

SUFFOLK MILLS GROUP

Newsletter Number 28

SEPTEMBER 1983

SECRETARY:

Peter Dolman
11 Bluebell Grove
Needham Market
IPSWICH IP6 8JH

EDITOR:

Mark Barnard
41 Melbourne Road
IPSWICH IP4 5PP



The summer months have proved an exceptionally busy period for S.M.G., with the construction of the cap roof at Thelnetham mill taking up much of our time. This work has progressed very well, and although at the time of writing a fair amount of work still needs to be completed, the lift-on of the cap, one of the high points of the restoration, should take place in October (see elsewhere in this Newsletter).

Bardwell tower mill has also been the subject of much restoration work in recent months and James Waterfield is now milling by engine power. Considering this mill was derelict at the beginning of the year this is a really fine achievement and we wish James and his new milling business well.

Our previous method of printing the Newsletter (xeroxing) has perforce had to be abandoned, at least for the time being, so photographs will now have to be confined to a particular page rather than being interspersed with the text, which looks more pleasing (the new printing method cannot cope with photographs unless they are screened). It will cost more to print the Newsletters in future, and I may have to type more articles single-spaced, but I feel this is preferable to adopting the A5 format. On the credit side, the quality of the printing should be more consistent. I hope this issue appears satisfactory!

Many thanks to those who have sent in contributions for this and future Newsletters; I must apologize for the delay in getting your work into print!

Mark Barnard

HOLBROOK MILL KEN & JENNY READ

PART 2 : THE TURBINE

Researching the history of anything is usually full of surprises and the turbine installed at Holbrook mill was certainly no exception. Initially we thought there would be more information available on the mill than the turbine, but in fact the reverse was the case. The search started by shovelling silt and bailing water from the pit where the turbine had been immersed unused for the past 50 years. The only means of lighting was a propane gas lamp, and the only company a number of eels slithering in the silt. After two attempts at the world mud wallowing record, sufficient mud stained pieces of paper had been obtained to reconstruct the shape of the turbine on a drawing board. The sketch on page 3 is one of the resulting drawings.

The first piece of good luck was a plate attached to the rear of the sluice gate, which although severely corroded revealed sufficient information to allow

further enquiries. The legible parts of the plate said:

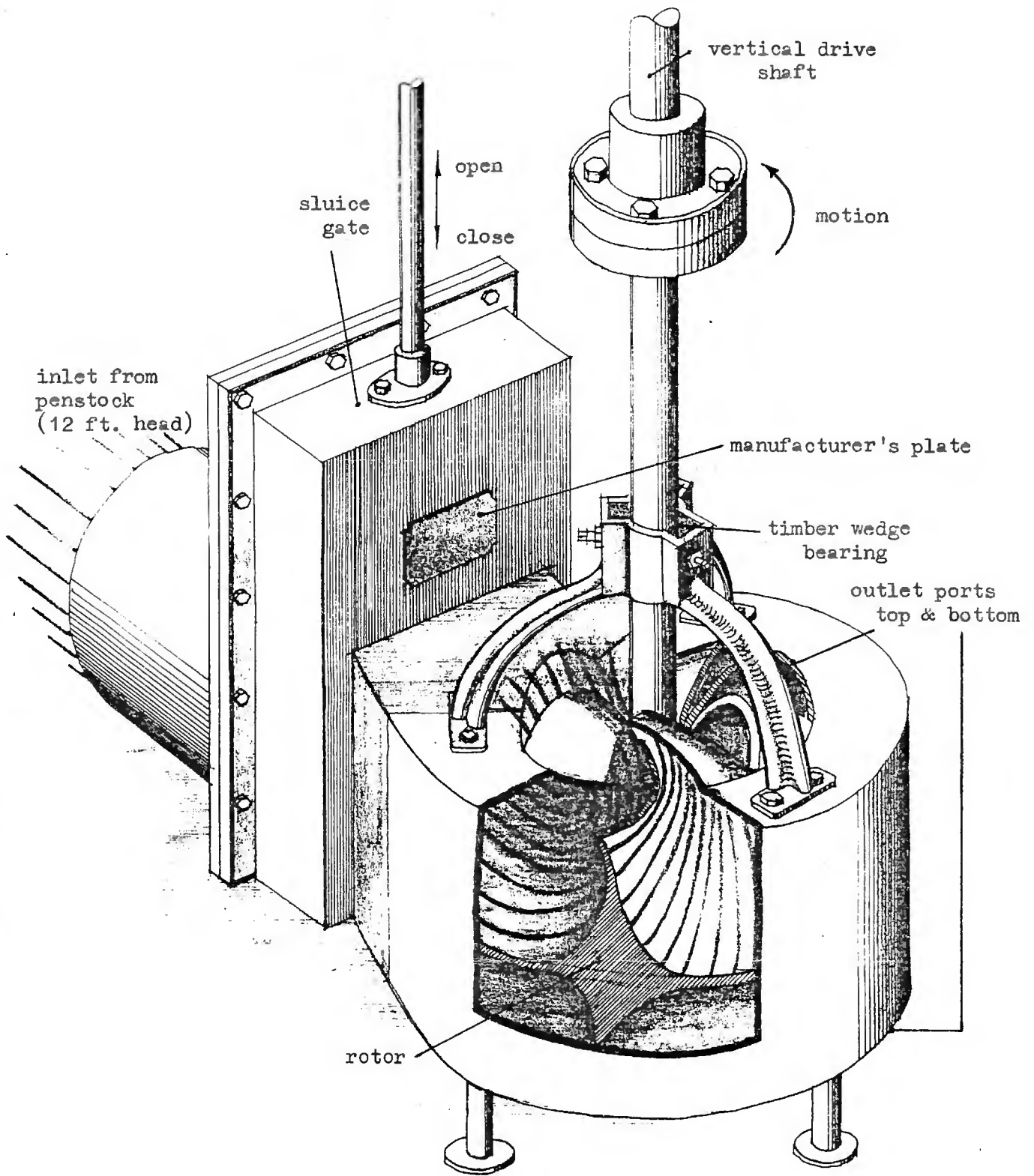
TURBINE
D23
MANUFACTURED
BY
J.C. WILSON & CO
PICTON ONT.

