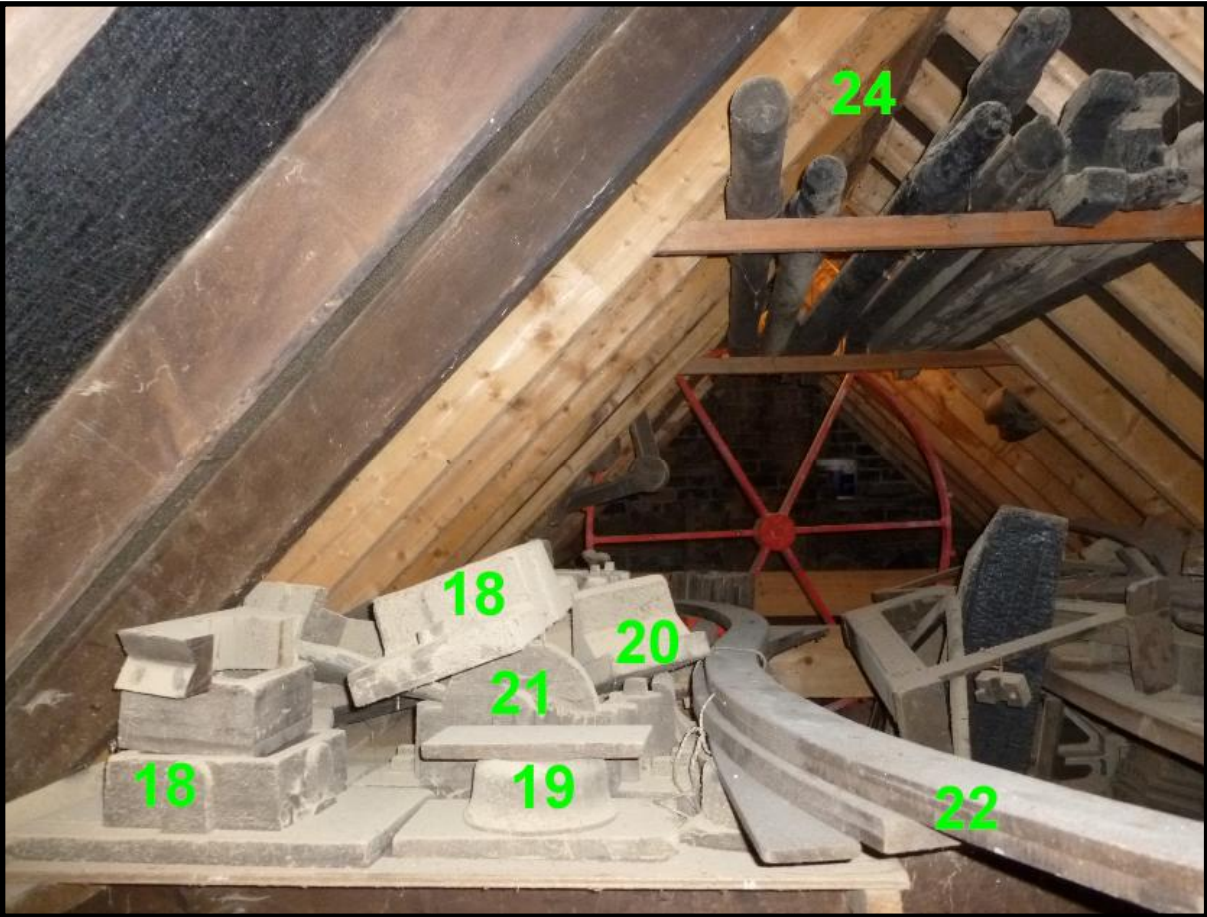
- 75 FSG Stump iron castings &/or patterns? x4 (different designs)
- 76 ? Bearing bracket, purpose unknown (rear striking gear?)

