The Magazine of the Mills Section of the
Society for the Protection of Ancient Buildings

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Mill News

European Climate Change
The contribution of watermills

Happy 21st birthday
An impossible dream becomes reality

Millwright in Action
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Deadline for contributions for the July 2023 issue of Mill News is 1 June 2023.

Copy should be sent to the editor at the office or at mcstonenut@gmail.com and should if possible be emailed as a Word document or sent on a USB stick.

Photographs should be as high resolution as possible. Photo prints should be clearly labelled on the back. We will make every effort to return items, but this is not always possible. The Editor's decision on any article is final.

Editor – Mildred Cookson
Layout and design – Ian Scotter

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Front Cover: Kibworth Harcourt now repaired and open to visitors (see SPAB website for contact details)
Picture – Graham Watts.

Back Cover: Melbury Abbas Watermill; the wheel turning after its repair, which was supported by the Mills Repair Fund.
Picture – Geoffrey Brichard

Editorial

We have plenty of time, but…

In this issue we have the sad news that we have lost two of our longest standing members, Derek Ogden, who joined the SPAB in 1943, and David Jones, who became a member in 1948. Both were not shy in expressing their opinions and the Society gained a great deal from their combined 155 years as members.

As is pointed out on page 5, they were early supporters of the need for a safe place for future generations to be able to examine and enjoy images and documents relating to wind and watermills. Twenty-one years later, they have both donated their collections to the Mills Archive.

Both with a background in electrical engineering, they developed different expertise, one as a millwright, the other a mill researcher. Before Derek retired as a millwright in Virginia, he passed on his knowledge, gained over many years, to his apprentice. David Jones as a watermill researcher gave the Section many lectures on his various areas of interest. Those who attend Section meetings will remember the days when David insisted on using overhead projections, always running over time.

Neither of them can be replaced, but with such contrasting personalities and wide experience there is much to be gained from researching their legacies. They both had a wicked sense of humour; while some of Derek's views are unrepeatable in polite society, David's accounts of his adventures are often hilarious. We are lucky to have their records in safe custody along with those of many other mill heroes of the last 100 years now in the care of The Mills Archive Trust.

Over the last few issues of Mill News there have been quite a few millwrighting stories both from the UK and South Africa, the latter with the rebuild of the burnt-out mill, Mostert's windmill, and the work on the nearby watermill. In this issue we feature more millwrighting work, involving UK mills worked on recently by the Dutch millwright Willlem Dijkstra and work by Adam Marriott on the privately owned Fiskerton and Muston Mills.

It is good to see mills being repaired and the use of some newer materials which need to be tested for the future, such as Accoya for stocks. Work on mills never ceases and money for the work depends solely on private owners funding the repairs or on grant bodies helping. It also needs a good maintenance regime to be followed to keep the costs down.

Our Mill Repair Fund has offered many grants and we hope to increase substantially the amount we can offer towards repairs in the coming year. After all, without help many mills would not survive. We must not forget our volunteer millwrights; without them mills would not be standing today. Sometimes only emergency temporary work can be done, but as we have seen in the past with the work of Chris Hullcoop and the many mills on which he did holding repairs, these may last up to 20 years and save the mill.

In all our mill areas millwrights are in short supply. The SPAB Fellowship is offering a millwright placement for 2023 which will give the Fellow a good introduction, working with our established millwrights and with working mills, enabling them to start and carry on in the profession.

The challenge remains: where are the 21st-century successors to Derek and David? How do we attract them and ensure they have mills to work on and research? Is the problem money? Or is it the belief that (as with climate change) we have plenty of time if only someone would do something?

Mildred

Can watermills contribute to a more sustainable future in Europe?

Emanuele Quaranta

A brief history

Until the first half of the 19th century, watermills were in widespread use around the world (Punys et al., 2019). For example, there were at least 66,000 waterwheels operating in France in 1826 (Dupin, 1828), 25,000-30,000 in England in 1850 (McGuigan, 1978) and 55,000 in the United States in 1840 (Hunter, 1979). In Germany 58,000 mills were counted in 1882 (Müller, 1899) and still 33,500 waterwheels with power outputs ranging from 0.75 to 75kW were licensed as late as 1925 (Kur and Wolf, 1985). In Poland, almost 10,500 watermills operated in the late 18th century (Fajer, 2018), while in Japan waterwheels comprised 56 percent of total power generation as late as 1886 (Minami, 1982).

Watermills, by harnessing the energy of water, were developed for traditional production and works, e.g. grain grinding and wood sawing, with a central role in the shaping and evolution of the cultural landscape (Brykała and Podgórski, 2020). Watermills are thus part of the industrial and cultural heritage. However, in the 20th century they were almost forgotten, due to the abandonment of these structures and the lack of knowledge about their value (Çorapçıoğlu, 2019).

Nowadays, due to new interest in micro-hydropower generation in existing infrastructure, the scientific research on waterwheels is experiencing a revival. There are now some companies that manufacture waterwheels and research centres that are carrying out research on them (Quaranta and Revelli, 2018).

(a)

(b)

(c)

(d)

Some water wheels in operation. (a) Breastshot water wheel of Gatta s.r.l., (b) overshot water wheel of Mitterfellner, (c) overshot water wheel of Gratia Hydro, (d) breastshot water wheel of Rigamonti Ghisa.

Can watermills contribute to a more sustainable future in Europe? – continued

The value of watermills for electricity purposes

One of the relevant questions that the scientific community is trying to answer concerns the quantification of the potential of watermills and the transversal benefits they can entail. The Restor Hydro project database collected 64,910 historic sites that were originally used for hydropower generation (e.g., watermills), although it is believed that there were around 350,000. Quaranta et al. (2022) estimated that the repowering of the 27,000 watermills collected in the Restor Hydro database, in the European Union (EU), could increase hydropower generation by 1.6 TWh/year. However, the real potential may be higher since waterwheels could be installed at any suitable small weir and the database considered did not contain all the EU watermills. If all the historic non-powered sites collected in the Restor Hydro project database (64,910 sites) were repowered, 8.7 TWh/year would be generated (Punys et al., 2019), while Kasiulis et al. (2020) found that the potential electricity generation from 835 existing watermill sites in the Baltic States is 186 GWh/year. The installed power of waterwheels is generally limited below 30 kW, so that the cost associated to the waterwheels and related electro-mechanical equipment usually remains below €70,000.

Furthermore, waterwheels in old mills contribute to the promotion of the cultural heritage, social activities and small economies based on local production sales (Table 1 shows the required power for each milling activity) and tourism development in the area (Hognogi et al. 2021; Quaranta et al. 2021b). Waterwheels exhibit good ecological behaviour (Quaranta and Wolter 2020). Significant obstacles to waterwheel installations may be long bureaucratic processes for the water concession (despite the small available power) and the need for large diameters, while the possible acoustic impact due to their free surface operation can be mitigated by engineering solutions (Quaranta and Müller, 2021).