Chris Hullcoop then put us on the initial track of information by suggesting that G. Gilkes & Gordon Ltd. the famous turbine manufacturers in Cumbria had originally been called 'Wilson'. Unfortunately this was not the case, Gilkes had derived from a company called Williamson Bros.. However in their reply to our letter they were kind enough to suggest that the manufacturers were a J.C. Wilson & Co. of Picton, Ontario, Canada, a foundry producing turbines in the late nineteenth century.

This appeared to be the end of the trail unless we could afford a Canadian holiday to pursue matters further. How wrong we were; as a last ditch attempt for more information we wrote an open letter to the public library at Picton, Ontario. Some time later we were delighted to receive a reply from a Dr. A.D. Misener on the board of Picton library, who by amazing coincidence had read a report in the local newspaper about a Wilson turbine preserved in a museum in British Columbia on the same day he received our letter requesting information. Apparently the turbine manufacturing factory was at Glenora near Picton and it is now a fisheries research station, but when owned by J.C. Wilson & Co it was the producer of the world famous 'Little Giant' turbine. Dr. Misener informed us that apart from the turbine in the museum, no other known working or preserved examples remain in the area.

Following publication of a letter written by Dr. Misener to the Picton Gazette he was able to provide us with two gems of information beyond our greatest hopes. Firstly a photograph (unfortunately of too poor a quality to be reproduced) showing the turbine constructors at the J.C. Wilson company standing by their 'wheels', and secondly an extract from an historical report on the Glenora area. The section sent to us covers 'The Wilson Era' and represents a twelve page report on the development of the Little Giant turbine factory at Glenora. The following is a brief account of the origins of 'Little Giant' turbines (anyone interested in reading or copying the full report please contact us).

Picton is situated on a peninsula on the northern shore of Lake Ontario, an area known as Quinte's Isle. Glenora is east of Picton and is locally famous for its lake on the mountain. The lake is elevated 190 feet above the surrounding parts of Lake Ontario and its formation is a mystery; ideal conditions for research and development of turbines.



23" DIAMETER 'LITTLE GIANT' TURBINE MANUFACTURED IN PICTON, ONTARIO, CANADA. INSTALLED AT HOLBROOK MILL

Stewart Wilson purchased land and mills below the lake in 1847 and worked plaster, woollen and grist mills on the site, but it was his son James Canniff Wilson who built a machine shop and commenced manufacture of the 'Little Giant' turbines in or around 1877. The machine shop must have been in its day what a robot car assembly line is today. A writer of the time stated 'It is so complete in all its details that one man can execute an amount of work equal to that performed by several mechanics with such machinery as is generally in use'. Eighteen to twenty men were employed in the machine shop. The factory made J.C. Wilson one of the most well-to-do and influential men in the county and a whole village sprang up around the mills, to which Wilson donated a church and a school; so Glenora was born.

Close proximity to the shipping lanes through the Great Lakes allowed J.C. Wilson & Co to prosper by exporting Little Giant turbines worldwide; some are reported to have been shipped as far as South Africa. The machine shop at Glenora became a munitions factory in the First World War and turbine manufacture moved to Belleville.

A description of the 'Little Giant' turbine from the report describes the Holbrook installation to the last nut and bolt.

'Its chief points of peculiarity are that it consists of two wheels keyed to the same shaft, back to back, discharging water in opposite directions and so arranged by means of planed iron partitions and planed side gate, similar to the slide-valve in a steam engine, that either or both, or any degree of power of either or both can be operated at pleasure, according to the amount of work to be performed. It is so arranged as to render leakage or breakage almost beyond a possibility - and should a stone or other obstruction chance to get into the bucket, there are facilities for removing the same without interfering in any way with the wheel... The actual dimensions of the wheel are six inches in diameter, the smallest size the company ever made: while they make them up to 36, according to the 'head', volume of water, and power required.'

An interesting testimony to the power generated by a turbine is found in the report, which describes the entire machinery of the foundry and machine shop as being driven by a Little Giant turbine 'which would easily revolve in one of the workmen's dinner pails'.

It would appear that we are extremely fortunate in Suffolk to have a potentially restorable Little Giant turbine, unavailable even in its place of origin. Suggestions for the removal of six feet of silt, sticks, bricks and rubble which have built up in the twelve foot deep penstock would be gratefully recieved.

A SUFFOLK FARM WATERWHEEL PETER DOLMAN

Culford Hall near Bury St. Edmunds is a large house now used as a school. Like all large country houses it had its own farm close by and Home Farm, Culford (Grid Ref. 836,699) (now owned by C.N. Flack & Co Ltd.) has what must be unique in Suffolk, a waterwheel for farm use only. The present wheel