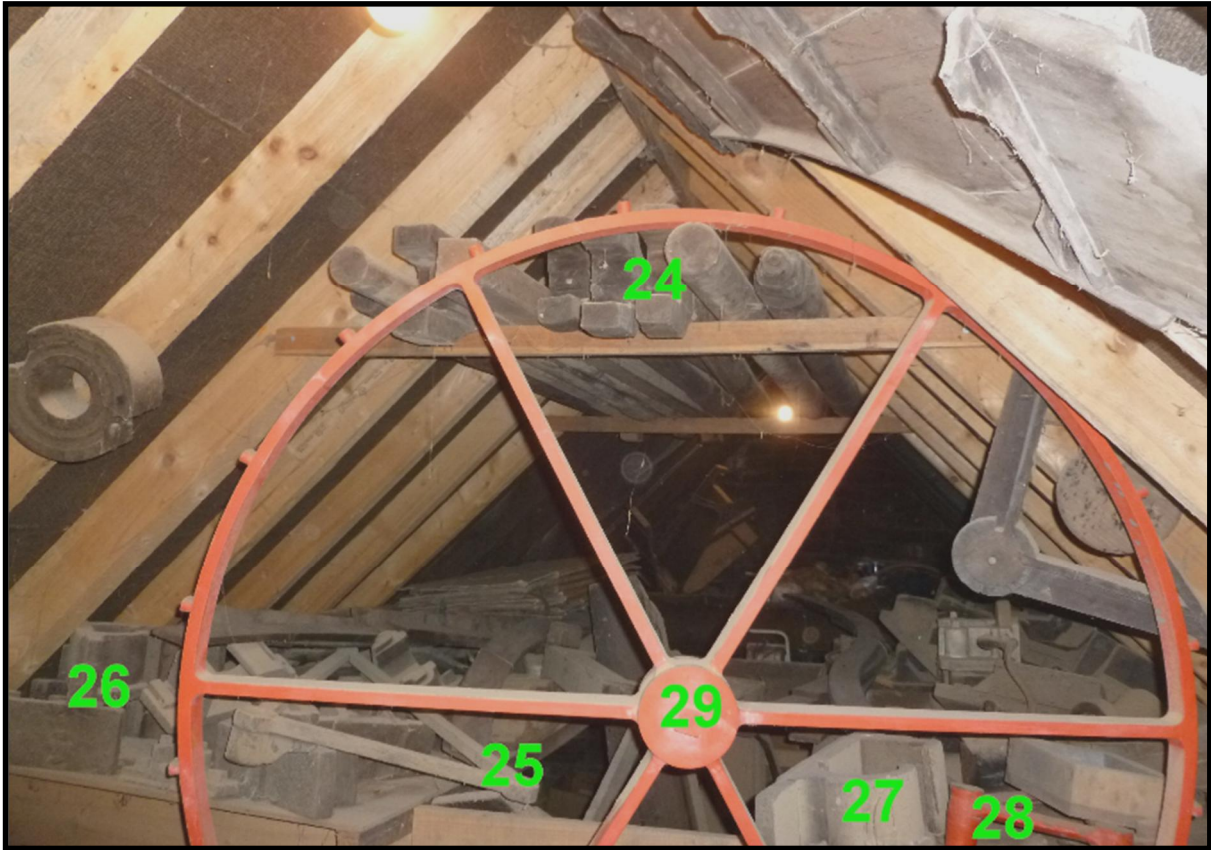


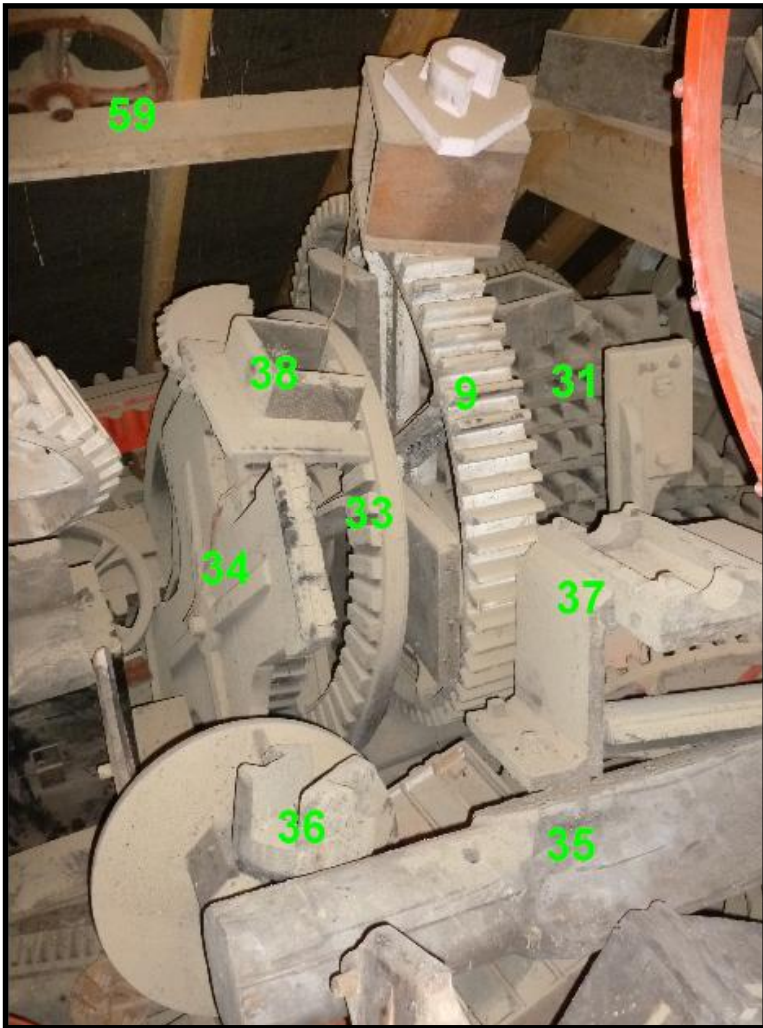