Table 1. Power required for milling activity, from Centre for Rural Technology (2014)

Mill activity	**Required power** (kW)
Grinder (maximum 40 kg/hour)	0.7-1
Grinder (maximum 80 kg/hour	1.75-3.5
Rice huller no 4 (175 kg/hour)	3.7
Rice huller no 5 (80 kg/hour)	2.2
Rice huller no 6 (350 kg/hour)	5.1
Allo processing	0.3
Bitten rice mill	4.1
Tea squeezer	1.5
Coffee pulper (roller)	0.37
Coffee pulper (drum)	0.76
Oil expeller 4 bolt	3.7
Oil expeller 6 bolt	3.7-5.1
Wheat thresher	0.74
Lokta beater	2.2-3.7
Sawmill	1.5
Sugarcane crusher	1-1.5
Water pump	1.5
Electricity generation (3kW)	3-5

Additional costs and incomes

In the previous section, a focus was given to waterwheels and mills for energy generation. However, the additional activities associated to the watermills could generate several benefits if adequately valued, listed as follows:

1. Electricity sale within the electricity market, or for self-sustainment
2. Local productions (e.g. oil, flour, see Table 1)
3. Entrance tickets in case of conversion into a museum
4. Social benefits not directly quantifiable: tourism and related activities in rural areas, events
5. Maintenance of the surrounding rural and natural landscape.

On the other hand, additional costs are as follows:

1. Electromechanical equipment
2. Transport, installation, maintenance costs
3. Electrical connections and bureaucratic issues
4. Civil and architectural works.

For example, the author is aware of the case of Gragnano Mill (Italy), where the material costs related to two waterwheels (vertical axis), two millstones, a hopper and civil works amounted to €40,000 (pers. comm. of Pietro Ingenito). The costs incurred in 2001 by Mulino di Bobbio Pellice (pers. comm. of Emanuela Genre) were 16,000,000 lire, including the restoration of the mechanical equipment (excluding the overshot waterwheel) and the instrumentation (millstone, transmission equipment, drive belt, sifter and elevator). The retrofitting of the overshot wheel cost €12,000 (*Diameter* = 2.6m, *Width* = 0.9m) in 2003. The costs incurred in 2004 by Mulino Cornaleto (pers. comm. of the owner Michele Nardi) related to two (vertical axis) waterwheels, two hoppers and restoration works (made in order to preserve the original stone structure), come to €200,000 (with a contribution from the Italian Soprintendenza equal to a third of the total). The cost to rebuild the 2.1m-long shaft of the (vertical axis) waterwheel of Mulino Parrini (Italy) with a diameter of 1.4m, was €800 (pers. comm. Giovanna Recati).

With regard to the economic incomes, in addition to electricity generation and sale of local products, the sale of entrance tickets has to be considered and the promotion of tourism in the surroundings. For example, the price of entry to Conqueta Mill (Figure 2) is €7 for people over seven years old; the number of people visiting it can be estimated at 100 per week often more in the summer

Can watermills contribute to a more sustainable future in Europe? – continued

months. In Italy it is not very common to pay to visit a mill, however during the 2019 "Heritage Days" more than 200 people visited Cornaleto Mill, in Potenza (Basilicata), and made voluntary contributions of between €3 and €10 (Quaranta et al., 2021).

Waterwheels and watermills can thus represent a very high-value heritage, both from the cultural point of view and as engineering practice to generate renewable energy using existing structures, with social and economic benefits.

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Watermill completely rebuilt at the Colomer farm.
Picture – Carles Nogareda Burch.

An impossible dream: how a group of volunteers made the difference

Ron Cookson

For more than 100 years we have seen the progressive decline in wind- and watermills, slowed by various individuals and groups around the country. At the beginning of the 21st century, a small group of mill enthusiasts were becoming increasingly aware that not only were mills disappearing, but records of their existence, their value and the people involved were also threatened or difficult to access. They raised concerns about what the future held. This is their story (so far…)

What is going to happen to all my stuff?

Derek Ogden, David Jones and Mildred had all raised the same issue. Derek, on a visit from the USA, felt there was no satisfactory American archive for his UK or US material and was contemplating a bonfire of all his drawings. David wrote that he was concerned that English Heritage, as it was then, was only prepared to take the English aspects of his waterpower research; he did not want to split up his collection, which contained much about Welsh mills, as well as material from other countries. Mildred had similar concerns: her large library, her important Lancashire collection, her records from Mapledurham and her work on Kent Mills had no obvious single repository.

Damaged items from Rex Wailes' garden shed.

Some collections had found their way into museums and record offices and were difficult to access, usually because institutional priorities were focused on artefacts or very old historical records. There was not always sufficient knowledge, interest or funds in such bodies to do justice to records, often of a technical nature and mainly from the 20th century.

The SPAB Mills Section had offered a home for some material but never regarded itself as an archive; it was more important to identify UK mills rather than unearth the researcher's story and they disposed of a lot of foreign material. In the early days a great deal had been loaned out as visitors could come and browse material on mills of interest to them and then borrow records, leaving gaps when they forgot to return slides or photographs.

Rex Wailes muddied the water during his time at the SPAB, collecting material and collections from others and keeping it in garden sheds at home. If it had not been for the sterling work by Alan Stoyel sometime after Rex's death, a great deal would have been lost. Much was

Founding trustee Alan Stoyel, 2011.

An impossible dream: how a group of volunteers made the difference – continued

destroyed by decay and damp, but even the rescued records were split between English Heritage and the Science Museum.

At the start of the 21st century things started to change. The Millennium Commission's 1999 report "Archives at the Millennium" had warned about the restrictive policies of many archives resulting in the loss of important technical records. All these issues resulted in our resolve to do something about it. We quickly got firm support from Derek Ogden, Michael Harverson and Alan Stoyel and we set up The Mills Archive Trust, a specialist safe haven for milling history.

Almost too good to be true

When we raised our head above the parapet and launched The Trust as an educational charity at a SPAB windmill meeting, the late Peter Dolman, who was addressing the importance of records in the authentic restoration of mills, summed up what we faced.

> *"All the records in the world are of no use, however, unless they are easily and freely available to those with a genuine need to access them, and in a fit state to be accessed!"*

This fitted well with a wish expressed in 1966 by Rex Wailes to the Newcomen Society. He advocated a specialist archive for drawings and photographs, emphasising the need for proper indexing and storage in suitable conditions. Both views guided our approach: as a charity our work was for public benefit and free to access. From the start we worked to the highest standard and recruited help from Tony Bryan and Niall Roberts of the Mills Research Group to ensure we had the basis of a suitable mills index for the public to use to find what they needed.

Computers were still relatively rare; emails had started to become popular in the mid-1990s and Facebook was only launched in 2004. Our one machine ran on Windows 95 and most people only had slow, dial-up internet access. Nevertheless, we were keen to follow up a suggestion made by James Butson in the January 2001 Mill News that there should be wider access to mill photograph collections. Frustratingly, many archive catalogues had very few digital images available, although some listed dates and brief details of many more. In the same issue, we responded:

> *"He wants greater access to historical visual material, and we wish to provide it. We see a time in the not-too-distant future where you could sit at home, look up a specially designed index, examine and download material without having to be troubled by travel or technology and secure in the knowledge that you have seen all that is relevant to your needs."*

Watlington House, the home of the Mills Archive.

Small beginnings in 2002.

Shortly after we started, we were shocked by the sudden bequest of the very substantial collections of Peter Dolman and Don Paterson. Fortunately, Ken Major, one of our early trustees, introduced us to Watlington House, which has been our home ever since. We were very lucky to have a small room, storage space and financial support for the first few years from the Heritage Lottery Fund. Without that and the energy and commitment of Luke Bonwick and Ken Kirsopp, I doubt we would have got through those early years.

An impossible dream: how a group of volunteers made the difference – continued

Founding trustee J Kenneth Major.

Luke Bonwick at work in the archive, 2012.