and its drives almost certainly date from 1890, when the farm buildings were rebuilt. The internal wheel is low breastshot, using a head of three feet at most. It is of 'late' construction, with cast iron hubs and sheet iron buckets. These are ventilated, of 'Poncelet' type profile and have very strange triangular 'shrouds' to each end of the bucket, something of a wasted refinement since it is a very tight fit in the culvert. The inside diameter is 8 ft 6 ins with 36 buckets 13 ins deep by 5 ft wide. The axle is 4 ins diameter iron with the hubs held on by a single key. The axle is placed at ground level in plummer block bearings with grease lubricators of the 'storfer' type. The drive was taken off an internal toothed geared iron wheel fastened to the spokes of 5 ft 4 ins pitch diameter, meshing with an 8 ins iron pinion. Both are extremely worn. The short driven shaft entered the main barn where an ingenious 'gearbox' with three bevel wheels (all iron) sent the drive off at ninety degrees in each direction. One, or both of the driven shafts could be disconnected by means of dog clutches operated by two forked levers. One shaft extended outside the barn where it could either drive machinery or be driven by a portable engine. The other shaft has a large pulley which formerly drove a combined plate mill and roller mill. This was probably a replacement for a pair of stones on a hurst frame and has in turn been replaced by an electric hammer mill. The drive then passes into the attached range of farm buildings where there is a belt drive to a shaft at ceiling level. There are numerous pulleys on this shaft which drove machines such as cake breakers, chaff cutters and a generator. Machinery in workshops could also be driven if needed. Spur gears, which could be slid out of mesh by a forked lever, drove a water pump which remains in place. The machines have all gone except for the chaff cutter which is a very large and old example, now stored out of position next to the wheel.

The wheel was worked by means of two sluices on the stream (a tributary of the River Lark). One was lowered to dam the stream (no pond being used) and the other, immediately adjacent, was raised to admit the water to a culvert passing in a semi-circular sweep under the farmyard and buildings to the wheel, where a normal sluice gate gave fine control of speed. The water then exhausted through a culvert under the road back into the stream immediately below the sluice gates.

As stated, the wheel and machinery date from the rebuilding of the farm in 1890, the wheel culvert being partly built in the same white brick as the remainder of the farm. Culford Hall and its estate were sold in 1934, when Flack's became the owners of Home Farm. The catalogue describes it as 'Water Mill House with undershot bucket water wheel fitted with shafting and pulleys. Fitted water pump forcing water to raised tank.' Flacks continued to use it for chaff cutting and corn milling until about 1938. The pump was used until the early 1950's, when piped water became available. The wheel was still turning until the mid 1960's, when the bearing supports decayed, making the wheel foul

its culvert. The reason for ceasing work was that after becoming a school, the new owners of the Hall failed to keep the ornamental lakes in the grounds clear of weeds, which caused backwatering so that the wheel could only run for a few hours or so, or even less if worked hard.

The early history of the wheel is unknown but it is possible to speculate to some degree. It is in an older timber framed part of the farm, at one end of a long, old, barn. The extension containing the wheel also has a loading bay with hoisting point, and also contains two chimneys, probably used for a blacksmith's workshop (I did not gain access to this part of the farm). The wheel culvert also contains some older red brick, suggesting an earlier wheel than the 1890 one. This is confirmed by the 1882 O.S. six inch map which shows the original farm buildings, on virtually the same plan as today, with 'sluices' named. The watercourses are unchanged from today. The Tithe map of 1840 also shows the layout as today, but is not detailed enough to show the sluices. Culford Hall was extensively remodelled and enlarged at the end of the eighteenth century: as this was the era of 'improvements' to farm buildings, when waterwheels and windmills were being added to farms, I think it is likely that the first Culford wheel dates from this period.

I must thank Michael Bryant of Pakenham windmill for drawing my attention to this wheel (he has known the Flack family since his childhood). It is in no danger and indeed the present owner, Keith Flack, would like to repair it some day, being already interested in restoring old tractors. Michael also told me of the existence of another waterwheel, this time driving a pump alone, at nearby Fornham. I hope to report on this in a future Newsletter.

VANISHED MILLS CHRIS WILSON

FRECKENHAM

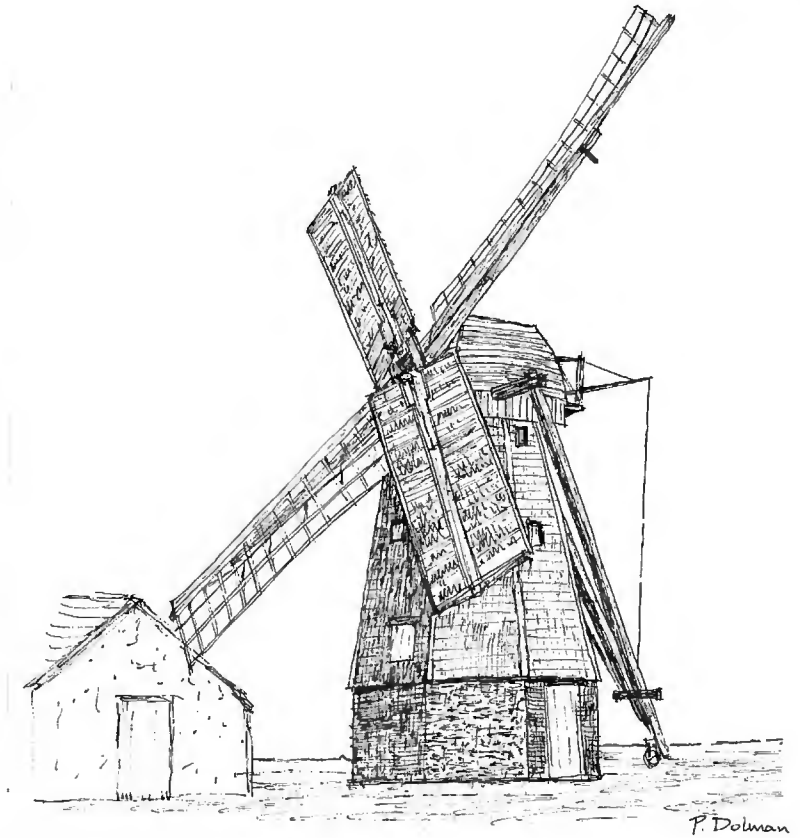
I first inspected Freckenham mill (Grid Ref. 661,719) in March 1960 when I was looking for a mill to purchase. Shortly after this time I purchased Over mill in Cambridgeshire.

Freckenham mill was a small smock mill which had started life as a marsh or drainage mill. Later in her life she was moved and fitted up for milling. On the lintol over the north door was incised 'The first grist ground at this mill was Mr Jno. Norman. Freckenham June 30th 1824'. From where in the fen she came I do not know.

