

SUFFOLK MILLS GROUP

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Where were you all? Only twelve Members were present for our A.G.M. at Abbot's Hall museum, Stowmarket on June 7th., and half of those were the Committee! We were certainly surprised more people didn't come along, especially in view of the good support for last year's A.G.M. and the chance this year to look round the museum free of charge! Perhaps we were partly at fault as the notice for the A.G.M. was contained in the last Newsletter, which appeared some two months before the event. If this is the case next year we may feel justified sending out a special A.G.M. reminder nearer the date.

Talking of reminders, please note that the first week of the Thelnetham mill 'work in' is now drawing near. At present numbers look like being a bit down on last year, so do come along to help if you can. Remember, there will always be someone at the mill, day or night, between Saturday July 25th and Sunday August 2nd, and again for the second week, August 22nd - 30th. The more support we get for the project the quicker the mill will be returned to working order, and if last year's 'work in' is anything to go by, we should take a big step nearer our goal during the coming two months.

Please note that I would welcome articles or features for publication in the next Newsletter which will appear at the end of September.

Mark Barnard

POWER FROM THE WIND (2) DAVID PEARCE and PETER DOLMAN THE PERFORMANCE OF TRADITIONAL WINDMILL SAILS AND A BRIEF SUMMARY OF THEIR DESIGN AS APPLIED TO SUFFOLK

Introduction

The first part of this article, in which David Pearce investigated the performance of traditional windmill sails, appeared in Newsletter 18. Peter Dolman now explains the different types of sail found in Suffolk and some of the variations in design which were encountered.

COMMON SAILS

As is well known, the earliest type of windmill sail found in this country is the Cloth Sail, usually in its refined form, the 'Common Sail'. This hardly needs any explanation, being a lattice framework of sail bars at about 15-inch spacing with two, or more usually three uplongs or laths. The trailing edge is braced to the stock by backstays and the leading side is formed by a narrow leading board which helps to guide the wind over the sail and increase its useful area. A canvas sail-cloth was then tied over this frame, the amount of canvas spread depending on the wind strength. This type of sail was found in large numbers throughout Suffolk

until the spread of the patent sail when it began to disappear. Now they can only be seen at Herringfleet and Drinkstone mills (those at Holton are very poor imitations). Common sails were said to give more power than a similarly-sized shuttered sail due to the leakage around the shutters in the latter. They tend to run much faster, up to around 20 r.p.m., but are more difficult to control.

SPRING SAILS

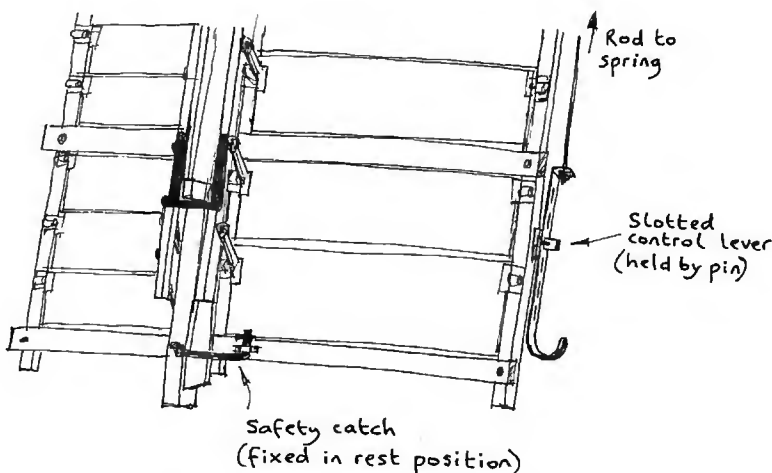
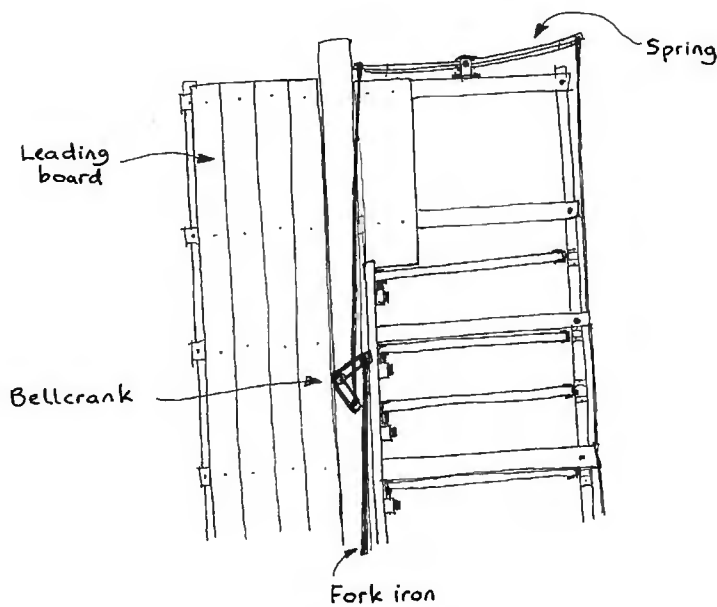
Spring sails use canvas-covered or wooden shutters linked together and held shut against wind pressure by a spring. They were once fairly common in Suffolk, often run with a pair of common sails. The only survivors are at Drinkstone, although here unfortunately the shutters have been removed. It is possible to see the operating mechanism though (see diagrams below). The half elliptical leaf spring is pivotted at the middle with the control rod attached to one end, running along the trailing hemlath and the other end attached to the striking rods which connect the shutters together. The linkage is not made direct, but through a bellcrank which affects the way in which the spring operates, evening out the pressure. This method of linkage was commonplace in Suffolk and was presumably

arrived at originally by trial and error. To operate the sails, the safety catch is released, allowing the shutters to close. The spring is then tensioned by means of a slotted handle on the control rod.

Spring sails were sometimes double sided, as at Drinkstone, or single sided, with a leading board.