The second decade was transformative. Guided by expert trustees such as Alan Stoyel, Michael Harverson, Mildred and Peter King we gained sufficient support and reputation to employ a qualified archivist and professional management with fundraising experience. Our demonstrable high standards resulted in National Accreditation in 2016 with this accolade:

> *"The Panel warmly congratulated the service on its outstanding development in recent years. They noted particularly strong activity in areas including volunteering, fundraising development, online provision and cataloguing, and considered that several of these were a model for other small services. They also strongly commended the service's work with the wider mills heritage community and hope to see its support for that community continued and developed.*

Our secret was to tap into the eager volunteer pool that James had suggested. We had a few mill enthusiasts helping but mainly we opened opportunities for local young people to gain work experience. A number of these volunteers and interns enjoyed themselves so much they are now qualified archivists themselves, and several of them have become mill enthusiasts. Both Nathanael our archivist and Elizabeth (aka Liz), our director, started as volunteers. In 2019, with their guidance and that of Elizabeth Trout, our retired information specialist, we gained the Queen's Award for Voluntary Service. For

Two corners of the Library in 2023

An impossible dream: how a group of volunteers made the difference – continued

Susan, our library volunteer preparing to catalogue material on turbines.

several years until Covid lockdown we had been able to rely on about 8,000 hours of volunteer work each year. Digital investment in remote working has helped to ease the pain for us and volunteers unable to come to the archive and library, and also given us a way to expand our reach to people who do not live near Reading.

Learning and enjoyment

Setting up a new and totally independent charity was a big risk. We saw immediately that we had to make it clear that we were not part of the SPAB; quite a challenge as I was and still am married to the chairman of the Mills Section! We have had strong support from the SPAB, whose collection we have cared for since 2002. As an educational charity we have also had a great deal of support from various charitable foundations.

As we have grown from our four original collections (those of Mildred, Alan Stoyel, Ken Major and the SPAB) to our current 278 collections, we have been very dependent on regular donations from many mill enthusiasts. In 2007, we launched our Friends of the Mills Archive scheme, both to acknowledge their repeated contributions and encourage others to offer us regular support.

Three young interns exploring different aspects of our milling history.

Over the years sustained support from individuals has been vital. There are many stories of how their personal contributions have made a difference, not just financially but by making suggestions or lending their skills and knowledge. All those actively involved in our work are very motivated by such participation. We enjoy what we do so much more when we are reminded that our efforts are not just useful, they are valued. It is surprising how much can result from four simple words: "*How can I help?*"

Making regular contributions to any charitable cause is a time-honoured privilege and is particularly enjoyable when you can see it makes a difference. Our efforts are not just

Archive selfie with staff and volunteers, 2017.

Volunteer Beth Grant cataloguing some of Derek Ogden's drawings.

An impossible dream: how a group of volunteers made the difference – continued

to allow the present generations to enjoy the treasure trove we are creating, but our role is to ensure these irreplaceable photographs, documents and digital files are safe for future generations to learn from.

The 20th century witnessed the rapid loss of so many wind- and watermills. Fortunately, at the same time, people started to record their decline and the stories of the people involved. This has created a vast historical record, much of which is in private hands and threatened by the very same neglect and lack of understanding that threatened the mills in the first place.

Smartphones have only been with us for 10 years and they have revolutionised what we can offer to users, increased the amount of "born digital" material we receive and threatened how we can catch all the stories and thoughts that used to be the subject of letters and back of the envelope sketches. A rapidly changing digital world means we are learning new ways of working and investing more and more in expertise and equipment that has little to do with mills, but a lot do with capturing contemporary history and holding the attention of younger audiences.

As a small and independent charity, we have been doing our bit. During Covid we introduced our weekly electronic newsletter, regarded by some as a lifeline and by others as an excellent way to start a Monday morning. These informative and enjoyable emails now go to 5,000 people and, over the last year or so, we have doubled the number of virtual visitors to our website to more than 100,000 each year.

Coupling learning and enjoyment is underlined in our mission statement: we protect, preserve and promote milling history for people to learn from and enjoy. With your help we are working to create a world in which the role of milling and all its contributors – from ancient times and up to the present day – are understood, valued and recognised as integral to people's histories and lives today.

As the 21st century gains digital momentum, we still need to ensure that old-fashioned analogue records (usually on paper, but some on glass, tinplate or parchment!) do not get left behind to rot. As with other mill-related organisations we are conscious of the gradual loss of mill enthusiasts. This has itself created a steady increase in the number and variety of the collections that are passed to our care, increasing our costs.

This raised the issue of how we can afford to keep millions of records safe and accessible for ever. Any mill enthusiast can help secure the long-term future of these milling memories by remembering the Mills Archive Trust (charity no 1155868) in their will. I say this following the receipt of two very large and authoritative collections, the first from someone who thought they were too young to die and the second who changed his will and died before he could sign it.

Founding Trustee Mildred looking through the collections, 2012.

When does history stop?

It is not a coincidence that 40 per cent of users access our website using their mobile phones. By embracing contemporary history, which includes what happened yesterday, we are making the milling story not only enjoyable but relevant to younger audiences. The use of traditional wind- and waterpower is an important component of the role of renewable energy in arresting climate change and we have a great deal of historical material on how these sources came to be important for the generation of electricity.

As well as milling's impact on global warming, another key issue is the need to feed the world. Whether we look at cereal milling or the developing world's need for both better water supply and drainage, milling technology is at the forefront. We are developing three educational themes with a contemporary focus: "Better technology, better planet"; "Feeding the world"; and "The loss of traditional skills". Each has the advantage of attracting younger audiences and will address the challenge of retaining the attention of more users today.

History did not stop in 1873 when the launch of "The Miller" and its American counterpart "The Northwestern Miller" marked the advance of roller milling over the use of millstones. We have always disagreed with the view expressed many years ago by an architect and industrial archaeologist that the modern roller mills were not an appropriate topic for recording or study. The history of how the UK and Irish flour milling industry handled the transition from a rural agricultural economy through import threats and two world wars, followed by the challenges of the European Union and then Brexit, is a fascinating story of endeavour and ingenuity.

We are not only custodians of so much of that history, but we also pay tribute to the many unsung heroes who have managed our flour supply. Recent events such as Covid and now the second invasion of Ukraine have underlined the modern industry's vital role in our food security.

An impossible dream: how a group of volunteers made the difference – continued

Some of the many volunteers and staff over the years.

We have always sought out the social aspects behind milling history and this has been well received by many, who may be less interested in technology but very attached to the human stories. Interest in our digital exhibition entitled "Sugar and slavery: Reproductive mills" shows how powerful the complete story can be. It also underlined how quickly we can get out of date. Our collections usually arrive when their owners die or have decided the time has come to make them safe by passing them to us. This meant that the most recent books we had on sugar mills were written about 40 years ago. We therefore invested more than £1,500 updating our library from 17 volumes to 85 publications. New books are expensive and we need to look at ways to keep our research library up to date.

It's all about trust

Set up and guided by volunteers and run to a high standard by professionals, what does this mean for you and every member of the public who have the right to feel that the Mills Archive belongs to everyone? We are all familiar with the cliché that we are only guardians of the heritage for future generations, but what does that mean in practice?

As someone with an interest in mills, we trust you to tell us what you think, suggest what we should do and support our approach to using the highest standards. We are not just the national specialist archive and library for the history of mills and milling, we are a registered charity – which means everything we do is for the public benefit.