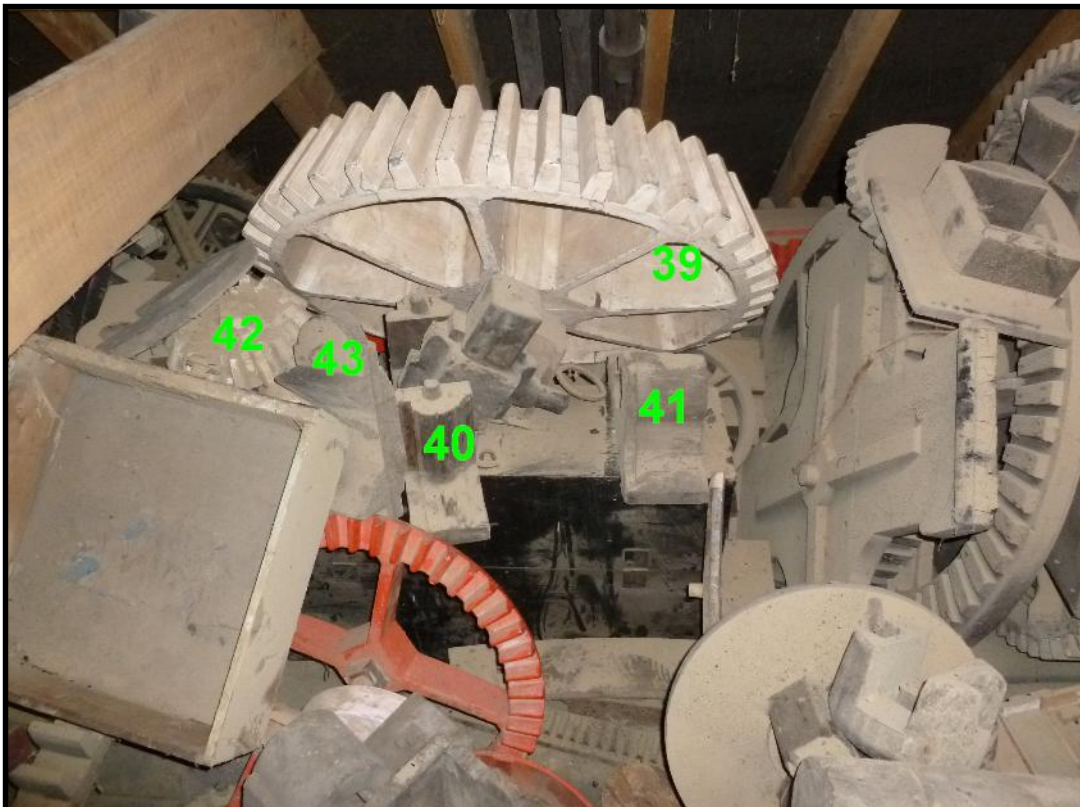


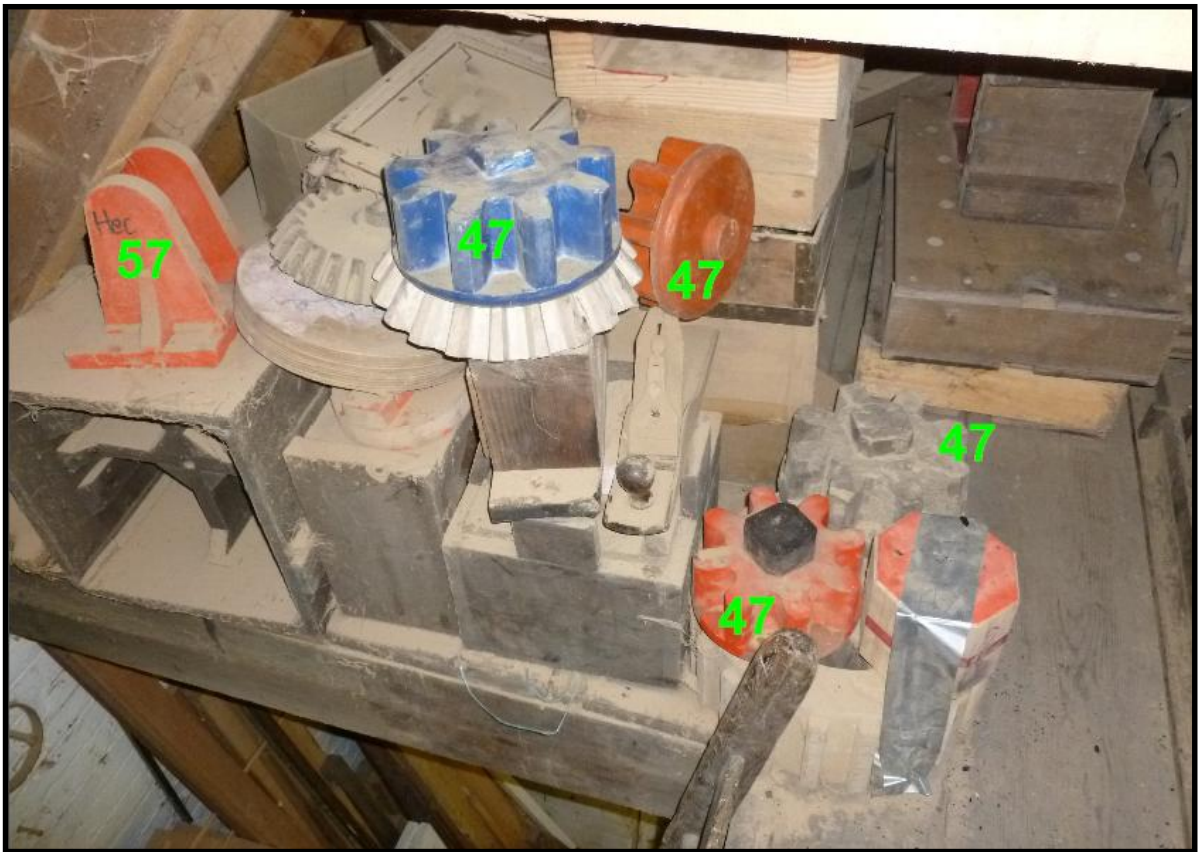
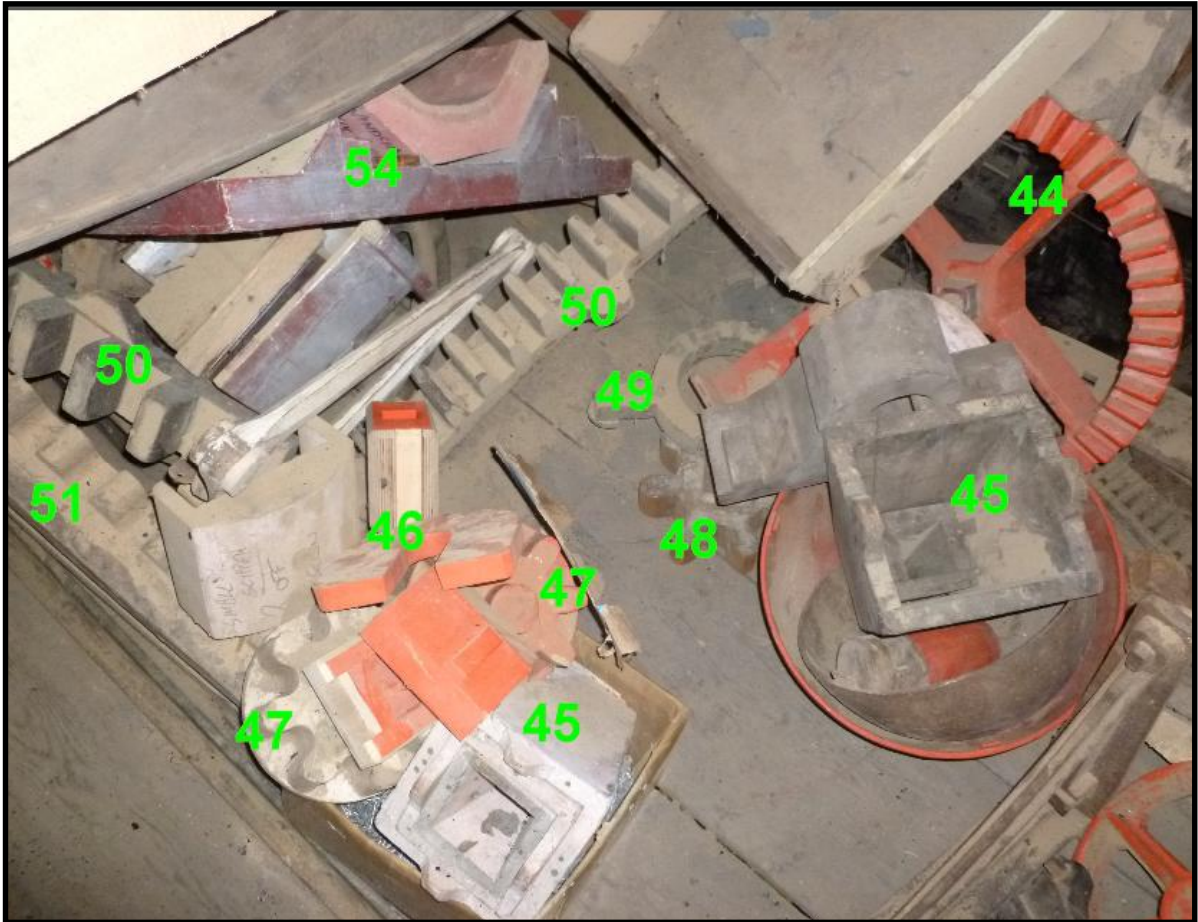