PATENT SAILS

Patent sails are similar to spring sails in having a set of shutters, the striking rods all being connected via 'triangles' or bellcranks to a central coupling, the 'spider'. This is activated by an iron striking rod which passes through the windshaft. The shutters can be held closed against wind pressure



Left: the spring sails at Drinkstone post mill, showing mechanism at the heel (above) and tip (below).

by hanging a weight on the striking chain in such a way that the sails become self-regulating, spilling the wind through the shutters in strong gusts. The methods of operating the striking rod are many and varied, and outside the scope of this article; it is usually by means of a rack and pinion with a chain wheel, although a roller and chains can be seen instead of a rack and pinion at a few mills (for example, Syleham and Thorpeness) and a handful of mills (in Suffolk) used a lever instead of a wheel (e.g. Pakenham). Fine sets of patent sails can be seen at Thorpeness, Pakenham and Saxtead mills and they were the most common type of sail to be found in Suffolk, certainly from the mid nineteenth century onwards.

VARIATIONS IN SIZE AND DESIGN

The typical mill sail in Suffolk was a patent sail, usually double sided, with 7,8 or 9 bays of three shutters. The leading shutters were usually about one half to two thirds the length of the trailing shutters although mills in the area around Thelnetham mill had shutters of equal length either side of the whip. The bays were usually spaced about 3 ft. apart, with 11" wide shutters, or sometimes with 12" shutters and 3 ft. 3 ins. bay spacings. This virtually constant bay spacing can be a useful guide to the size of a bygone mill in a photograph. The sail, built about a backbone called the whip, was bolted to the face of the stock which passed through the poll end of the windshaft. Earlier stocks were often of oak, in which case the length would not be much more than 30 feet, a large whip being used to compensate. When larger lengths of pitchpine and Memel Fir became available, longer



Freckenham smock mill, showing 2 common and 2 patent clockwise sails. Demolished 1967.



Sibton post mill, showing extra-width leading boards to one pair of sails. Demolished 1922-3.

stocks of about 50 - 55 ft. were used, with lighter whips to compensate.

The typical mill with 8 bay patent sails would span about 65 ft., the sails being set 6 ft. or so out from the mid point. The width of single sided sails (including leading board) would be about 6 ft. and double shuttered sails would be about 7 ft. to 8 ft. wide. The widest sails in Suffolk could be found at Thelnetham, which were 9 ft. 6 ins. wide. The largest sails were the 84 ft. span sails on the High Mill at Southtown. This mill was so powerful that it could run in almost any wind (or lack of it). Buxhall mill, as seen in the first part of this article, had 11 bay 80 ft. span sails and was also very powerful.

Due to the twist on a windmill sail, it is necessary to set the shutters away from the whip so that they clear the stock when open. The resulting gap is covered by a centre board, with usually an extra-wide board to the inner two bays to clear the clamps. Two mills, the work of William Bear of Ballingdon, differed in having a tapered sail frame with all shutters being the same length, with a tapered centre board against the whip. This gave enough clearance with the stock but must have been very awkward to construct. The mills in question were Highfield Mill, Sudbury (smock) and Preston St. Mary mill (tower). In the case of the latter mill, the exact shutter sizes are known, having been pencilled on the door of the miller's workshop. They are 'outer sails vanes 11" wide, 2' $4\frac{3}{8}$ " and 3' $5\frac{1}{8}$ "' and 'inner sails vanes 11" wide, 2' $8\frac{5}{8}$ " and 3' $9\frac{3}{4}$ "' which gives a span of about 75 ft. for this mill, which had 10 bay sails.

Friston post mill had patent sails with the peculiar bay arrangement of: from the heel, 1 bay of 2 shutters, then 1 of 3, then 3 of 2, then 6 of 3. All four sails were the same; quite why they were built like this I cannot say. The span was 74 ft..

A noticeable phenomenon recently is that mill sails are shrinking! Saxtead mill used to have 8 bay sails, now it has 7. Likewise Syleham mill shrunk from 8 to 7 bays, this time as a result of the tail-winding episode in 1947. At Drinkstone both the spring sails and the common sails span about 6 ft. less than previously, again probably due to damage or decay. This reduction leads to a disproportionate loss of power as it is the outermost part of the sail that is responsible for generating the most power.



Thorpeness mill, showing a full set of patent sails (restored).

The angle of weather on Suffolk mill sails was usually fairly great, of similar amounts to those recorded at Thelnetham (see Part 1), resulting in sails only running at about 10 - 12 r.p.m.. This was because the spur-gearred mills had a gear ratio of about 1:10 to the stones. On the other hand, a direct-gearred post mill would run at a ratio of about 1:6 so the sails could be much flatter and run faster. Drinkstone mill used to run at about 20 r.p.m..

SPECIAL FEATURES AND 'ODDITIES'

Extra leading boards were sometimes seen in the past, these being fitted to increase the effective sail area and therefore give more power. Wattisfield post mill had an extra piece of sail frame at the tip of its common sails. An extra width leading board was fitted to the sails of mills at Woolpit, Rattlesden, Sweffling, Sibton (see photograph on p.3) and Combs. When fitted to double shuttered sails, these extra boards look like 'air brake' shutters but were in fact fixed in place. Cotton mill had its sails increased in size by full length leading and trailing boards, a very unusual arrangement (see illustration below).

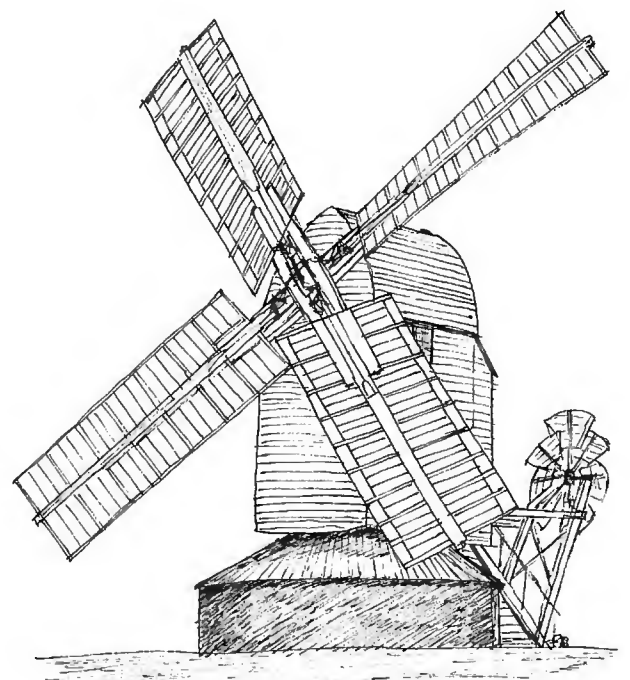
True 'air brakes', as invented by Robert Catchpole, were fitted to Buxhall tower mill and to post mills at Gedding and Wetherden (two mills). They gave extra power when closed, but when open they spoiled the air flow and acted as an air brake, probably giving an even more steady running speed than was usual with patent sails.