You can trust us to invest our time and energy in pursuing the highest standards, introducing new approaches to widen our audience and doing the best that our limited resources permit:

Our National Accreditation shows you can trust us to care for items in our collection and make them freely available. Our Queen's Award for Voluntary Service demonstrates our commitment to young and old volunteers, not only benefiting from their work, but giving so much back in terms of enjoyment and career progression. At least six of our alumni are now qualified as archivists.

Our status as an educational charity means we have an ever-increasing role in engaging new generations in the story of milling and how that is central to their lives and their future.

Can we trust you to lend a hand to ensure we can do even more over the next 20 years?

French watermill for sale

Moulin de la Monnerie

Niort La Fontaine, Lassay Les Chateaux

Pays de la Loire, Mayenne, France. Oiro £420,000 plus fees and taxes

An opportunity has arisen to purchase a historic watermill in the beautiful French countryside, just 65 miles from the port of Caen.

The property comprises the main mill building which dates back to the early part of the 19th century with one outer wall from the original watermill documented to 1349. The waterwheel and major machinery are in place.

There is a substantial house which needs full refurbishment, a modernised annexe and a number of barns, all with planning permission for restoration work, and which lend themselves to a variety of uses for a potential buyer.

Further to this is a separate two-storey building which could be converted into a restaurant or venue space (with planning for change of use).

During the last four years, the current owner has carried out an extensive programme of works to the infrastructure using local tradespeople wherever possible.

Works completed include:

- A new access road
- A new septic tank system
- New drainage and water supply to each building excluding the watermill
- Full fibre-optic connection
- Aluminium double-glazed windows to the main house and annexe
- A totally refitted large garage/workshop space complete with insulation, a new roof, and a Highbay electric door
- Three new slate roofs to the main house and annexe
- A large patio area to provide outdoor seating for a potential restaurant.

Outside, the property has extensive grounds to approximately six acres comprising briefly:

- A large fishing lake
- Woodland with native trees
- A river with private trout fishing
- An orchard
- An ancient fish farm
- Extensive gardens and water meadows

While some buildings remain in original condition, the annexe is ready for immediate occupation with a new kitchen, bathroom and WC and radiators which run from solar panels and a wood-burning system.

For further information please email: peterc.edmondson@gmail.com or phone: 0044 (0)7968 338132

Repairs to Fiskerton Mill

Adam Marriott

Fiskerton Mill, in Nottinghamshire, is a large four-storey brick mill with quite a chequered history, built originally by monks from Thurgaton Priory who canalised the lower River Greet. The mill stands just a few hundred yards from the river's confluence with the massive River Trent, near the county's Lincolnshire border.

The current building was built as a silk and lace mill in the mid-1700s, being large, airy and with iron floor supports and wide pine long-span beams and unusually large iron multi-paned windows. Very large and light for a mill.

Following a period of business failures, it was repurposed as a corn mill by 1837 and in the tenancy of Joseph Marriott (a very, very distant ancestor/relation).

The mill has suffered a series of fires over the years, the worst 1851, when a partial collapse led to the fatalities of five poor souls trying to recover wheat and flour from the building. The mill was under-insured but obviously profitable and rebuilt. The news of the tragic fatalities during the incident made the *Illustrated London News*.

The mill ceased the Marriotts' ownership after three generations and was sold in the 1920/30s to their foreman miller, L Longdon, whose descendants, Robert and Joanne, still own and look after it today.

We were called in to look at problems following the collapse of the sluice gate which takes the bypass water under the middle of the building and discharges it around 16ft lower into the tailrace arch.

The mill formerly had a large suspension-type breastshot waterwheel, approximately 24ft diameter by 10ft wide, whose scars are apparent in the wheel pit. The wheel was broken up and the wheel pit has had an iron bulkhead and floor inserted when the wheel was replaced by a turbine by Charles Hett of Brigg around 1884.

This was subsequently upgraded to a 60hp Gilkes inward/mixed flow turbine and a second, smaller, 10hp turbine added by Hett to drive a DC dynamo for lighting. Both turbines are still in situ. The larger turbine was in use until the water board insisted on charging for water abstraction and the mill was switched to electricity in the early 1970s. The Longdons finally retired in 1994.

Repairs to Fiskerton Mill – continued

Work to date has involved removal of the gate remains and timber work. New patterns and castings for the pinions and racks, which were damaged and had teeth missing. Replacement of all the frame timberwork and the gate in greenheart timber (which won't rot and degrade) and all fixings and castings, repair of one of the large worm gears which was missing a tooth.

The next stage is to refurbish and repair the turbine gate and refurbish the turbine and bulkhead, allowing the turbine to turn again after 60 years.

Pictures by Adam Marriott.

21st-century rayonnage

Andy Selfe

As can be seen in the caption for the above postcard of the stone dressing workshop at La Ferté-sous-Jouarre, *rayonnage* is French expression for the process of dressing a mill stone.

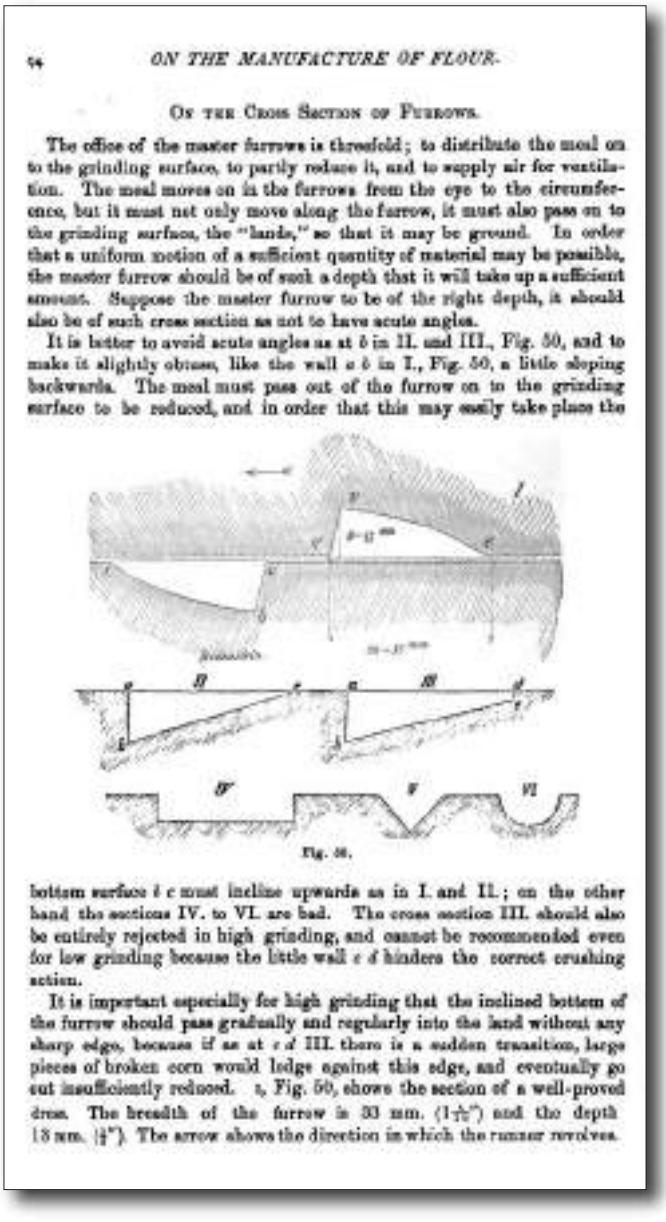
Faced with bare granite stones for Soetmelksvlei's brand new watermill (see Mill News, issue 173), I decided to make a contraption to cut the furrows in the shape recommended by Professor Friedrich Kick in his 1888 book, *Flour Manufacture (a treatise on milling science and practice)*. I first marked out with a reasonable 'Z' circle.