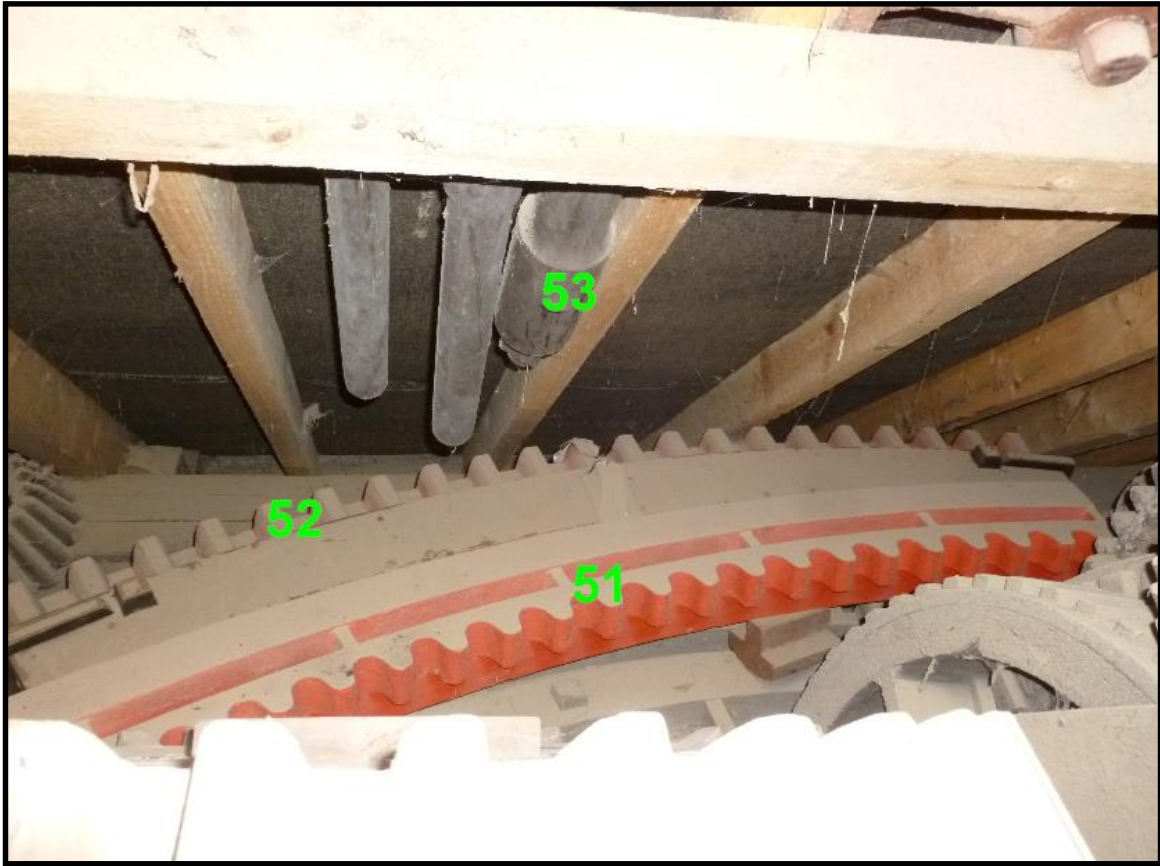




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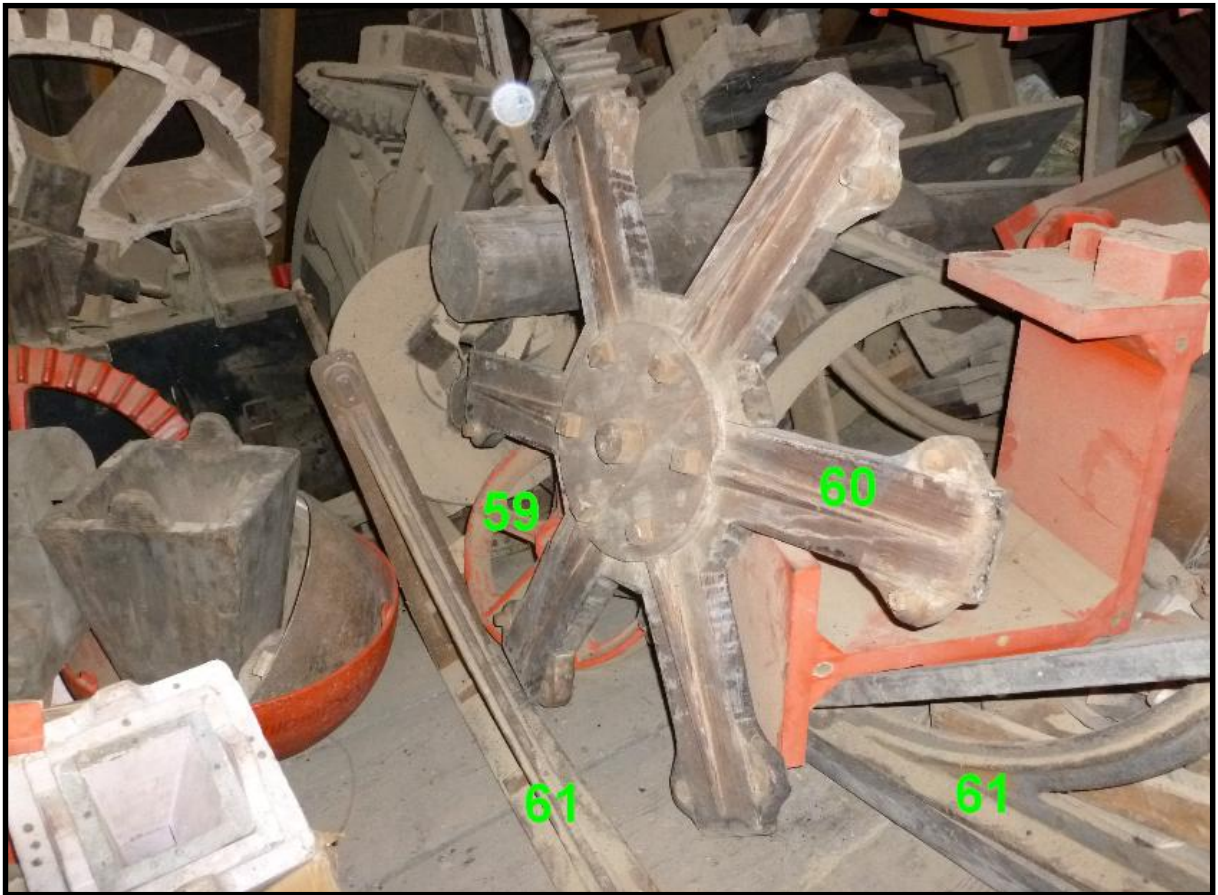


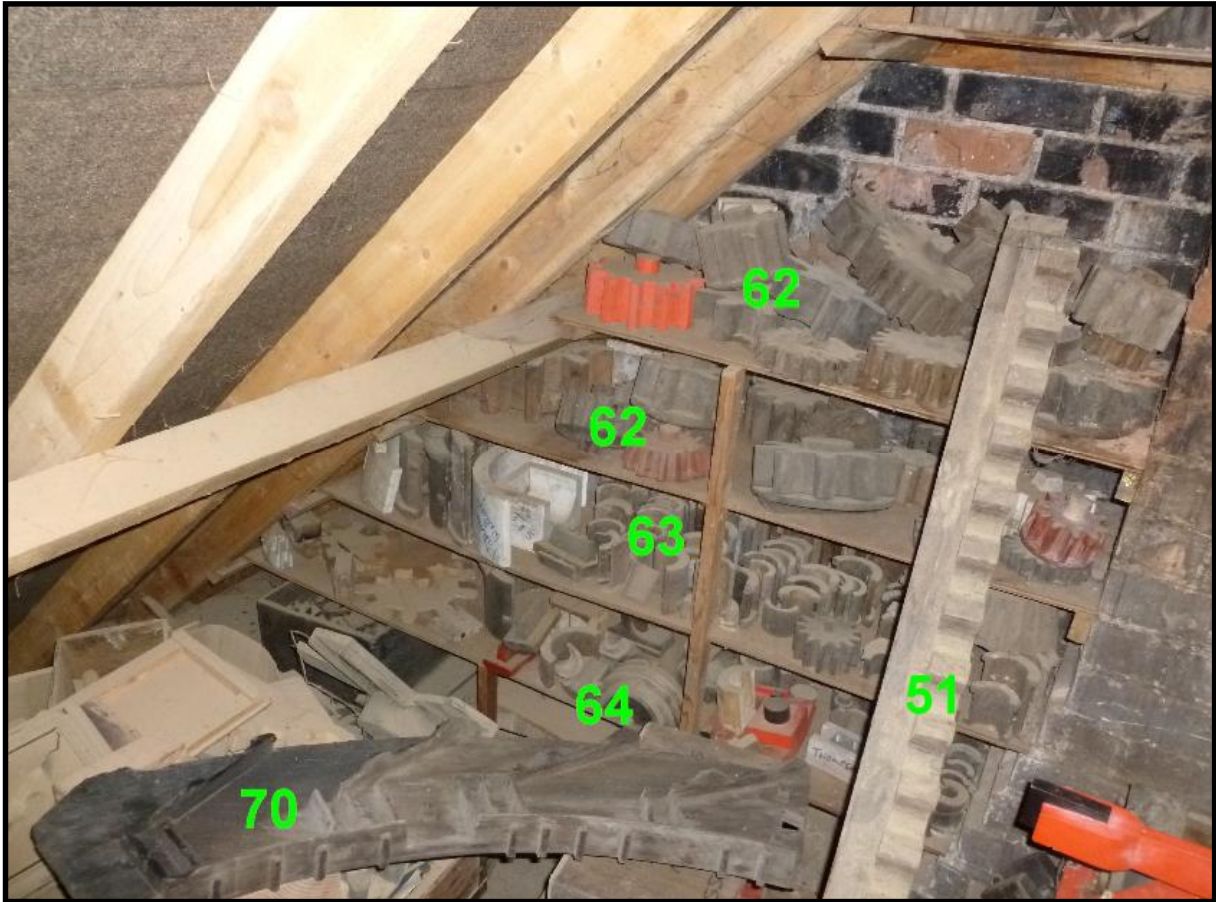




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6. THE DOCUMENTARY COLLECTION - notes by Colin Moore

The company was formed in 1877 at a time when traditional corn milling by wind and water power was on the decline. In spite of this the founder, Robert Thompson, built up a thriving business that continued trading until 2012 when the last owner, Tom Davies, retired.