The mill had a horizontally weatherboarded octagonal smock on a single storey brick base. The smock contained the stone, bin and dust floors, the meal floor being in the base. The cap was boat-shaped with a braced tailpole, at the foot of which was fitted an iron winch. This winch contained the cable or rope which was payed out to one of a number of small posts set in a ring around the mill. By turning the crank of the winch the mill was winded. This arrangement was common on Fenland mills, and it is in general use on mills

in Holland today.

There were two sets of under-drift French stones, riggers being used to put the stone nuts into gear. The clasp-arm spurwheel was of oak and elm, with wooden cogs. Also of wood was the one piece pine upright shaft, on which was a clasp-arm crownwheel near the ceiling of the stone floor. The crownwheel meshed with an iron pinion mounted on a circular iron shaft which drove the sack hoist bollard through a large clasp-arm pulley and slack belt.



The most interesting part of this mill was the trundle clasp-arm wallower. This was in a much decayed state when I first saw it and part had already rotted away. It was driven by a coarse pitched clasp-arm brakewheel. The wallower must certainly be a survivor of the mill's past service as a pumper.

Power was provided by two common and two left-handed patent sails reaching nearly to the ground. The patents were double-sided with 12 bays although several of the bays only contained two shutters; these shutters were operated by a rocking lever. The stocks were of large section for a small mill (14 ins at the canister). There was a very heavy iron windshaft, the neck of which was mounted in a swing pot neck brass.

I have been unable to glean when the mill last worked; she was in a much decayed state on my first visit, the cap roof having already gone although the rocking lever, guides and tailpole were still in position, with the dust floor nearly rotted away. The mill lingered on in decay until September 1967 when, cycling by after staying a few days in Wenhaston with Stanley Freese, I saw the mill had been pulled down a few days previous. From the wreckage I was allowed to purchase a few items.

Mr. C. Woodman the then owner and who was part restoring Histon mill obtained part of the upright shaft which he later made into the breast beam for Histon. He also took the spurwheel, crownwheel and layshaft pinion with the clasp-arm pulley. He set up the spurwheel and crownwheel in his garden as picnic tables but they have rotted away. The iron layshaft and pinion are still at Histon; the clasp-arm pulley went to the Museum of Technology, Cheddars Lane, Cambridge.

The items I had for my mill were a few sail fittings, of which several of the thimbles and spiggots are still doing service on the mill today. Unfortunately the

shutter cranks were shorter than my own so I was unable to use them.

Peter Dolman adds the following historical notes on the mill:

The mill was advertised in 1830 as 'A very Capital TOWER WINDMILL, in complete repair, having within the last twelve months been thoroughly repaired throughout; comprising a pair of excellent French Stones, with cast iron segment wheels, roundhouse, flour mill and going-gears of every description... at the entrance to the village...'. It was owned by Simon Pettit, who having failed to sell it continued there for at least another 20 years, latterly employing a miller. About 1850 the Rumbelow brothers of Freckenham Hall Farm, who had the other smock mill in the village, acquired this one, working it themselves or employing a journeyman.

William How was miller for them in the 1881 Census and later trades directories list him as miller in his own right up to 1925, work ceasing c.1930. I saw it in early 1967 when my uncle Arthur Dolman took some photographs of it. It was demolished in August 1967 and only a foot or so of the base walling remains.

A.G.M. REPORT

This year's A.G.M. was held on a warm, sunny summer's morning at Woodbridge tide mill on Sunday July 3rd, when 22 people were present. The meeting commenced at 11.30 a.m. with a brief welcome from Chris Hullcoop. An apology was received from Chris Armour. The minutes of the last A.G.M. as recorded in Newsletter 24 were agreed without amendment (proposed: Ken Read; seconded: Des Codd). Gordon Dunnett, the warden of the tide mill, then expressed thanks on behalf of the tide mill management committee for S.M.G.'s help in the project, and presented a small donation in recognition of this. The Treasurer, Brian Flint, reported that the accounts were generally healthy: while some items such as postage and photographic materials had increased, this was more than offset by a substantial increase in subscription receipts due to the increased rates agreed last year. Some small errors in last year's accounts had now been rectified. The Treasurer was thanked for his efficient work over the last year. Editor Mark Barnard outlined the recent Newsletters produced and spoke of the difficulty now faced with printing. Commercial printing rates would be too expensive for the existing Newsletter format, but possible options would be to reduce the format to A5 or to produce a simple news sheet and put longer articles in a quality printed journal which would appear once a year. John Snowdon suggested purchasing a copier, but this was considered too expensive; a lithographic machine was another alternative but a skilled operator would be required.

Peter Dolman, the Secretary, said that total S.M.G. membership stood at 137: 126 full, 3 junior, 7 corporate or courtesy and one honorary member.

A vote of thanks for the main Committee members was proposed by John Snowdon and seconded by Roy Berry. As the four were all willing to serve again it was agreed that they be re-elected for 1983-4 (proposed: Chris Wilson; seconded Roy Berry). The remainder of the Committee were also

agreeable to serve a further term; although Mrs. Whitney had not indicated whether she wished to continue to attend Committee meetings, it was agreed she could do so, informality being the keynote of the proceedings.

Under 'Any Other Business' it was agreed without debate that subscription rates should remain the same for 1983-4. Roy Berry asked whether it was possible for Members to make a donation to fund repairs to a specific mill. The Treasurer said this was possible. The Chairman also pointed out that because of S.M.G.'s links with the Suffolk Preservation Society, it might be possible to claim tax back on any donation paid through that society. James Waterfield reminded the meeting that if an owner did not wish to see his mill repaired there was little S.M.G. could do even if money was available. Don Porter said that only a registered charity could reclaim tax on donations; if money was given by way of say a four year covenant it could be worth more through reclamation of tax. Ken Read said that subscriptions could be covenanted too. This matter had however been discussed in the past when it was agreed that it involved too much work for such a small group.