Spring-patent sails were occasionally found elsewhere in England but only Worlingworth Old Mill had them in Suffolk. In this case though they were a last-ditch effort to keep the mill going and only lasted a few years.

An unusual set of sails could be seen at Tuddenham post mill, near Ipswich (see picture below). This mill had spring sails with only one shutter to a bay,



Tuddenham St. Martin mill. Spring sails with one shutter to a bay.



Cotton mill, with widened sails.

which is virtually unknown in East Anglia. They look as though they could be converted common sails.

Two mills had annular sails: the well-known Haverhill mill and Boxford smock mill. These sails were said to be very powerful but suffered from being costly to maintain. Haverhill mill, in its later days, had so much slack in the shutters that one side of the sail would droop to the opposite angle of weather to the other. Despite this it worked successfully until a gale wrecked the sail in 1933.

Only two multi-sailed mills are known to have stood in recent times; both were six-sailed mills. The '6 sail mill' at Bury St. Edmunds was built in 1836 and was well known in its day, with six double-shuttered patent sails. A six-sailed smock mill stood at Eye in the 1830's and '40's and was said to have been moved to Occold, although Occold mill finished life as a four-sailed mill. The Eye mill had six common sails, which must have been quite a handful in a gale! These multi-sailed mills, and the annular sailed mills had their sails carried in crosses on the windshaft; only one four-sailed mill, the tower mill at Great Wheltenham, is known to have had a similar arrangement, the canister or poll-end being virtually universal in Suffolk.

BOOK REVIEW BRIAN FLINT

'ESSEX WINDMILLS, MILLERS AND MILLWRIGHTS' Volume 1 : An Historical Review; by Kenneth G. Farries. Published by Charles Skilton Ltd.; 1981. Price £12.00

It is impossible to judge a four-volume work on the evidence of one volume, especially as this is quite slim (112 pages); I understand that subsequent issues, to be made available at approximately three-monthly intervals, will be rather bulkier. Volume 2, A Technical Review, should be released shortly while the final two volumes will cover the county by parishes, the final one also incorporating appendices and index.

The quality of production is good with large format and sturdy paper. Illustrations, which are numerous, reproduce well and the only criticism I have is of the rather frail dust jacket; I have reinforced my copy with plastic film.

The first volume starts with a brief description of the various mill types, thereby assisting the newcomer to the subject to understand their workings. This is followed by a chapter on the rise and decline of windmills in Essex and then by a section discussing the distribution of windmills on maps. We move on to a review of the millwrights who operated in the county and then to a chapter describing some of the many removals which occurred during the eighteenth and nineteenth centuries.

Chapters 6 and 7 throw light on the far from cordial relations which sometimes existed between landlord and tenant-millers, millwrights and others concerned with the trade more than a hundred years ago. In chapter 8 we meet 'Three Jolly Millers' while the final chapter surveys the first 500 years of windmill history in Essex. This is followed by appendices listing pre-1700 sites and a very useful list of mill representations on all Ordnance Survey maps issued from 1862

to 1922. Each chapter is concluded with a comprehensive list of references while 58 photographic illustrations and several line drawings accompany the text.

There is no doubting Mr. Farries' scholarship; this was established fifteen years ago with the publication of 'The Windmills of Surrey and Inner London', written in conjunction with M.T. Mason. Allied to this he writes in a lively style, full of wry humour, anecdote and 'millish' metaphor such as (on p.88) ".... than bask on a mill mound of wishful thinking."

All in all then a very encouraging start to what promises to be the most authoritative county mill book yet to appear. The term 'definitive work' is often loosely used. Here we shall have as definitive a book as can be produced within a reasonable time scale and for a price which, although high, should not deter the real enthusiast who will find much that is enlightening and refreshing in approach.

Subsequent volumes will be reviewed as they appear.

WORD PUZZLE MICHELLE SKINNER

This 'word search' contains 50 words associated with English and European windmills and watermills. The words may be spelt forwards, backwards, across, up, down or diagonally. Some of the words may be shortened, like fan or fly instead of fantail.

C O M P O S I T E M I L L A N D S K I R T C T
B G Z B S S B R I I A E D V E Y I F D P A R A
R E D C E O E U C D I P P E R W H E E L E N I
A E F B N R G N A D E U J E T R K F L W M G L
Y C H O O C H D B L S M L R T A V I O A L B P
E A L N T N K L F I T L A Q K J I L G H L P O
R P Q A S C M E D N A C J L P L L L B V I I L
U R S R U O P W E G E U D O L A E Q O E M N E
L L I B T V A H Y R I Z A I W E X A W U T T E
A I U T S A E R B E H R U H T L A T S S L C
L A E M B C T E E C F G R W I O X I K P O E U
D S W E E P S L P A N D Y B P R Q R C H P M F
E R F G C I X W O P V U N A S N A P G R Y E O
B A T T E R L H L X B T D W Q S M O Q D E A O
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T N S E E Y E M N C O N L N R K Z S N K X L R
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R A U A Q P I J A O I N H D E I L G F B Z O S
V I T R U V I A N M I L L U F F E L L O E R S

A.G.M. REPORT

This year's Suffolk Mills Group A.G.M. was held in Alton watermill at the Museum of East Anglian Life, Stowmarket. The disappointing attendance of 16 was all-too-easily accommodated on the first floor of the mill; this was less than half the number who came to last year's A.G.M..

The meeting commenced at 11.15 a.m. with an introduction from Chairman Chris Hullcoop. Apologies were received from Mike Organ and Chris Armour. The minutes of last year's A.G.M. (published in Newsletter 16) were proposed for acceptance by Brian Flint and seconded by John Snowdon. Treasurer Brian Flint then presented the Group's accounts for the year, which showed a cash flow of nearly £1900 and current balances of some £730 in bank and building society (last year: £450). Attention was drawn to the additional income from subscriptions resulting both from new Members and increased rates, and at the same time the extra costs of printing and the purchase of power tools for practical work. Copies of the accounts are available on request from the Secretary.

S.M.G. Editor Mark Barnard reviewed the content of the Newsletters prepared in the last year, and spoke of the decision to reduce the number of issues from five to four per annum. This was because of the cost of each circulation (£35 to £40) and the difficulties of producing Newsletters every two months during the busy summer period. He felt this was better than reducing the content of the Newsletters or adopting a more concise, less attractive format. Newsletters will now appear in March, June / July, September and Christmas.