The Ledgers and Day books were preserved. With the permission of Tom Davies, these have been digitised and indexed so that present and future molinologists can study the day to day operation of a firm of skilful and traditional millwrights.

Volume 1

Volume 1 starts at the very beginning of the firm in 1877 and covers its operation up to 1903.

There are 269 pages, but facing pages have the same number so there are 538 sheets with 34 lines per sheet. Almost every sheet is used from top to bottom giving the order of 18,000 items.

Pages 1 to 100 give details of cost in £sd where 20 shillings equalled £1 and 12d [old pence] equalled 1 shilling. Part payment was common by cash, cheque and goods such as flour, bread and pig meat. From 101 to 251 the system changed to recording items used and hours worked, from which invoices could be produced to bill customers. 252 to 262 are concerned almost entirely with non-mill work, the majority of which is the manufacture and sale of wooden rollers for mangles which were the hand-cranked forerunners of washing machines. 263 to 269 are not numbered and continue with non-mill work, some customers' addresses and a partial index.

The volume is not in strict chronological order; page 1 has entries for T Bratley from 1877 to 1882, page 5 has entries for 5 different customers from 1877 to 1880 and page 14 has entries for C Mager from 1880 to 1886. In contrast, the entries for one customer can continue for up to 4 consecutive pages.

The paying customers are identified by name and location but the identification of the mill at which the work was done is rarely included. This could be due in part to the fact that mills were often known by the name of the miller who could change several times in the 26 years of Volume 1.

Volume 2

This Ledger runs from 1877 to 1893.

Facing pages have the same number. There are 135 such pages; 136, 137 & 138 are not numbered. There are 34 lines per sheet equalling 64 lines per page number with almost every line on every page used – a total exceeding 8,500 entries. The data is of costs in £sd or, alternatively, hours worked.

The ledger is not in strict chronological order and there can be as many as 8 names per page which can also refer to 5 different years. Pages 136 and 138 have addresses of customers and 137 has a partial index (not in alphabetical order).

Mills are rarely named but from the list of parts or work done the type of mill can be identified in many cases. In others, the customer may or may not be a miller. The time scales have been deduced from the dated entries against the named customers.

Volume 5

This Ledger is for the years 1919 to 1932.

There are 550 pages but pages 517 to 546 have not been used. The pages are individually numbered with 32 lines per page. Nearly every line on active pages is used, so there are almost 16,500 entries giving hours worked with a few costs of items recorded.

The majority of customers are millers, though the name of the mill is seldom included. The type of mill in most cases can be deduced from the items used or the job being done. In some cases, where the work is entirely within the mill, the motive power of the mill cannot be established, so these entries have been designated "M" in the index. The duration of ownership or tenure has been deduced from the dated entries to a particular name.

The small number of non-millers are included, with their profession where identified. By this period, Thompsons had developed a major trade in the manufacture of wooden mangle rollers and, to a lesser extent, agricultural contracting and house building. They had also expanded their trade into counties outside Lincolnshire.

Volume 6

This Ledger is for the years 1915 to 1978.

Inside, on the top left hand corner of the flyleaf is the designation "4/9 ½ (3)". It is probable that 4/9 ½ is the price of the ledger which would be equivalent to a day's wage for a skilled man in 1915 and £17.20 in today's money based on RPI. Based on comparative labour rates, it would be £74.52.

The number "3" is not the ledger number, as ledgers 1, 2, 3, 4, 5 have been definitely identified by pencilled titles on page 1 of each book. This unidentified ledger has therefore been designated Ledger 6.

Pages are laid out as a Cash Book with columns in red for £ s d and 33 lines per page and most lines are used on each page. Facing pages have the same number up to 351 so there are over 20,000 entries in this volume. There is an alphabetical index at the beginning of the book with two pages for each letter, where the invoicing address of the customer is given but not the mill.

As was usual at the time, the entries are not in chronological order and there can be several customers per page over several years. The index which follows is based on customer name which may be the owner, renter or lease holder of a mill or other business.

In many cases the mill itself is named and this information is included along with the motive power where it can be identified. Where the customer can be shown to be a miller from the service being provided, but the motive power is not identified, these entries are designated M. The length of tenure has been deduced from the date of the first and last entries for a given customer.

From glory to destruction - Myers' Mill, Alford



This wonderful view by local photographer Nainby shows millwrights in attendance at Myers' six-sailed mill, Alford. This impressive complex of buildings included a large granary and a steam mill with a tall brick chimney. It stood adjacent to a brewery in Half Moon yard, off West Street, near the centre of the town.

The millwrights are in the process of painting and tarring the cap. Two men stand on the 'Jacob's Ladder' which was hung from a rope around the stalk of the cap finial. Two others stand on the fan stage, from which is suspended a wooden cradle. This could be raised and lowered from the top of the mill down to the balcony. By rotating the cap using the hand-winding gear, the whole of the tower could be reached, allowing the millwrights to tar the brickwork and paint the windows.