The meeting concluded with the Chairman's report on the past year's activities, and some additional slides of Holbrook mill from Ken Read. In the afternoon visits were arranged to Tricker's and Buttrum's mills in Woodbridge.

LETTERS

BUXHALL MILLERS

Tony Austin writes:

Whilst involved in tracing family history, I recently came across some interesting information concerning Buxhall windmill.

My wife's family (whose name was Poulson) have roots in Suffolk, particularly in the village of Preston, near Lavenham and also Lavenham itself. I recently discovered that her great grandmother was born as Maria Purr in Buxhall in 1840. Whilst I was searching the Census returns for Buxhall for 1841 to try to verify this information, I came across details of the miller's family in that village at that time.

The entry relates to a dwelling at Mill Green, Buxhall (presumably the Mill House) and the following were living there at the time:

Isaac Clover	Father	aged 40-44
Frances Clover	Wife	aged 35-39
Dinah "	Daughter	aged 15
Isaac "	Son	aged 15
Frances "	Daughter	aged 13
John "	Son	aged 11
Owen "	Son	aged 9
Ebenezer "	Son	aged 7
Thomas "	Son	aged 4 months

Also living in the same house were Ebenezer Hitchcock, aged between 20-24, described as a miller's apprentice - presumably at the same mill, Ebenezer Bird an agricultural labourer and Hannah Dark, all lodgers no doubt.

I understand that Isaac Clover, the father, was brother of Samuel Clover, miller of Drinkstone, not too far away from Buxhall.

This detail raises two questions in my mind and maybe other Members may be

able to throw some light on them:

- (1) Did any of the sons Isaac, John, Owen, Ebenezer or Thomas follow their father into the milling business. Indeed did any of the daughters marry into milling families?
- (2) Did Ebenezer Hitchcock complete his apprenticeship and eventually have a mill of his own?

Finally I am amazed at the wealth of information that is available from family history records that could be of considerable help to the mill historian.

★

Following the challenge to find a suitable new use for Hawks Mill, Needham Market, issued by Ken Read in the last Newsletter, the following letter has been sent by Chris Wilson:

Assuming I was the purchaser of Hawks Mill at Needham Market, I would fit up the premises as a clothing or drapery factory, commonly known as the 'rag trade'.

As for the structure of the building, two stairways would be built at either end inside and bricked in with access to each floor via fireproof doors. A goods lift and a central open stairway would also be provided for everyday use and easy access between floors and departments.

The upper floors would be the working area for the girls and machines, while the wing furthest from the river would make the office block as it would be the quietest part of the building. The ground floor could be the goods in and despatch areas.

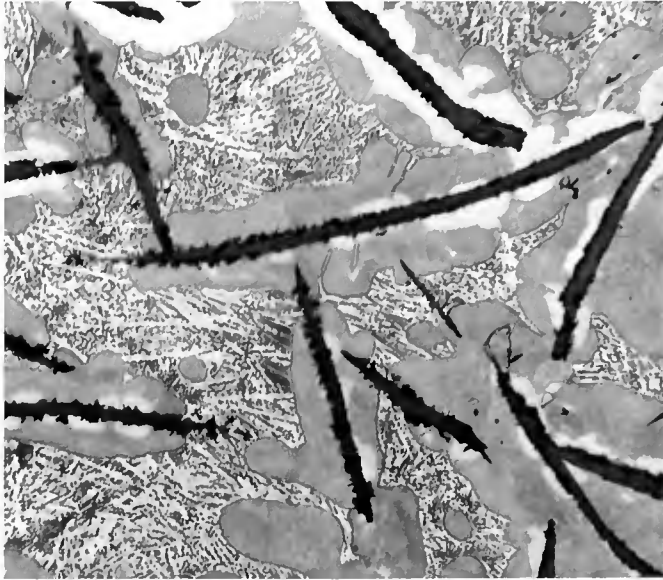
Heating and lighting would be provided by the turbine driving a suitable dynamo or generator, producing electricity; perhaps there would be enough for the sewing machine motors as well. Storage heaters would be as convenient as any type of electric heater; these could be left switched on most of the time with the river producing the power. Behind the mill or factory would be the car park and latrines.

The exterior of the mill would in no way be altered or disfigured. The internal stairways would give good emergency exit at each end of the building. The type of trade to be carried out produces no noise, smell or toxic fumes and does not have to be served by large heavy lorries. As the trade would require a good deal of local labour, the mill would become a very good benefit to the community.

WINDSHAFT METAL ANALYSIS A.H. DOLMAN

Following the visit of the Suffolk Mills Group to Holland in 1981 (see Newsletter 20), Peter Dolman passed on to me a small fragment from the windshaft of the mill 'Hermien' at Lichtenvoorde which had fractured while the mill was idly turning, causing the whole of the sails, stocks and windshaft to come crashing to the ground, narrowly missing the owner whose only warning was the noise of the shaft breaking. Peter asked me if in my capacity as a metallurgist I could examine the fragment and report on its quality. Unfortunately the sample was too small for a chemical analysis to be carried out but was sufficiently large for a metallographic examination under the microscope. From this examination some idea of its composition and strength properties can be obtained.