In the picture of the marked-out stone (on the right), the furrows look back-to-front because of the colours of pen that I used – the white is the deep edge. They are left-hand stones.

I clearly needed a slide as a guide. I have a Kreg Accu-cut which seemed a good start. A tough 115mm angle grinder and a diamond-faced cutting wheel too. I made a bracket to hold the grinder that could be clamped to the slide in place of the circular saw (top picture next page).

I had a problem with depth control. Paul Kemp suggested around 4mm would be good, so I added a depth gauge and a support at the back which gives angle control.

There was a further support required for the red upright, to fine-tune the angle. The old cutter was vibrating too much so I got a new one which has balance holes drilled. Much more manageable. A blob of Prestik under the rail



54 ON THE MANUFACTURE OF FLOUR.

Of the Cross Section of Furrows.

The office of the master furrows is threefold; to distribute the meal on to the grinding surface, to partly reduce it, and to supply air for ventilation. The meal moves on in the furrows from the eye to the circumference, but it must not only move along the furrow, it must also pass on to the grinding surface, the "lands," so that it may be ground. In order that a uniform motion of a sufficient quantity of material may be possible, the master furrow should be of such a depth that it will take up a sufficient amount. Suppose the master furrow to be of the right depth, it should also be of such cross section as not to have acute angles.

It is better to avoid acute angles as at b in II. and III., Fig. 50, and to make it slightly obtuse, like the wall a b in I., Fig. 50, a little sloping backwards. The meal must pass out of the furrow on to the grinding surface to be reduced, and in order that this may easily take place the

Fig. 50.

bottom surface b c must incline upwards as in I. and II.; on the other hand the sections IV. to VI. are bad. The cross section III. should also be entirely rejected in high grinding, and cannot be recommended even for low grinding because the little wall c d hinders the correct crushing action.

It is important especially for high grinding that the inclined bottom of the furrow should pass gradually and regularly into the land without any sharp edge, because if as at c d III. there is a sudden transition, large pieces of broken corn would lodge against this edge, and eventually go out insufficiently reduced. 1, Fig. 50, shows the section of a well-proved dress. The breadth of the furrow is 33 mm. ($1\frac{5}{16}$") and the depth 13 mm. ($\frac{1}{2}$"). The arrow shows the direction in which the runner revolves.

21st-century rayonnage– continued

The angle grinder on the intial slide.

With the depth guage and angle control added.

The final arrangement.

at the close end and a clamp at the far end held it in place.

After every furrow I took the rail off and wiped off the dust, also under the slide. I'm pretty happy with the results.

Vernier measurements show in the region of 4mm at the deep ends. This being a runner, I still need to work out a method of introducing a 'swallow' – I'm thinking of working from a spindle in the middle. And of course cracking. The granite is glassy smooth on the lands.

I need to dress the bed-stone next, but I had to stop work because it started to rain – I was working outside because of the dust. But I'm getting the hang of 'rayonnage', 21st-century style!

National Mills Weekend May 2023

Millwrighting – past and present

What? A nationwide celebration of Britain's mills
When? Saturday and Sunday 13-14 May 2023
Where? Across the UK

See https://www.spab.org.uk/mills/national-mills-weekend for more details

Volunteers at Kibworth Harcourt Windmill
Picture – Jonny Garlick

Windmills and watermills are some of our landscape's best-loved structures. These buildings are rooted in the nation's agricultural life and are an integral part of the food supply chain. National Mills Weekend (13-14 May) will focus this year on Millwrighting – past and present to celebrate the repair of wind and watermills which allows these important historical buildings to survive for future generations to come.

If you're visiting a mill this National Mills Weekend and would like to share your images, then please join the hashtag @ukmills on Twitter or hashtag #NationalMillsWeekend on Facebook and tag @SPABMillsSection

More information about the National Mills Weekend on 13 and 14 May 2023 can be found at https://www.spab.org.uk/mills/national-mills-weekend

News from the Mills Section

From the Committee Room

During the past months we have been supporting mills with our Mill Repair Grant, and replying to the many queries we receive. These vary from wanting information on insurance for both wind and watermills, correct greasing for the various mill parts, help with grants and recently help with finding new trustees for mills.

Kibworth Harcourt, featured on our front cover will have its official opening during National Mills Weekend, this will be on the Sunday but will be by invitation only as the private site can only accommodate a limited number at any one time. One of the new volunteers, Graham Watts, has taken over from David Holmes as contact person and his details are now on our website. Please contact Graham if you wish to visit the mill.

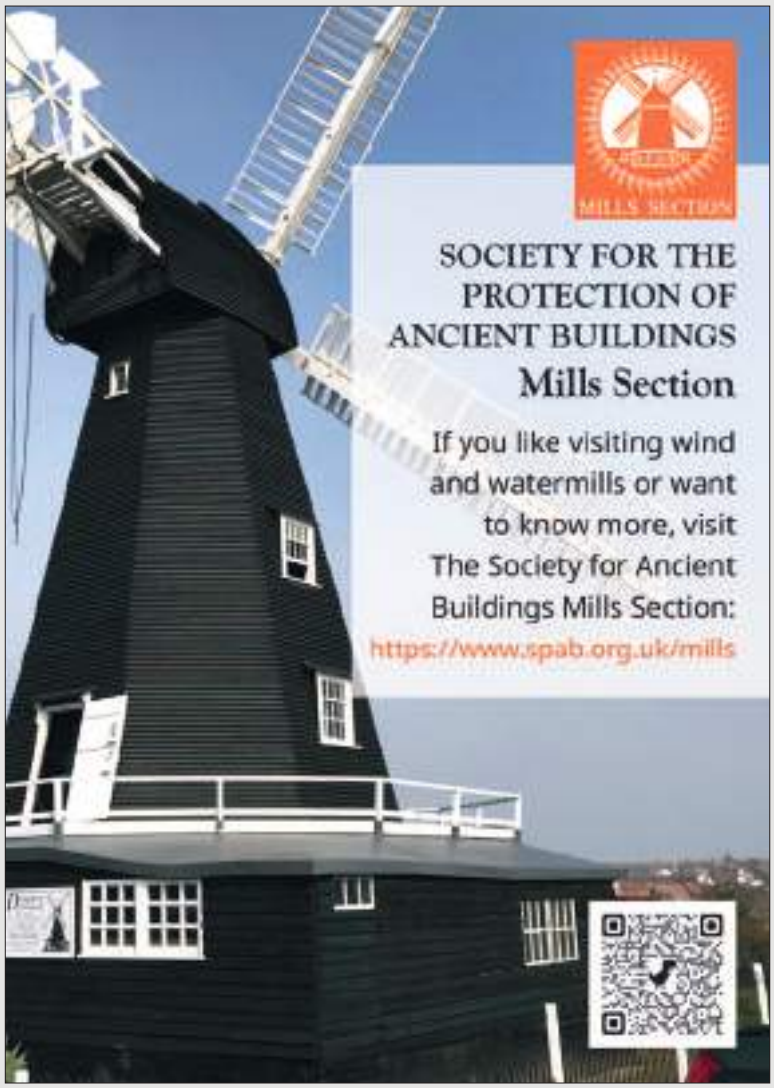
We hope to run courses now the mill is repaired, particular on maintenance, but if there are other topics you would like to see covered, please let us know.