20

Mr E. W. Myers. Alford

1921

| | | | |
|--------------------|----|---|---|
| Feb | 25 | Stone Spindle Weck, Top & Cockhead turned Square Curdown | 18 6 |
| April | 30 | Sails taking off + refixing, Sails + Shades repairing Fan + Tail end repairing. S. bracing Irons refixing + repairing. | 57 14 9 |
| June | 1 | Mill Painting + Tarring, Top Canvasing + Rep. 23 Branks; 10 Yudsens; 168. 17 1/2 Senns; 38 1/2 lb Paint 66 ft. 3 1/2 x 1 1/4 Redwood; 2 3/2 7 do x 2 ft Canvas 32 Connecting Bolts; 60 Washers; 8 Wire Staples 2. 2 1/2 x 7/16; 18. 3 x 3/8; 58. 3 1/2 x 7/16; 3. 1 1/2 x 7/16 Bolts 1. 8 1/2 x 7/8; 1. 19 1/2 x 7/8 Sq Bolts; 15 1/2 lb Nails 2 Shade Frames; 2 Shade Stretchers; Turine 6 Sail Bars; 4 Backstays; 3 Small Plates. 7 Sq Staples; 5 Sq Staples Repaired; 24 Out Winchill 2 Shackles 2 3/4 lb; 2 Strong Shackles Repaired 2 3/4 lb 2 Clouts; 4 lb 2 oz Long Clouts. 4 1/2 lb Patty 131 ft. 1 3/4 x 1 1/2 P. Pine; 8 ft 9. 7 x 1 1/4 Redwood 7 ft. 5 x 2; 3 ft. 4 x 3; 5 ft 9. 3 x 2 1/2; 1 1/2 ft. 2 x 2 1/2 10 ft. 2 1/2 x 1 3/4; 2 ft. 2 x 1 3/4; 3 ft. 3 x 3/4 Redwood. 2 ft 3. 3 1/4 x 1 1/4 Bar End. 9 ft 6. 2 x 7/8 Redwood. 5 ft 1. 11 x 3; 5 ft 3. 11 x 2 3/4 Front Gals. 2 Gate Steps; 6 ft 1. 6 1/4 x 4; 2 ft 9. 6 1/4 x 2 Gate 1 2 14 1/2 White Lead; 4 lb Black Paint 18 1/2 lb Boiled Linseed Oil 1 1/2 16 lb Raw Linseed Oil 4 1/2 lb Turpentine; 4 1/4 lb Patent Dryers. | 3 14 4 6 4 9 1 5 0 15 7 9 9 4 3 2 1 9 5 3 1 16 9 12 0 1 6 10 11 8 3 9 1/2 1 11 1 5 0 15 0 11 8 6 1/2 1 10 0 1 1 0 |
| July | 4 | Repairs to Tail End Brass. | 1 1 0 |
| Paid for 8/21. Dis | | | £ 130 0 9 |
| | | | 3 5 4 |
| | | | £ 126 15 0 |
| Dec | 31 | 1 Joint Bolt & Feather, Refixing, Irons Diling | 4 0 |
| Jan | 14 | Upright Shaftup, Oilway in Brass 1 1/2 x 4 x 1 Wood windshaft out of house | 8 6 3 0 |
| Mar | 19 | Sails Tightening 2 men 3 1/2 hours each | 10 0 |
| Paid Feb 27/23. | | | £ 1 6 0 |

Page 20 of ledger no. 6 includes entries relating to Myers' Mill from April and June 1921. After extensive repair of the sails which involved removing and re-fixing them, the millwrights repaired and re-covered the cap with canvas, repainted the cap and fantail and re-tarred the tower.

The work in progress in the photograph may correspond to this entry for 1st June 1921.

Over the period covered by the ledgers and day books, Mr Myers spent many hundreds of pounds with Thompsons. Based a short walk away, the millwrights made frequent visits to maintain the internal machinery of the windmill and steam mill in working order.



By the mid-20th century, repair of the windmill was no longer economical. A despondent entry in Volume 6 dated 8th May 1952 records "Mr J C Myers—to dismantling sails and fan—£40.0.0." The mill continued to be operated using engine power for a few years longer.

In the 1960s, the mill suffered the ultimate indignity when it was disembowelled for its scrap value. A large hole was made in the side of the tower at second floor level for this purpose.

The empty tower was demolished soon after this photo was taken in 1978.

The sail book

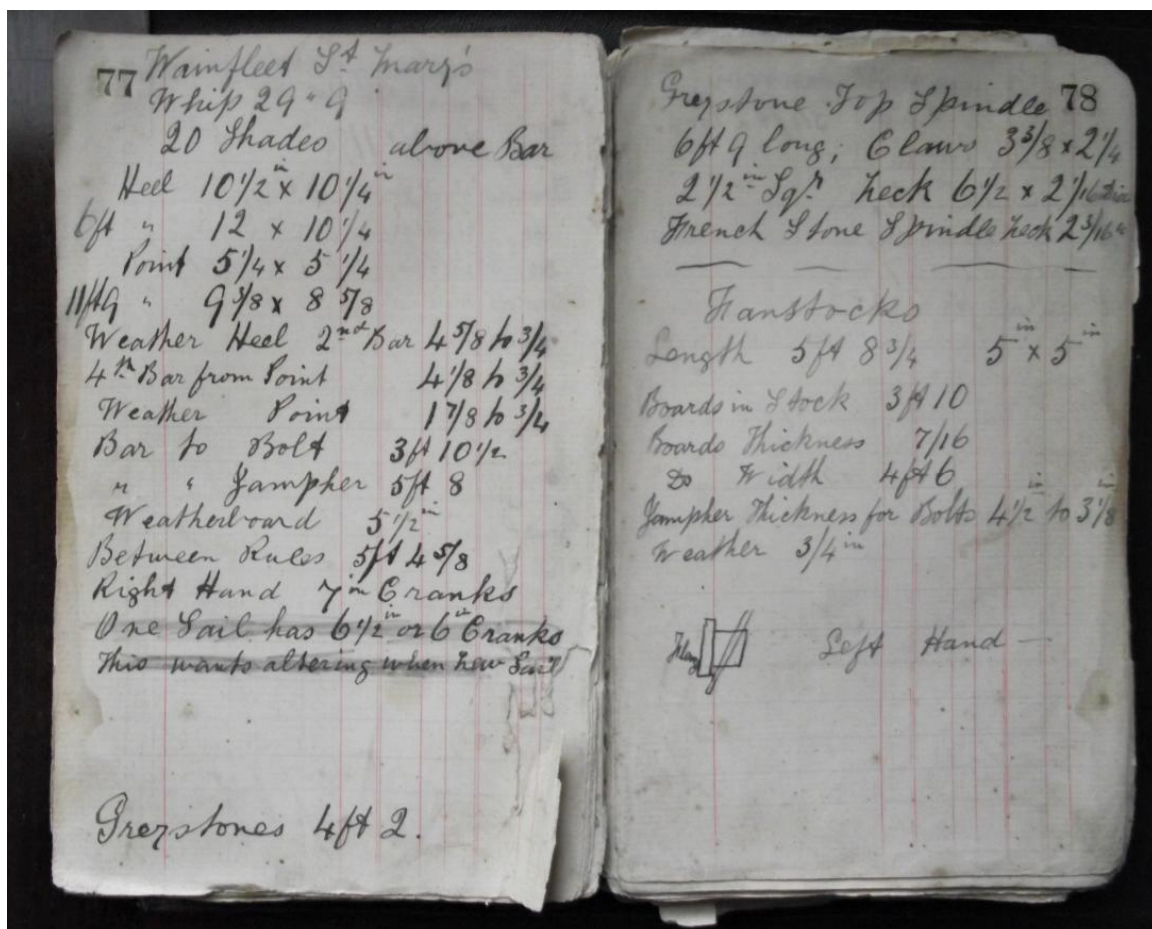
This unique document was the engineering handbook of the millwright, containing the details needed to make the sails and fantails of over 100 windmills. It also contains data on the diameters of grey (ie. Derbyshire Peak) millstones in the mills and snippets on sack hoists and sail crosses. The information is timeless and was used from 1877 to 2012 when Tom Davies, the last owner of Thompsons, retired.