In order to carry out a microscopic examination the metal is first ground flat on one face and then mounted in a bakelite mount with the ground face showing. This face is then further ground on a series of wet and dry emery papers of increasing fineness, rotating the specimen 90° between each paper



Above: Specimen of metal from the windshaft of the Dutch mill 'Hermien' (see 'Windshaft Metal Analysis')



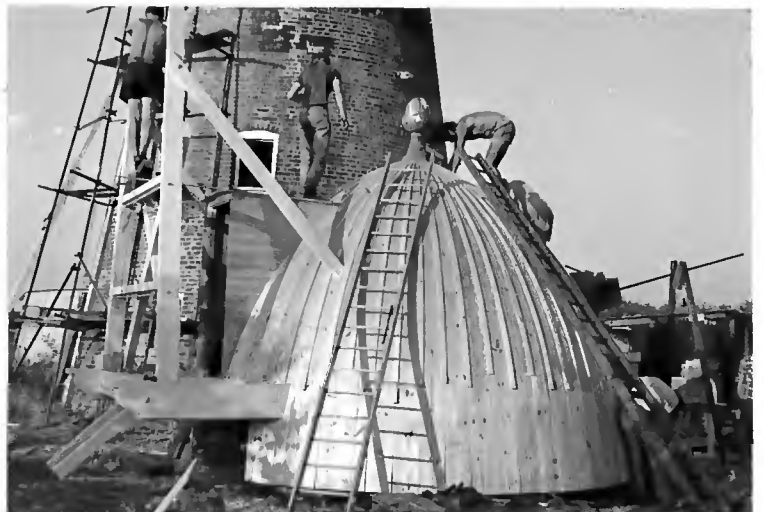
Right: Waterwheel at Home Farm, Culford (see 'A Suffolk Farm Waterwheel')

THELNETHAM MILL WORK-IN 1983

Left: Framework of cap roof under construction

Top right: The first board goes on (Aug. 22nd)

Bottom right: The cap roof nearly complete



so that the scratches produced by the paper being used are at right angles to those of the previous one. This enables the metallurgist to judge when the specimen has been polished sufficiently on that paper and also prevents 'rounding' of the specimen face which must be perfectly flat for the examination. Final polishing is carried out on lapping wheels using diamond polishing creams of two different particle sizes. When fully polished the specimen shows a mirror finish free from any scratches. It is then necessary for the specimen to be etched in a solution of 5% nitric acid in alcohol. This dissolves away a thin layer of metal distorted by the polishing operations and reveals the structure of the metal. Examination usually is done at magnifications of x50, x200 and x500, and the accompanying photograph shows the structure at x100.

The examination showed the windshaft to have been made from a low grade cast iron. This is indicated by the very coarse flakes of graphite (carbon) which are shown in the photograph as black streaks and which are probably due to the slow cooling which would occur when such a large mass of metal was cast. No doubt also when the shaft was cast, refined raw materials were not available for making up the metal mixture. Although seen as narrow flakes or strips of graphite in the photograph they are actually sections of leaf-like growths which in three dimensional view resemble the leaves of a cabbage or lettuce. Graphite has little strength and such coarse growths greatly weaken the iron. A further feature of these flakes is their 'fuzzy' edge, indicating a possibility of contamination by a small amount of lead which can have a disastrous effect on the properties of cast iron.

It is also evident that the phosphorus content of the metal was very high, probably in the region of 1.5 - 2.0%, this showing up as the spotted constituent with a defined outline. This constituent is iron phosphide which is brittle and when it forms a complete network throughout the iron lowers the impact properties (toughness), a property for which even good quality cast iron is not renowned. The matrix of the iron (the white and grey areas on the photograph) consists of ferrite (pure iron) and pearlite (iron carbide), both of which are normal constituents in cast iron, the amount of ferrite increasing with slow cooling rate from casting.

The examination showed several instances where fractures had formed along the sides of the graphite flakes, illustrating how this constituent breaks up the matrix. It can be expected that the tensile strength of the iron was probably not much more than 7 - 8 tons / sq.in., with an impact strength of 5 - 6 ft. lbs. as measured on a standard test bar. Not a very impressive cast iron, but considering it had operated for 100 years or so, can we really condemn the men who made such components without the wonders of modern science to help them.

NEW BOOKS

Reviewed by BRIAN FLINT, PETER DOLMAN & MARK BARNARD

'OXFORDSHIRE MILLS' by Wilfred Foreman. Published by Phillimore & Co. Ltd.; 1983. Price £9.95.

Oxfordshire has hitherto been neglected in the field of molinological writing but this attractive little volume goes a long way to remedy this. Wilfred Foreman, by his own admission, has concentrated most of his efforts on the watermills of this predominantly watermill-rich county and it was only quite recently when he discovered that more than sixty windmill sites had existed, to be included in his survey.

The book is well balanced in that historical background is given where available and technical discussion is both searching and authoritative. I felt the text to be a little undisciplined but the result is an eminently readable narrative.

Wilfred started his working life as an architect and the skills of draughtsmanship then attained have stood him in good stead with his mill studies. He was awarded the Watermill Certificate from the S.P.A.B. in 1980 for his work in recording those mills remaining in Oxfordshire and many of his drawings enliven the text of his book. He also provided the attractive sleeve design. There is a good selection of 67 photographs, many from previously unpublished sources.

After general discussion covering Background History, Mill Machinery and Buildings, Waterwheels and Mill Streams, Millstones, Applied Power, the Mills of the City of Oxford and Windmills - the first seven chapters - there follows Watermill and Windmill Gazetteers, a list of Millers and Millwrights, an extensive Glossary, Bibliography and, I thought, a rather inadequate index insofar as specific mill references are not given.

I imagine the information given to be generally accurate but surely the caption to plate no.27 should read 'early 20th century'. Above all I get the impression that Wilfred Foreman understands and loves mills and his observations and deductions bear witness to his deep commitment to the subject. (B.F.)

'SOME ESSEX WATER MILLS' by Hervey Benham. Published by Mersea Bookshop, P.O. Box 38, Colchester; 2nd edition (paperback), 1983. Price £6.95.