Another of our committee members, Carole Leith, has designed and printed a new leaflet for the Section. Carole will distribute these to Kent mills in the first instance and then we will distribute them round other mills which will be opening.

We will change the images in the leaflet from time to time. The QR code on the leaflet will take you to our web site. Please let us have your comments on the new leaflet.

Finally, from all the committee, we wish all mills a good opening season, hopefully with the right conditions for allowing the sails and waterwheels to turn.

Mildred



Casework report

Silvia McMenamin

Recent planning applications

Land South of Melton Road, Whissendine, Whissendine Windmill, Rutland

An application was submitted to Rutland Council for residential development with associated works and access from Melton Road. The SPAB Mills Section objected to the proposal due to the threat of wind loss for nearby Whissendine Windmill. The outcome of the application is currently not known.

Darley Mill, North Yorkshire

An application was made to Harrogate Borough Council for listed building consent for conversion and extension of the mill building to form nine residential units including removal/relocation of machinery, ladders and glazed screen, insertion of staircases and mezzanine floor, and new and replacement doors and windows.

Darley Mill, North Yorkshire.
Picture – N. Chadwick via Geograph.

The SPAB Mills Section had concerns about the relocation of the machinery and the replacement of doors and windows. The SPAB Mills Section asked for more information regarding the relocation and recording of the machinery, and the applicant provided sufficient additional information. Harrogate Borough Council granted permission for the application.

Boardman's Mill, Norfolk

An application was submitted to the Broads Authority for listed building consent for repair and restoration of Boardman's Mill. The SPAB Mills Section was supportive of the proposed plans and is endorsing that the mill, once repaired, will be removed from the Heritage at Risk register. The outcome of the application is currently not known.

Cleator Mills, Cumbria

An application was submitted to Copeland Borough Council for demolition of dilapidated former mill buildings and construction of new warehouse unit with ancillary offices. The SPAB Mills Section defines Cleator Mills as a site of substantial local historical significance and is objecting to the demolition of the existing mill buildings and recommends their reuse. The outcome of the application is currently not known.

Plowden Mill, North Shropshire

An application was submitted to Shropshire Council for listed building consent for the demolition of a later, dilapidated single-storey lean-to addition to Plowden Mill to avoid damage to principal Grade I.

The SPAB Mills Section recommended the acceptance of the proposed plans but recommended to accurately record the existing building in compliance with Historic England regulations, before demolition. Shropshire Council granted permission for the application subject to conditions.

Old Mill, Llandybie, Carmarthenshire

An application was submitted to Carmarthenshire County Council for listed building consent for change of use and listed building consent for the repairs to and adaptation of the mill into a multifunction building with associated access for all, with ground floor reception area, multipurpose first floor space and accommodation on the second floor. The SPAB Mills Section has been supportive of the proposed plans and has no objections to the application. The SPAB Mills Section recommended that the millstone in the mill house garden is moved to a secure location within the mill building, to provide some evidence of its previous use. The outcome of the application is currently not known.

Boardman's Mill, Norfolk.
Picture – Ashley Dace via Geograph.

Mill Repair Fund report

Silvia McMenamin

Applications under review

Heage Windmill, Derbyshire – Grade II*

The Heage Windmill Society has submitted an application for funding to support extensive repair works on the cap sheers. The SPAB Mills Section is currently reviewing the application

Heage Windmill in 2018.
Picture – Colin Cheesman via Geograph.

Previous applications update

Melbury Abbas Watermill, Dorset – Grade II

The repair of the waterwheel has now been completed and the Mill Repair Fund grant has been paid.

Melbury Abbas Watermill; the repaired waterwheel.
Picture – Geoffrey Brichard.

Bourn Windmill, Cambridgeshire – Grade I

A grant application was made by Cambridge Past, Present and Future to support the repair of the mill. The SPAB Mills Section offered a grant of £500 to support the replacement of the cross trees of Bourn Windmill. The repair of the mill is now completed and the Mill Repair Fund grant has been paid.

Bourn Windmill.
Picture – Cambridge Past, Present and Future.

Bourn Windmill

Cambridge Past, Present and Future – repair project report

We appointed Baker's of Danbury as the main contractor and they started work in spring 2022. The first main task was to jack up the body of the mill by 6in, so that the rotten supporting structures could be disengaged and removed. This was the most nerve-wracking part of the project because it is something that was last carried out 140 years ago, and not something that many people in the world have experience of!

There was much discussion about how to do it, but in the end it all went well.

The supporting beams were then removed and we could see for the first time the full extent of the rot – it seemed remarkable that the mill had not fallen over.

At this stage in the project, the mill was suspended in mid-air, held there by metal supports! The next task was for a new set of huge oak beams to be cut and slotted into place. This work was carried out by a skilled team of carpenters over the summer and completed at the end of September.

The brick piers that support the beams were taken down and the main task for October was rebuilding these.

Once the team was happy with the new supporting structures and the brick piers, then the main body of the mill was lowered 6in and reconnected. It all went to plan and was completed in November 2022 when the scaffolding was finally taken down too, just in time for the cold weather snap.

continued overleaf>>

Bourn Windmill Repair Project Report – continued

The final stage of the project is to refurbish and reinstall the sails and do some painting of the mill. The sails have been taken down so that the millwright can restore and repair them. They are much bigger and heavier than they appear when on the mill and it took a strong team of volunteers and wardens to move them last week.

We recognise that repairing the mill is a great opportunity to engage more people as visitors and volunteers with this fascinating historic machine and to better tell its story. We are grateful to the National Lottery Heritage Fund for providing funds to enable us to carry out a number of projects to achieve this, these will include:

- Video tour of the mill made in conjunction with local young people and mill volunteers
- Two self-guided walking routes connecting the mill to Cambourne and local villages. There will also be some guided walks
- New interpretation panel at the mill, created in conjunction with local school
- Resource for schools about the mill
- New visitor information leaflet
- Induction guide for mill volunteers.

These resources will be made available on this website, meaning that even if you live on the other side of the world, you can explore the mill. These will all be in place when the mill reopens to visitors in spring 2023. A grand reopening event is planned and more information will follow about this.

Cambridge Past, Present and Future (CPPF) couldn't have done this without everyone who donated to the campaign to save the mill, all the mill volunteers and to our funders National Lottery Heritage Fund, Historic England, The Pilgrim Trust and the SPAB Mills Section.

Thank you very much!

Rachel French
Fundraising Manager Cambridge Past, Present and Future
www.cambridgeppf.org/pages/category/bourn-windmill

Letters to the Editor

Mystery mill

Years ago (1970s) I bought a small watercolour/gouache of a watermill. It would be good to know if it is still in existence and its location.

Could someone identify it perhaps?

It was in a frame with no information or signature on thin buff-coloured paper measuring 9.5 x 7.5 inches.

Since moving to Ireland (1988) I yearn for the brick and tile of vernacular architecture.

Lynne Hoare
Cadamstown, Birr,
Co. Offaly, Ireland

Letters to the Editor – continued

Mills Section November online meeting

Apologies for the delay in replying to you, I was unable to watch the Friday or Saturday events live and have watched them over the past week. So the first thing I would say is how valuable the opportunity to watch the recordings is.

I thoroughly enjoyed both events, particularly the contributions from Geoff, Luke, Tim Whiting and the Millwright Fellows. There was plenty to think about, the issues over sustainability were represented very well.