In his report Secretary Peter Dolman said membership of the Group stood at 120, a slight increase on last year, although there was a moderate turnover of Members. He felt he could not recommend an increase in subscriptions for the coming year in view of the healthy state of the accounts and the reduction in frequency of Newsletters. John Snowdon said he thought the subscription rates were adequate to carry out the S.M.G. work programme. Peter Dolman pointed out that the major part of the Group's practical work this year - at Thelnetham - was grant-aided and did not draw on S.M.G. funds. Chris Hullcoop suggested that subscription rates should not be set too low as greatly increased membership could lead to printing difficulties with the Newsletter.

John Snowdon proposed a vote of thanks for the four main Committee members' hard work on behalf of S.M.G. during the past year. This was seconded by Colin Budgie. As all the Committee had agreed to stand again, it was proposed by Cliff Lovett that the Committee be re-elected en bloc. This was seconded by Graham Wilson and agreed.

Under 'Any Other Business' Colin Budgie explained that he was negotiating a lease of the derelict Horsford tower mill near Norwich. Chris Hullcoop said this was very encouraging - few S.M.G. Members have taken such individual initiatives to counterbalance the work of the Committee members, who are now fully 'booked up' with existing mill commitments.

Peter Dolman then proposed a vote of thanks to Philip Platt and David Burch for allowing S.M.G. to use the mill for the meeting; to Des Codd and John Snowdon for procuring the chairs for the meeting and to Brian Flint for supplying the slide projector.

Chris Hullcoop then proceeded to give a very full Chairman's Report on the last year, covering practical work (except Thelnetham), visits, meetings and advisory work. Advice is a difficult field and no doubt there are some who resent argument from 'outsiders' about what they should do with their property. However, we see a vital role for S.M.G. in presenting the best angle of advocacy for the mill, at the same time ensuring that our advice is 'feet on the ground' and not unrealistic. Presentation is also important, as a beautifully presented architect's report spelling disaster for the mill will often be heeded unless those that care for mills can produce something to match. We feel we achieved this with the report on Sapiston watermill.

Chris Hullcoop also mentioned the problem of the 'survival value' of millwright's work and the attendant lack of maintenance of restored mills, something that was discussed at length at the S.P.A.B.'s local mills groups liason meeting ('COGS') in March. This was a problem which needed to be tackled nationally if mills were not to get a bad name through consuming vast sums of money and eventually perhaps being labelled 'unrestorable'. As an example of the lack of proper maintenance the rebuilt East Bridge windpump was mentioned - the brake had been greased to prevent it rubbing on the brakewheel (!) and the sail shutters left fully closed with the great danger of tailwinding.

On a brighter note it was reported that Pakenham watermill had been worked several times by S.M.G. and a ton of meal produced since Christmas. Here again though there were problems of over-commitment in arranging and supervising on-going repair work. The annual report was concluded by Peter Dolman who showed slides of the work at Thelnetham and spoke of the plans for this year.

The meeting was concluded on a very satisfactory note when Chris Hullcoop presented Peter Dolman with a £2000 cheque from Rank Xerox Ltd. and also a small sum from Don Porter, both towards the repair work at Thelnetham. The meeting ended at 1.20 p.m..

During the afternoon we had an opportunity to look round the rest of the museum, and also to get the waterwheel of Alton mill turning the stones (light) for the first time since the mill was moved. The museum would like S.M.G. to demonstrate the mill on specific occasions - are there any local Members interested in helping out?

HOLLAND TRIP MARK BARNARD

It was around New Year 1980 that I first suggested to Chris Hullcoop we should 'do something different' and arrange a trip to Holland to see how mill preservation is tackled over there. We were both keen on the idea but time slipped by and it was forgotten. This year the same topic came up again and I decided to give it a try....

Five months and a large number of 'phone calls and 18p. stamps later we had our party of eight ready to go. Tony Bryan and Chris Seago had kindly agreed to take



DUTCH MILLS

- Top left: Post mills at Heusden
Middle left: Wip mill of the polder Oukoop at Loenen aan de Vecht
Bottom left: Tower mill at Zeddarn; c.1450
Top right: Corn mill 'Rijn en Zon', Utrecht
Bottom right: Sawmill 'd'Heesterboom', Leiden

their cars on the trip; the other six were Chris Hullcoop, Fred Ranson, Peter Dolman, Don Paterson, Cliff Lovett and myself. A short drive to Harwich saw us safely onto the Sealink ferry for a sunny and mercifully calm six and a half hour cruise to Hoek van Holland. As we sailed into Holland we were greeted by a modern three-bladed windmill gently turning in the sunshine which, looking back, was a fitting introduction to the orgy of mills which was to follow. With Tony Bryan's car in the lead (its occupants firmly blinkered to prevent unscheduled stops at mills en route!) we carefully made our way to Amsterdam, pausing only to view the eastern (or was it southern or northern?) suburbs of Delft - well, we only got lost once!

Our accommodation in Amsterdam was the hotel van Ostade, otherwise known as 'Your Second Family Home' or in less endearing terms by some members of our party, especially if they had just fought their way up the near vertical stairs which we reckoned only Don Paterson with his mountaineering experience was qualified to tackle!

The following morning we were met by Dutch mill enthusiast Karel Dolman (no known relation to our Secretary!) who acted as our guide for the day's tour through part of the province of Noord Holland. The most interesting stop of the morning was at Akersloot where a brand new smock corn mill was being completed - the municipality had simply decided it wanted its own mill again as a feature of the area. This type of project is a reflection of the enormous enthusiasm for mills in Holland - imagine a local authority in Suffolk wanting to build a new mill! In the afternoon we visited the Schermer polder where a number of the sturdy North Holland type of smock drainage mills still grace the unspoiled landscape. These mills are winded from inside the cap, and drive an archimedian screw rather than a scoopwheel. I think everyone was surprised by the massive size of the timbers used in their construction and the spaciousness of the mills themselves. We measured the iron windshaft of one at 25 ft. long. To finish the day we were given a tour of 't Rode Hert', a fine smock corn mill at Oudorp (near Alkmaar) which still works commercially, and the tower mill at Schoorl (the village twinned with Hadleigh) which is being re-fitted by volunteers.