When 'Some Essex Water Mills' first appeared in 1976 it was the first book of any kind to be published on the county's watermills and this is still regrettably the case in 1983, for Essex has a rich heritage of watermills and S.M.G. Member Hervey Benham's fine book concentrates on the central part of the county, where there are over 100 mill sites alone. When the first edition appeared it was very enthusiastically received and sold out rapidly. This new second edition is not just a reprint, for it contains much additional material, both textual and pictorial, largely forthcoming as a result of the first edition. For those that have the first edition, the new edition is useful for its additional material; for those that don't possess a copy, I strongly urge them to obtain one for the

book has an extremely good introduction with excellent drawings and photographs followed by detailed notes on those mills covered with a wealth of photographs, both old and up-to-date. By publishing the new edition as a paperback, the cost has been kept to a very reasonable level. (P.D.)

'WIND AND WATER MILLS' The Occasional Journal of the Midland Wind and Water Mills Group; No.4 Summer 1983. Price £1.20 (includes postage)

The latest of these journals from the Midlands group is again very well produced and provides a model for other mills groups to follow. The success of such a publication depends largely on the quality of material which is contributed; here the Midlands group score as they seem able to draw on an enviable reservoir of original research which might not otherwise be published. Among the subjects covered this time are watermills on the River Stour (Worcs. and Staffs.), Bedfordshire windmills, the development of the water turbine and horizontal mills in Hazara, Pakistan. All are very well illustrated with line drawings. Available from John Bedington, 5, The Crescent, Bromsgrove, Worcs. BS60 2DQ. (M.B.)

NEWS

REV. VIVIEN HARVEY

It is with regret that we record the death after a short illness of one of our long-standing supporters, Viv Harvey, who had been a Member of S.M.G. virtually from the start. Viv came from a family with milling connections which used to work Great Bricett smock mill near Needham Market. He was born at Kirby Cane in Norfolk and became a Methodist minister, moving to Stowmarket two years ago.

PROGRESS AT THELNETHAM

Since the last Newsletter the summer 'work-ins' have come and gone, and left their mark on the mill as usual. I'm sure that those who visited the mill on the S.P.A.B. tour in May would be amazed at the progress which has been made since then. The cap is now almost ready to go on, with just a little more work to the striking gear, plus a storm hatch and rear doors needed to complete it. The curb is finished, with track and keep flange in place, bricked up solidly underneath, ready to receive the weighty new cap.

The great day for the lift-on of the cap is MONDAY 24th OCTOBER (weather permitting). This corresponds with the school half term holidays so we are hoping for a good turn-out for the 'mini work-in', which will be from Saturday 22nd until probably Wednesday 26th. This is to enable us to get everything ready in advance of the lift, and then to plug the gaps left in the boarding for the crane slings to reach the sheertrees at the front. We will also fit the centring wheels when the cap is in place.

Adnams, the Southwold brewery, have kindly promised 9 gallons of their

fine real ale to help things go with a swing, and to toast the success of the new cap, so I expect to see one Member from Dorset present, at least!

The only thing that might cause postponement of the lift is strong winds, so if anyone is making a long trip for the occasion they would be well advised to check the weather forecast for gales, or to telephone Mr. C. Dolman on Ipswich 76996 the previous evening.

A full account of the summer 'work-ins' and the lift-on will appear in the next Newsletter. Anyone interested in helping please contact me well in advance so that accommodation can be arranged, as by this time the weather is usually too cold for 'comfortable' camping. (P.D.)

FURTHER FUN AND GAMES AT BARDWELL (or the story since the May Newsletter)

After we had finished the flooring and ladders we turned our attentions to the machinery. The brakewheel was very rotten and had sagged down and backwards against the wallower, thus jamming the windmill gear solid. We had a welded-up frame made which went around the windshaft to stop the brakewheel collapsing onto the dust floor as it steadily became weaker as we dismantled it. This was a thankless job and took the best part of a week to do. However, I think about two-thirds of the rim is re-usable, but the arms disintegrated altogether during the dismantling. This done we found the mill gear turned easily and had a day off to congratulate ourselves.

The next problem was the engine drive shaft which had two bearings underground between the mill and the engine house. These were originally set on wood but this had rotted completely away. We decided that to copy this would cause problems in the future and so the bearings are now set on cast concrete blocks. The brasses are rather worn but for the time being we have left them be, there being more important jobs to attend to first.

We tried to find an engine for some time and had almost reached the point of installing three-phase electricity to drive the mill when I saw a Blackstone engine advertised in 'Exchange and Mart' near Newcastle. I made a trip up to see it and bought it. I was very pleased to get it, especially as it was the same design and vintage as the original one here which was scrapped in the 1940's after the mill stopped work.

We got it in 'kit form' - flywheels and crankshaft, engine block, fuel tank, base and a box full of valves and levers which took some working out to find where they went, not to mention two coolings tanks with the bottoms rusted through. A friend arrived at seven one Saturday evening and by three next morning the engine was installed in its final resting place. During the next week we repaired a cooling tank, fitted it up with the pipework to the engine and set up the engine exhaust and silencer. The engine is paraffin fuelled, with a hot bulb start.

At first, try as we might we couldn't get it to start. Hasty enquiries to

various people showed we had the timing out. We knew that these engines were designed to be sent out in bits and assembled by unskilled labour so we started a search over the engine, scraping old grease off various vital bits. We eventually came up with four stamped-on letter 'O's and we lined them all up. The engine started first time. Then followed a series of disasters:

1. A section of hot bulb blew out one day thus losing compression and filling the engine house with white smoke;
2. The engine blew its gaskets in a fit of temperament;
3. A tappet worked loose which stopped the engine firing. This has us floored for nearly a week;
4. The engine blew its water gasket seal which caused the cylinder to fill up with cooling water.

We did at last get all this sorted out and the engine has now been running excellently for over one month.