I concur with the contributors who lamented the lack of education in schools in the craft subjects. In particular, working with metal and wood. My children had very limited access to these subjects during their schooling and studied all of them under the guise "Design and Technology". They attended the same school as I did and having returned for their parents' evenings, etc, I was struck by the disappearance of the metalwork and woodwork classrooms, which have been replaced by the "Design and Technology" classroom. I don't think this engages, nor teaches children, as well as the individual subjects that it attempts to encompass.

I was taught metalwork, woodwork and technical drawing as separate subjects at school. These lessons included the basics of operating both metal and wood lathes, developing hand skills and drawing techniques. One thing that I clearly remember is each member of the metalworking class making a basic polystyrene pattern and sand-casting molten aluminium to make a small dish for our parents.

It was interesting to hear from the Millwright Fellows. The Millwright Fellowship offers an excellent opportunity and raises awareness of the craft.

My congratulations and thanks to you, and all those involved in both events.

Simon Janes, Millwright

All the subjects were great but three stood out to me.

There are two that I think ought to be made generally available – possibly re-edited or represented

One – Tim Whiting and his talk about the loss of craft skill working and especially the great problem of not doing it at school age. Yes, that really speaks to me. I am one of those very lucky people who had a tremendous foundation at a large general factory (they made everything) – Ransomes, Sims and Jefferies in Ipswich. I even probably went to the same college in Ipswich as he did. He speaks from the heart and hopefully that message may sink into the world if it is broadcast enough. (I have a wood saw/planer/thicknesser that came out of a school!)

Two – The other was about working with volunteers and outreach (Heage Windmill?) We take anyone from age eight. We even do 'teddy zip wires' – really making people think about what they could do.

Both these need to be able to be 'found' by anyone who comes across them.

The third is some of what Steve at Impington was saying about good points to make timber last: drainage spaces around fastenings; wood treatments; only linseed oil paint, evils of water-based paint – there was a lot in it. He comes over as a very sound knowledgeable person. Even down to making aluminium foot ways!

Keep up the good work!

William Waddilove

Mill News no longer lists converted mills for sale. Only mills that have significant machinery are featured. A list of all known mills for sale is on our website for members to view: spab.org.uk/members/mills-for-sale

Mill owners: please let the Section know of any change of contact details for your mill, so we can keep our website up to date.

Rebuilding Muston Mill

Muston Mill, a tower windmill situated near Filey on the North Yorkshire coast, was owned by father and son Richard and Edmund Watkinson in the 1930s, along with the farm on which it stood. The farm and mill were subsequently sold out of family ownership but the current Richard Watkinson, nephew of the last family owner, managed to buy the mill back about 10 or so years ago, as a very derelict stump.

Richard asked Thompsons Millwrights if it was possible to put a cap back, to which Tom Davies said "Yes", but then retired. However, things moved on and millwright Adam Marriott was commissioned to make, from scratch, a new cast-iron curb for the restored tower and progress the rebuilding of the cap.

The curb is 14ft in diameter and mounted on a laminated oak ring with 16 tie bars down into pockets in the tower. The photographs show sections of the curb being cast at Boro' Foundry, in Stourbridge. A new windshaft and iron cross to hold the sails have been cast by H. Downs of Sheffield while Adam has built a new fantail and is working on the new cap as supply of materials allows.

The photographs by the Wilkinson family and by Adam Marriott show the rebuilt brick tower, the stages of casting the segments of the curb, the new windshaft and cross and Adam with the new fantail.

A postcard of Mu[n]ston Mill in its working days.
Picture - the Mills Archive.

Painting the restored tower.

Rebuilding Muston Mill – continued

Making the pattern and casting mould for the segments of the curb.

Rebuilding Muston Mill – continued

Pouring molten iron into the mould for the segments of the curb, at Boro' Foundry in Stourbridge; a segment of the raw cast curb; and the cast-iron cross emerging from the sand at H. Downs of Sheffield.

Rebuilding Muston Mill – continued

The new cast-iron windshaft and cross, and the new fantail, at Adam Marriott's workshop.

A Dutch millwright abroad

Willem Dijkstra

During our most complex and intense restoration of Upminster Windmill, we had to end all activities in the UK. However, the skills and experience we gained during our period in the UK supported us to apply for a new visa. Luckily, in September last year, my visa was granted and we could restart to plan our works in the UK. And honestly, I'm pleased that we can help again..

I try to work a lot with Cameron Southcott to teach him some trade skills and he is helping me in future works. We had some unfinished works on order which depended on the work visa. In October 2022, I started to work on several mills in Kent, Surrey and Greater London.

Wray Common, Batts Hill, Reigate

We have made new steel stocks and laminated frames. We have chosen steel stocks and durable Accoya sail frames to make safe and durable sails as they are positioned above playfields and private gardens. We have been using Accoya since 2012 and we're quite enthusiastic about the durability of this material. To make a solid and strong beam we laminate the Accoya, this increases the strength and prevents splitting. Therefore, we use special glue.

The steel stocks have been produced according to the Dutch principles with the aim to reduce weight. They have been hot dip galvanised, cleaned and shot-blasted lightly, followed by an epoxy coat.

The shape and shake of the sail frames are made according to Vincent Pargeter's plans. In comparison to the previous ones, we also made an inner hemlath on the lead side, to keep the authenticity and designs to the old ones. Clamps are also installed to keep the stocks in position although, with steel stocks, they are not needed to strengthen the stocks.

The lovely cold weather and high winds, snow etc. meant that it was quite challenging to get all in position. We still had to clean out the old canister which was also badly out of shape and with the patience of our crane operator we managed to get the sails up.

A Dutch millwright abroad – continued

Herne Mill, Kent County Council

KCC (Luke Bonwick) asked us to add an electric motor on one of the grinding stones. This will give the volunteers the possibility to grind with the mill while there are no sails. Also, due to the limited time of volunteers on the mill, it is easier to grind when there is a lack of wind.

We discovered that the stone was filled with lead, therefore Luke Bonwick asked Dave Howel to remove all the lead fillings in the stone, clean and refreshed the dress on the stones.

While I was working in Reigate, I had some time to measure all the details at Herne, which enabled me to make all parts in our workshop in the Netherlands. Here we have all facilities you need - from big lathes to furniture maker's machinery. Spouts, shafts, motor frames etc. were made at my place.

With Cameron we repositioned and levelled the bedstone; cleaned bearings and square box; and reinstalled the stone spindle and bridgebeam. We removed the stone spindle beam and supports so we could place an electric motor and invertor. I made a new drive shaft from mild steel. In the future all the old parts can be installed back. The speed and start button is installed on the grinding floor and the revolution speed can be altered by digital screen.

Cameron installed a new wooden ring around the bedstone.

We installed a paddle on the runner stone to be sure that the flour is transported to the spout.