Several of us were particularly keen to see some of the giant tower mills for which Holland is famous, so a visit was arranged to 'Rijn en Zon' at Utrecht, a restored tower mill where Karel Dolman's son Maarten works as a miller (yes, this mill is also used regularly!). Standing on the stage some 50 ft. above street level and watching the huge 82 ft. span common sails sweep round was for me one of the most memorable parts of our holiday. The mill had Fok sails with curved leading boards to deflect air behind the sails and air brakes at the tips which were operated automatically by patent sail type striking gear. The stones here were almost 5 ft. in diameter and though they revolved relatively slowly (never faster than 70 r.p.m.) we noticed a 25 kg. sack being changed every ten minutes or so! Chris Hullcoop and I measured the height to the roof ridge as 103 ft., causing a minor stir as we did so when our weighted tape dangled down and rattled against the windows of the house below!

After stops at Breukelen (where millwrights had just commenced restoration of a

hollow post drainage mill, or wip mill as they are called), and Wilnis (Karel Dolman's 'local' mill which he naturally had working for us!) we reached what was to be another highlight, the splendid wip mill of the polder Oukoop at Loenen, right beside the busy Amsterdam - Utrecht motorway. While the mill was busily pumping we chatted to the two volunteer millers over a cup of coffee in the cosy thatched base of the mill. To crown what had already been a superb day we journeyed to Leiden to see the saw mill 'd'Heesterboom' which once more had been set to work specially for us. This large mill which drives four reciprocating saw frames was full of interest and, despite the double summer time, it was almost dusk before we departed!

The following morning saw our two cars heading south from Amsterdam again, this time for the distillery town of Schiedam, famous in molinological circles for its four giant tower mills, all built at about the end of the eighteenth century and all easily clearing 100 ft. to the roof ridge. We confined ourselves to two : 'De Vrijheid' and 'De Noord', only about 200 yards apart, and both in working order. At 'De Vrijheid' - which works daily - millwrights were engaged in repairs to the cap (including a new steel weather beam) and I gasped in amazement as they casually worked outside without safety harnesses some 100 ft. up! The stones here could be driven either by wind or by electric motor, and the mill in general was exceptionally well fitted out with elevator, mixer, crusher and two centrifugals. The sail span was 87 ft. 7 ins.. Again we were greeted by enthusiastic young millers and it was late in the afternoon before we could tear ourselves away and visit the world-famous Kinderdijk complex of drainage mills, now alas one less after a disastrous fire earlier this year.

On Wednesday we arranged a visit to the offices of the Dutch mill society, 'De Hollandsche Molen' in Amsterdam. Their secretary was very helpful and among many things explained that, like Britain, there was now less government money for Dutch mills and in the future more emphasis would have to be placed on volunteer work. He also told us that there were still many of the old millwrighting firms in existence, using traditional methods and skills which had not died out. This went a long way towards explaining the very high standard of new millwrighting work (some of it very extensive like 100% new machinery) which we saw almost everywhere.

In the afternoon we visited Zaanse Schans, where a number of old wooden merchant's houses and five industrial windmills have been re-erected in a traditional setting beside the River Zaan. Although this is quite a 'touristy' spot the fact that the mills are all in working order and the houses permanently inhabited gives an air of authenticity. The oil mill 'De Zoeker' works full-time under contract and, we were told, produces 40 tonnes of oil a year.

The second half of our stay was based in the east of Holland, or to be more exact at the quiet village of Zeddum not far from the German border. When we arrived the hotel seemed almost unoccupied, and the person who showed us our accommodation turned out to be a long-stay guest! He led us down a small road

and pointed to a large white-painted house which was evidently the hotel annexe we had booked. We could hardly believe our luck, for right behind the house was the tower mill 'De Volharding', one of the two windmills in the village! After we had settled in we walked up to the mill for which Zeddum is famous, a massive parallel-walled structure dating from around 1450 and usually quoted as the oldest mill in Holland. Like many mills in the area it is built into a large mound (which serves as a stage) and is entered through the mound via a loading door. The mill is built like a fortress, with walls 5 ft. thick, even at the top! The tower actually has a greater internal diameter at the curb than at the ground floor - almost 23 ft. as against 18 ft. - while the cap itself, winched round by two internal capstans opposite one another, must be the largest surviving anywhere. The mill incidentally is in full working order, having been re-fitted in the nineteenth century and restored since. Just for good measure there is a horse mill nearby, although we didn't see inside it.

The following day we devoted mainly to the open air museum at Arnhem which, molinologically at least, was rather a disappointment, as we could not see inside any of the windmills, most of which were in need of repair. We did however have an interesting chat with the 'miller' of the paper-making watermill, and when he presented us with some sheets of paper he'd just made we felt like guests again rather than mere tourists.

On Friday Karel Dolman was again our guide, although the first thing he had to guide us to was a garage to get a set of wheel bearings for Chris Seago's car! Luckily we were soon fit again and on our way to the small fortified town of Heusden, which some time ago the authorities decided to restore to something like its old appearance. Not only have the ramparts been largely rebuilt, but since the early 1970's the three open-trestle post mills which once perched on top of them have also reappeared! One of them was rebuilt with parts from a Belgian mill but the other two are brand new. We were now in the province of Noord Brabant and after stopping at a few more mills we finished up at the hamlet of Oventje, some 16 miles east of 's Hertogenbosch. Here, we were told, would be a working mill but unfortunately the owner had caught the 'English disease' and become more interested in his pigs than his mill! Nonetheless it was still in working order and he kindly got the sails turning for us in what was hardly more than a breath of wind. It was a smock mill, moved here as recently as 1938 to replace another mill which had blown down. We admired the speed with which the miller tended to the sails and, when the mill was stopped, how the bottom sail was roped down in either direction and the lightning conductor plugged into the steel stock (these are almost universal and very long, as no whips are used). This was a ritual which we observed at every mill and is obviously the result of good instruction and, undoubtedly, bitter experience. The mill had van Bussel type common sails (partly streamlined) which also incorporated air brakes.

On Saturday we ventured into Germany briefly and saw three mills, only one of which was restored, although not very well (Elten). This had traditional wooden

stocks though and to that extent was quite different from its Dutch near neighbours. One of the others was such a bad restaurant conversion (à la Moulin Rouge) that Chris Hullcoop just had to photograph it for his rogue's gallery!