Meanwhile in the mill we had a stone nut but no quant. I wrote to a good friend, James Davies of Thompsons of Alford, and he turned up with a pair of quants exactly the right length which had been on their scrap pile since before the last war! I got one machined to fit the existing stone nut which I fitted to the north stones. We took this pair up to make sure that the neck box was good and that the stones were dressed properly. The stones had a lovely dress - they must have been done just before the miller died - so they were put down again, the only necessary work being to get the spindle vertical and replace the neck box with sacking and grease.

I have made new stone furniture with round stone vats, as in Lincolnshire and Nottinghamshire practice. I find round vats better as 8-sided ones are devils for getting meal caught in the corners which goes rancid quickly and taints the meal. We ground a little for the first time in mid August and opened for trade the first weekend of September when we had a good stream of visitors. The flour is of high quality and makes a very good loaf. The engine has power to grind upwards of 6 cwt of fine meal an hour but we generally run with about half power as this is plenty fast enough for the amounts we put through at the moment. We have the mill working for the public on Sunday afternoons and for booked parties, etc.. A number of health food and wholefood shops will be selling our flour from the end of September in most parts of Suffolk. A few bakeries are also interested.

Richard Seago, the Norfolk millwright has virtually finished our new cap frame in Honduras pitch pine and I am very pleased with it. I would have no hesitation in recommending him for windmill work elsewhere, as the standards he sets himself are very high.

We hope to have the mill working by wind on two sails in early summer 1984. In the meantime we should be happy to see S.M.G. Members on our open days

when they are welcome to look over the mill. (James Waterfield)

Footnote

As most of our Members will realise, S.M.G. is a small society and our modest income does not normally allow us to make grants towards mill restoration projects. However, in support of James Waterfield's courageous venture in buying and restoring to working order Bardwell mill, S.M.G. has decided to make a grant of £250, which will help towards the materials for the new cap roof, one of the next stages of the project.

ABBOT'S HALL MUSEUM MILLS WEEKEND

A very successful 'Mills and Milling' weekend was held at the Museum of East Anglian Life over the August Bank Holiday weekend.

Alton watermill turned under water power for over 12 hours in total and ran very smoothly. James Waterfield (from Bardwell mill) is redressing one of the three pairs of French stones and museum Director Rob Shorland-Ball hopes to have the mill grinding again in 1984. A S.M.G. exhibition of photographs and the S.P.A.B. Wind and Watermill Section exhibition were both on display and some milling films were shown in the museum's new Education Centre.

Landscaping and fencing work around Alton millpond is proceeding apace. It is hoped to complete some new interpretive panels in the watermill during the winter. The large panel standing beside the windpump (including one of Peter Dolman's drawings of the structure of the mill) has produced much favourable comment this year.

The museum is anxious to build up a team of volunteer stewards / millers to operate the watermill on Sundays in 1984. If any S.M.G. Members think they could help on an occasional Sunday please contact Rob Shorland-Ball at the museum (Stowmarket 612229).

EVENTS

THELNETHAM 'MINI WORK-IN' AND LIFT ON : SATURDAY OCTOBER 22nd - WEDNESDAY OCTOBER 26th 1983

The event we're all looking forward to! (See under 'News')

VISIT TO HERRINGFLEET MARSH MILL: SUNDAY OCTOBER 30th 1983, 2 - 4.30 pm.

We will be working Herringfleet marsh mill (wind permitting) the weekend after the mini work-in at Thelnetham. This will also be a public open day.

S.M.G. SOCIAL EVENING: SUFFOLK C.C. STAFF CLUB, ROPE WALK, IPSWICH; SATURDAY NOVEMBER 12th 1983, from 7.30 pm.

Once again we are holding an informal indoor meeting which provides an opportunity for Members to meet one another in a comfortable and relaxed atmosphere, away from the mills for once(!). Please bring along any slides you would like to show; as in previous years refreshments will be available, including beers, wines and teas.

NEW YEAR'S CELEBRATION: HERRINGFLEET MARSH MILL; SUNDAY JANUARY 1st 1984,
1.30 - 3.30 pm.

Our now traditional New Year's Day public demonstration of Herringfleet mill, when you can usually be sure of a good wind and plenty of colour by the end of the day! Please 'phone Peter Dolman (Needham Market 721077) or Mark Barnard (Ipswich 77853) to confirm the mill will be open if the weather is bad.

Advance Notice

S.M.G. PUBLIC MEETING: MILLS! MOULINS! MOLENS!

The winter 1984 public meeting will be held at Ipswich Town Hall on Saturday February 25th, commencing at 7.30 pm. As our title suggests, the theme will be Continental mills. More details in the next Newsletter.

New S.M.G. Members since Newsletter 27 (full Members unless stated otherwise)

BLYTHMAN, Guy
5, Holly Avenue, Frimley, Surrey GU16 5QX

COCKLE, Mrs. Pamela
50, St. Peters Place, Canterbury, Kent

EAST KENT MILLS GROUP (Corp.)
c/o 50, St. Peters Place, Canterbury, Kent

MACKLEY, Mrs. Caroline
174, Acre Road, Carlton, Newmarket, Suffolk

PATERSON, Ms. Penny J.
Winstree Cottage, Peldon Road, Abberton, Colchester, Essex

ROBERTS, Miss Jane F.
19, Groves Road, Newport, Gwent, South Wales

ROGERS, Neville (Jun.)
Ixworth Watermill, Thetford Road, Ixworth, Bury St. Edmunds, Suffolk

WATERFIELD, Mrs. R.
Bardwell Windmill, Bardwell, Bury St. Edmunds, Suffolk

Changes of address

Duncan Breckels: 1, High Street, Mistley, Manningtree, Essex CO11 1HA

D.T. Hearn: 12, Cheltenham Road, Orpington, Kent

Harold Collins: 15, Wyndham Avenue, Cobham, Surrey

David Pearce: East Lodge, 30, Rushams Road, Horsham, West Sussex

Mr. & Mrs. D.C. White: 50, Maltings Garth, Thurston, Bury St. Edmunds, Suffolk