From small pages, there is all the data needed to completely make a new sail or fantail which today would need several drawings and lists of component parts. The most important factor that is not in the book is the experience, knowledge, knowhow, skill and ability of the millwright to change basic timber into a finished sail or fantail using the few critical reminders handwritten into the pages of this well-used and vital book.

Most mills are identified by their name but some are referred to by their location. The index has been constructed using the names in the book with additional location information added where appropriate.

The book has its own partial index on pages 1 to 4, the information from which has been incorporated into the index. Pages 5, 6, 295, 299, 300 and 301 give data on grey millstone diameters and mills in the main index are asterisked (*) where the millstone diameter is available. Also within the book are 26 loose sheets of information which are included in the index and identified as L1 to L25.

Pages 77 and 78 (below) relate to Wainfleet St Mary tower mill, a few miles from Alford, which is shown in the accompanying photographs.



This postcard depicts Thompsons' employees fitting a sail to Wainfleet St Mary tower mill, which is now a house conversion.

One man, labelled "Aub", stands on the innermost sail bar, travelling up with the sail in order to fit the king bolt which secured it to the remaining arm of the sail cross. He is presumably Aubrey Harry Wells, who was listed as a joiner millwright in Robert Thompson's household in the 1911 census. Jack Thompson may be the man standing between the sail and the mill door.

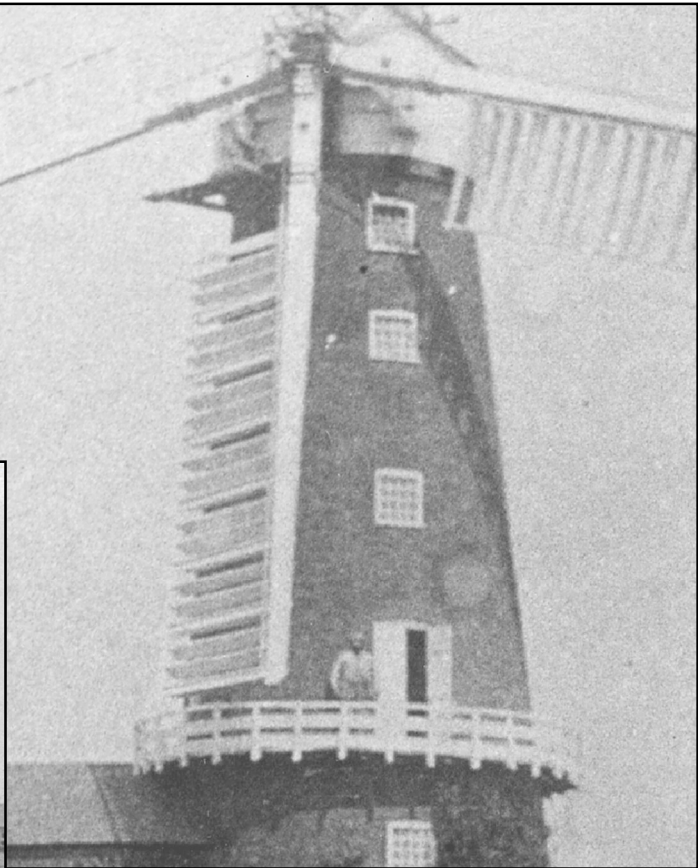
In 1953, Thompsons fitted two old sails from Wainfleet St Mary Mill to the magnificent 8-sailer at Heckington. They had been put up in 1932 and were taken down in 1949. This photograph could depict the original installation of these sails in 1932, re-using the old shades, some of which have been repaired.



Page 77 of the sail book provides dimensions of the sails made for Wainfleet St Mary Mill. The facing page gives details of the millstone assembly and, below it, dimensions of the fantail blades.



**A lucky escape—
Salem Bridge Mill, Wainfleet**



This early 20th century photograph shows Salem Bridge tower mill at Wainfleet, a five-sailer similar in size and design to Alford Mill. Thompsons maintained this mill for many years. Although indistinct, a small temporary platform is visible just below the cap. A man appears to be sitting on the platform painting or mending the front of the cap. Most tall mills had two small openings, or putlogs, near the top of the tower to support maintenance platforms. By tying up the fantail and rotating the cap by hand, all areas of the roof were accessible.

Years later, Jack Thompson recounted a story concerning this mill to a news reporter.

This Week in Alford, Lincolnshire Standard, 4 October 1949

"In a calling fraught with a fair amount of danger, Mr Thompson has never known a fatal accident, although some years ago, when working on the Salem Bridge Mill at Wainfleet, one of their employees did fall from a sail, dropping from a height of about 35 feet... Fortunately, everything turned out all right, and within a week or so he was back at work."

An old lady at Firsby station made the mistake of asking the man if he'd had an accident. Mr Thompson implied that the man's response was unrepeatable.

The stripped-out tower of this mill stands today, incorporated into Bateman's Brewery complex.

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