For the rest of our final day we sauntered through the area close to Zeddum. The 'voluntary millers' were in evidence at a couple of mills but as there was no wind they busied themselves with minor maintenance jobs such as repairing the sail cloths. Since 1967 Holland has had a 'Guild of Voluntary Millers', now with a membership of about 900. They disseminate practical information on how to work mills and, in conjunction with the national mill society, run a series of examinations which so far over 300 members have passed. There is no doubt that the Guild has been a tremendous asset to Dutch mill preservation, and will probably play an even bigger role in the future.

We concluded our holiday with two most interesting visits. Vragender is a place no mill enthusiast should miss: the smock mill still works regularly although it is part of a much larger modern milling complex. It was built as recently as 1958 (with parts of a dismantled drainage mill) to replace a smaller mill, being set on a large brick base to elevate it above the surrounding buildings. There was much auxiliary machinery inside (including a fine centrifugal) but only one pair of stones, although there were another two engine-driven pairs in the base. We were also shown a splendid Ruston and Hornsby oil engine, dating from the 1930's and still in daily use. Like many mills in the area, Vragender has two Fok common sails and two Ten Have sails which each have a single, self-regulating longitudinal shutter. The great efficiency of the Ten Have sails enables mills to turn in a light breeze without the need to cloth the common sails.

Not far from Vragender is Lichtenvoorde, where we sadly inspected a windmill disaster. On 23rd. March this year the mill 'Hermien' was just about idling round when the worst happened - the iron windshaft snapped just behind the neck. The sails still lay where they fell, luckily without damage to the mill. We were kindly shown round the mill by the owner (whom the mill is named after) who, although she could speak no English, was obviously very enthusiastic and hopeful of raising 'een ton' (f100,000 or £20,000) to restore her mill.

So ended what was for everyone a most interesting and thoroughly enjoyable visit, not only because of what we saw but because of the friendly way we were greeted at every mill we inspected. To show our appreciation we dispensed bags of stone-milled flour, 'Windmills in East Anglia' colour booklets and copies of the Thelnetham mill restoration report whenever we felt we had received special treatment. By the time we reached the boat on Sunday morning Peter Dolman had managed to 'score' 180 different mills (the rest of us probably managed rather less - I certainly did, even with my specs on!). It seems hard to believe there's another 850 to see next time!

NEWS

HAWK'S MILL, NEEDHAM MARKET

This attractive brick-built mill (see photograph on right) dating in the main from 1884 still retains its Armfield turbine (a replacement for the waterwheel) and the associated drive to a layshaft, together with fine sluice control gear and auxiliary engine drive pulleys. It is owned by D. Quinton & Sons Ltd. who



until recently used the mill building for seed dressing, etc., using modern electrically-driven machinery. In March Quintons submitted a planning application to convert the mill into 10 flats, involving the demolition of the large 1950's warehouse built onto the mill at the rear. Although S.M.G. had no objection to the principle of conversion in this case, we were concerned that the detailed plans made no mention of the surviving machinery. Having thoroughly inspected the mill by kind permission of Quintons we sent detailed comments to Mid Suffolk District Council (who can actually see the mill from their offices in Needham High Street!) pointing out the importance of the turbine and gear and how they could be satisfactorily retained in the conversion.

We are pleased to say that the scheme has now been amended in line with our suggestions (the number of flats being reduced to 9 in the process) and an approval has been issued. Also, the mill has been Listed Grade II.

HERRINGFLEET MILL RE-OPENS

The S.M.G. visit to Herringfleet marsh mill on Easter Saturday (April 18th.) was the first time the mill had been opened to the public since the restoration work of 1979-80. To mark the occasion the owner, Lord Somerleyton, performed a short opening ceremony during the afternoon. Altogether about 80 people turned up on what was a fine, sunny day, although as usual there was insufficient wind to keep the sails turning for any length of time. Our next visit is on August 31st. (see 'Events').

DALHAM RESTORATION

At their meeting in May the Planning Committee of Suffolk County Council resolved to complete the restoration of the structure of Dalham mill and to allocate a further £5000 for the project. The work, which is being grant-aided by the Historic Buildings Council, basically involves new sails, fantail and brakewheel and when completed will enable the sails to turn, although the mill will not be returned to full working order.

PROGRESS AT PAKENHAM WATERMILL

Eastern Electricity Board apprentices have recently held their own 'work in' at Pakenham watermill. Twenty four apprentices led by assistant engineer Bill Slegg have been working on varied jobs including repair of part of the mill pond bank, making a new bridge over the spillway gate and inside the mill repairing the shut and fitting up the sack hoist drive and the engine drive. Having previously worked on the famous Stretham pumping engine and oil engines at Gressenhall in Norfolk they were keen to repair and paint the mill's 21 h.p. Blackstone oil engine. We were reluctant at first as some of what we thought was original paint remained. After enquiries with the makers this proved different from the original colour and as it was in poor condition it was decided to re-paint the engine to the maker's specified colour and type of paint. The apprentices also hope to fit a new cooling system, repair the leaky exhaust and bring the engine to good working order.

It was heartening to see this group of young people which included several ladies busy at all points in and around the mill. It is a pity there are not more projects like this for young people. While sports and outdoor pursuits like climbing and canoeing are fine, there must be others keen on engineering and craftsmanship who would enjoy projects like this. Could millwrighting ever form a subject for the Duke of Edinburgh's Award scheme? It is not worthiness that is lacking but organisation and leadership. This has to come from owners of mills whether they be Councils, trusts or individuals, who must show the same enthusiasm for repair of their mills as climbing and canoeing instructors do for their sport. If we fail to recruit youth to the voluntary repair of our mills their future is indeed bleak.

WOODBIDGE TIDE MILL POND

Work on a new pond for Woodbridge tide mill is due to start very soon and should be completed by September, enabling the mill's machinery to be demonstrated to visitors. The project is costing £27,000 of which some £12,000 has been raised so far, although unfortunately a H.B.C. grant for the work has been withdrawn.

To help with fund raising the Friends of the Tide Mill are organising an exhibition and sale of paintings, all of the mill. The exhibition, which is inside the mill, can be visited daily from July 11th. - 31st., 11 am. to 1 pm. and 2.30 pm. to 5 pm..

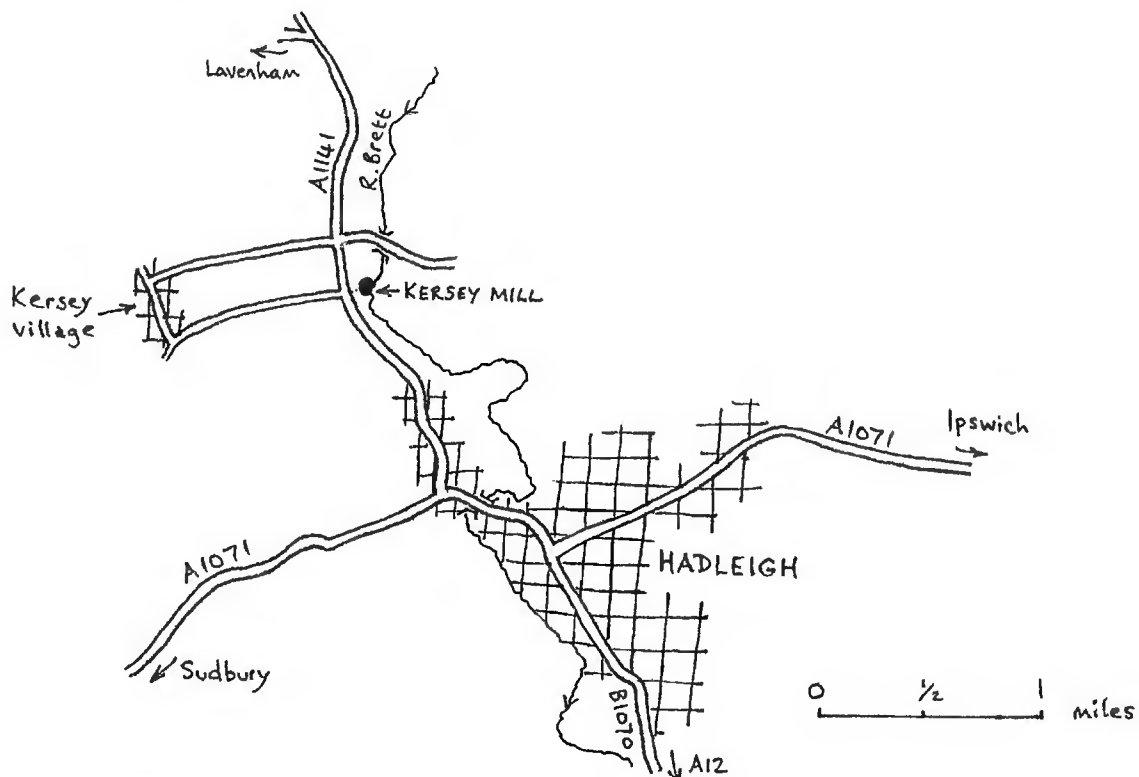
EVENTS

VISIT TO KERSEY WATERMILL: SUNDAY JULY 19th. 1981; 2 - 5 pm.

This splendid mill on the River Brett must have been a busy place 100 years ago. There is a fine mill house, a large complex of barns, stables and malting buildings and the mill itself, which represents the peak of development in Suffolk of a watermill using stones. As well as three pairs of stones driven from the wheel there are three pairs of engine driven stones, together with

cleaning and dressing machines, all installed by Whitmore and Binyon. After many years of total neglect the mill was bought by Geoff and Christina Mellor three years ago. They live in the mill house and plan to move their electronics business, at present in East Bergholt, to the malting buildings, and eventually they hope to restore the mill to full working order.

A holding operation has halted deterioration, but for many years water poured into the centre of the mill from the leaking valley roof. LARGE AREAS OF FLOOR ARE ROTTEN SO WE MUST TAKE EXCEPTIONAL CARE DURING THIS VISIT. It would be a good idea to bring a torch as some of the window openings have been covered. The mill is on the main A1141 about a mile north of Hadleigh (see below).



THELNETHAM MILL 'WORK-IN': JULY 25th - AUGUST 2nd & AUGUST 22nd - 30th

For full details of this please refer to the coloured sheet (pp. 19-20).

HERRINGFLEET OPEN DAY: BANK HOLIDAY MONDAY AUGUST 31st.; 11.30 am. - 5 pm.

S.M.G. will be holding another public open day at Herringfleet on Bank Holiday Monday, when the mill will be working, wind permitting. Members are of course welcome to come along - bring a pic-nic lunch if you plan to stay in the area for the day.

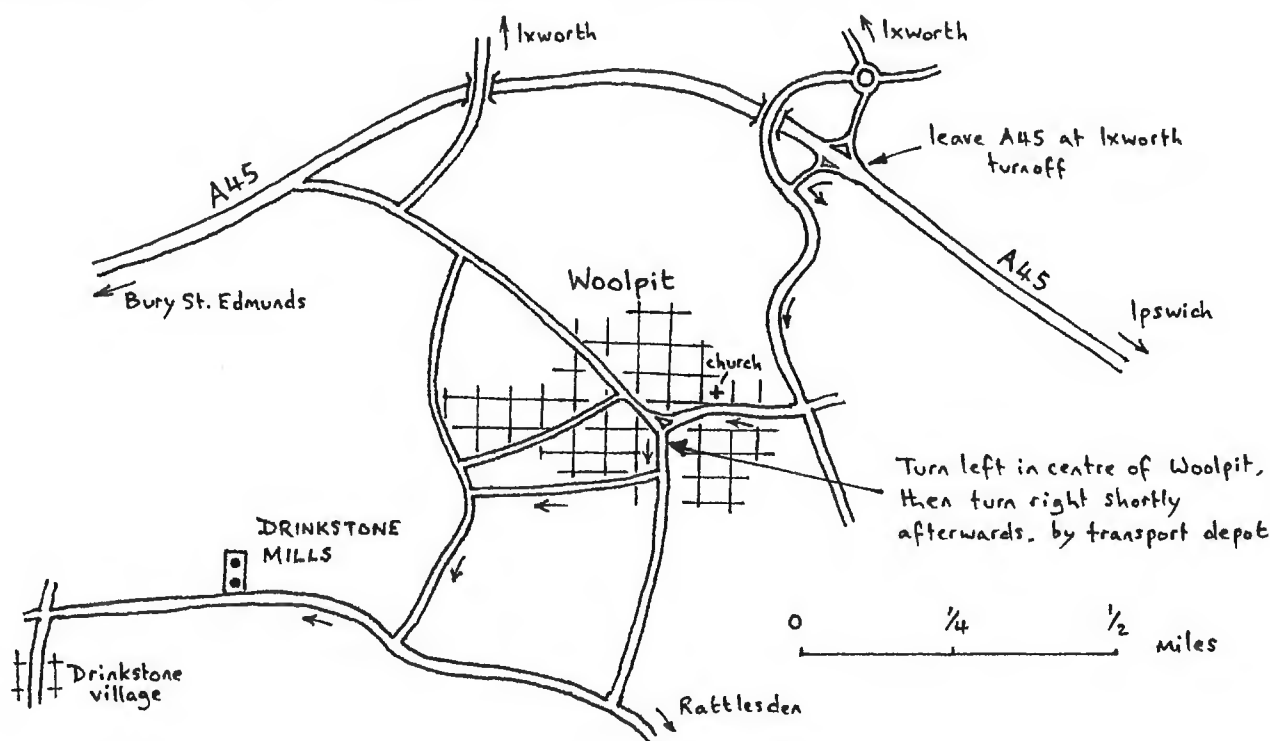
VISIT TO DRINKSTONE MILLS: SUNDAY SEPTEMBER 20th., from 2.30 pm.

The post and smock mills at Drinkstone together form one of the most important windmill sites in the country, showing mill work spanning four centuries from the post mill (dated 1689) to the early twentieth century engine-driven feed mill in the body of the smock mill. The smock is now weathertight following S.M.G.'s work in 1978 and 1979, but the post mill is gradually deteriorating, and care should be exercised, especially when climbing the external steps to the buck. We hope to

patch up and paint the roof and head of the post mill this year and indeed work may be in progress on the day of our visit!

The mills are half way between the villages of Drinkstone and Woolpit - follow the map below.

NOTE As a party from Friends of Norfolk Windmills will be visiting Suffolk on this day, we also plan to demonstrate Pakenham watermill - probably in the morning. If any S.M.G. Member is interested in combining the two events (Pakenham and Drinkstone are only about six miles apart) please contact Peter Dolman on Ipswich 76996 for further details nearer the date.



Other Dates to Note

- September 3rd - 6th : S.P.A.B. weekend tour to Yorkshire
- November 14th - S.P.A.B. Watermill Meeting, London (please note new date)
- March 20th 1982 - S.P.A.B. Windmill Meeting, London

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New S.M.G. Members since Newsletter 19

- ADSHEAD, Peter
134, Cherry Tree Lane, Stockport, Cheshire SK2 7PY
- BRYAN, Anthony A.
5, Thetford Terrace, Meadowlands, Cambridge CB5 8SP
- DOLMAN, Karel A.
Kastanjelaan 4, 3481 XH Harmelen, Netherlands
- GREGORY, Frank W.
292, Dyke Road, Brighton, West Sussex
- WHITE, Mrs. H.E.
26, Rowan Green, Elmswell, Bury St. Edmunds

Mrs. A. Whitney has now moved to 18, Oxford Drive, Woodbridge, Suffolk
In Newsletter 19 Kenneth W. Farries should have read Kenneth G. Farries

THELNETHAM 'WORK IN'



A scene from last year's 'work in' at Thelnetham

S.M.G. ANNUAL 'WORK IN' AT THELNETHAM MILL: SATURDAY JULY 25th - SUNDAY AUGUST 2nd;
SATURDAY AUGUST 22nd - SUNDAY AUGUST 30th

While planning this year's work in at Thelnetham we have been heartened to receive one excellent grant and the promise of another. A £2000 grant for materials from Rank Xerox was made because the work is entirely voluntary, showing a high degree of skill in planning, management and execution. These grants are not made lightly and Rank Xerox Chairman Hamish Orr-Ewing himself visited the mill last year to assess the project. The Historic Buildings Council have also promised a grant of £3000 to be paid in stages as the work progresses. We are very pleased with this as they must consider far more cases than they can help. We felt they were impressed by our self-help attitude and our determination not only to do a first class job at minimum cost but, through good materials, design and workmanship followed up by regular use and maintenance, to ensure that the mill does not just deteriorate again as so many have done.

This sounds like a lot of money but at today's prices it is soon gobbled up - the oak for the new cap alone cost some £2000 and the total cost of the restoration will be near £10,000. But contrast this with a professional job and there would be little change from £100,000.

Progress between work in's is slow and recently the various arrangements for this year's full time work such as planning, ordering materials, borrowing tools, etc. has in itself taken much of our time. However, careful preparation now will

help to ensure that jobs during the work in run smoothly. Work this year will be interesting and varied. There are three main tasks:

1. Rebuilding the stone floor

One new oak beam, weighing nearly half a ton, has to be fitted, together with a new vertical post. About 50% of the joisting needs replacing; the remainder will be re-used. The floor will be completely re-boarded with elm boards which have been seasoning in the mill store for the last year (they should be easier to lay than last year's!)

2. Rebuilding the ground floor

The original floor was boards laid on joists on small brick piers. Most of this had been replaced by poor concrete and we shall completely replace this old floor with new concrete.

3. Boarding the dust floor

The structure of this floor was completed during last year's work in and will be boarded this year, now that the boards have had time to season.

There are also a number of other tasks to be carried out, depending on how many volunteers come along. These include sand-blasting all the large iron components on site, such as the windshaft and curb; rebuilding the brickwork at the top of the tower after removal of the remains of the old curb, and beginning the daunting task of re-pointing the brickwork.

Volunteers have been coming forward steadily but we are still very short of numbers for the second week. I therefore appeal to all Members to consider coming along to Thelnetham to help with the work. There is no pressure to work at a certain pace - the job takes as long as is necessary, with frequent breaks for conversation and refreshment, and I'm sure all those who came last year would agree that even pulling nails out of timber or stripping plaster from walls is good clean (!) fun.

There are cooking, washing and toilet facilities at the mill, and electricity is available. There is ample space for tents or caravans. Within two miles are several pubs and shops which can cover most needs.

Members thinking of coming for the second week may care to note the S.M.G. open day at Herringfleet mill on Bank Holiday Monday (August 31st.) - see under 'Events' - and may like to combine the two. Also, during each of the two weeks I will arrange an evening visit to Pakenham watermill where we will be able to demonstrate stone milling of the type intended eventually at Thelnetham, although with a different prime mover of course!

Peter Dolman
95, Bixley Road,
IPSWICH
(Tel. 76996)