We also had to renew the spouts to the grinding floor, where we made a two-way spout in place of the original cotton down-spout.

continued overleaf >>

A Dutch millwright abroad – continued

Upminster Windmill

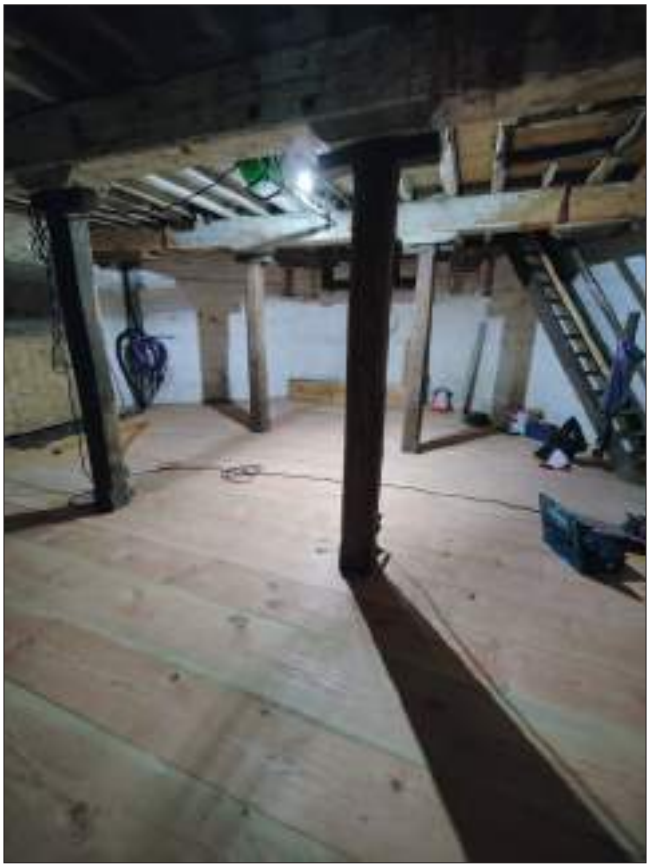
There were some parts we still had to finish on this mill. One of those was to replace the concrete ground floor with a new timber floor. Also, the grinding stones needed to be reinstalled as well as new cogging for the auxiliary drive.

The existing concrete floor has been demolished and soil has been taken out to a new lower level. On the new concrete floor, we installed new floor joists on supports and, on this frame, new Douglas Fir boards with steel tongues. The boards are as wide as possible and are cut off from the corner posts we renewed earlier in 2019.

The cogging on the bevel and crown wheel is made of Holm oak, this makes it possible to run on both gears together. We also used this on the brakewheel and wallower. By renewing the cogging we can make them exactly in the correct pitch again.

We have also renewed the set-up of a pair of grinding stones. The stones, dress etc. were refurbished by Hans Tittulaer our stone maker in the Netherlands. We will fill the stone-tun furniture with a small layer of aircraft ply to get a clean surface without masking the historic wear on the machinery.

All this will be done in March, after which the volunteer team will get the mill ready for reopening in spring.



News from the mills

£249,599 Support for Cromford Mills

We are delighted to announce substantial funding from the National Lottery Heritage Fund and the Duke of Devonshire Charitable Trust which will greatly help the Arkwright Society as it continues to conserve and regenerate Cromford Mills and develop the site as a major visitor attraction in Derbyshire.

Thanks to this generous funding the Society will deliver a number of initiatives to ensure that Cromford Mills becomes an even greater attraction for visitors, local businesses and the wider community and a place that people can enjoy and celebrate its history.

A £249,599 grant from the Heritage Fund, made possible thanks to National Lottery players, will support staff in activities to engage more widely with people through learning and education about our site and our ambitions for its development. Sustainability is also a key theme for the Society, highlighted by the forthcoming installation of a turbine-powered waterwheel in one of the historic wheel pits at Cromford Mills.

Our supporting events programme will create a more diverse and fun experience, whether this is welcoming our four-legged friends at our annual dog show to the increasingly popular and free Adventure Weekend at the end of August and the spectacular Shine A Light Festival in October, celebrating the wonder of this heritage site. Our 'Highlighting Heritage' programme will provide a series of fascinating heritage talks on numerous topics such as Cromford Mills Uncovered to the History of the Derwent Valley line.

Critical to the long-term sustainability of the site is the next phase of regeneration at Cromford Mills, which will focus on the repair and repurposing of the remaining buildings, in particular the iconic 'First Mill' built by Sir Richard Arkwright in 1771. With £20,000 match funding from the Duke of Devonshire Charitable Trust, a refreshed masterplan will be commissioned, with a clear roadmap for the continuing regeneration of the Mills and a business plan for their future use. This work will help the Society make informed decisions as it writes the next exciting chapter of the Cromford Mills story.

Eilis Scott, Chief Executive Officer, said: "The Arkwright Society is immensely grateful for the ongoing support from National Lottery players, The National Lottery Heritage Fund and the Duke of Devonshire Charitable Trust. This funding will help make the Society more resilient and deliver a bright and innovative future. Cromford Mills is a very special place within the Derwent Valley World Heritage Site and we want to continue sharing and celebrating the Mils and their stories with all our visitors and local businesses.

"This funding will give us greater confidence and resource to develop educational activities and plans, particularly for conservation and sustainability, with our local schools and communities; which is at the heart of what the Arkwright Society is all about."

Cromford Mills were built in the 1770s and 1780s by Sir Richard Arkwright and the Arkwright Society has gone from strength to strength since purchasing the industrial heritage site in 1979. The Charity continues to deliver its long-term restoration and economic plans building on those which have produced the multi-use heritage site that can be seen today.

Cromford Mills welcomes visitors seven days a week throughout the year with exciting events, tours, cafes and independent retail shops. Visitors can meet Sir Richard Arkwright in his 'First Mill' and discover the captivating story of how the Derwent Valley shaped the world we know today.

Made possible with Heritage Fund

THE DUKE OF DEVONSHIRE'S CHARITABLE TRUST

A guided tour at Cromford Mills.
Picture – Cromford Mills.

Further progress at Mostert's Mill

Andy Selfe

Mostert's cap is now facing square on towards Cape Town and the traffic coming from that direction.

As soon as the builders started working again, Rob Uphill from Bruce Dundas arranged for the remaining scaffolding to be removed and we could 'wind the cap' to test whether there might be any snags between the stationary wooden curb, made of *eucalyptus paniculata*, the hardest of all the gums and a gift from Rustenberg Wines, and the moving parts of the cap. The capstan winch isn't quite finished yet, so Pilot John and I rigged up the chain-block between the eye in the tailpole and the successive rings set in concrete around the tower. It was hard work, but we worked out a plan where each of us took turns to grab the operating chain and walk backwards as far as the chain allowed, then went to the front and pulled again!

We turned it about 300 degrees and we're happy inside, but there are places where the long braces rub against the tower.

We marked these with chalk and met at midday with architect Long John Wilson-Harris and Rob to discuss this problem.

Further progress at Mostert's Mill – continued

We experimented at the end by applying more tension from the hangers we had assembled last time. First, I tried moving the hanger outwards on the stretcher. That had little effect and looked out-of-place. We then used the chain-block to pull upwards from the hook on the hanger and hooked the shackle in higher up the chain.

This had the effect of pulling the braces away from the tower, now we must 'wind the cap' again (preferably with the capstan) to see if that has cured the problem. Earlier, Straight Jon Stevens from Floorscape, who made the cap frame, was there doing some assembly of the sail bars on the stocks, but that wasn't as easy as we thought.

Johannes Uys from MME, who will do the lifting, also met us on site and we discussed how we will insert the 6.5m windshaft into that small opening at the top, only being able to hang the shaft from the crane towards the outer end. We decided that we will assemble the entire outer sail through the windshaft to add weight to the outside and additionally hang a 'flow-bin' (a 1,000 litre water tank enclosed in metal mesh) to the outer end, and add water until the assembly balances. Then the shaft can be fed in and through the waiting brakewheel in the cap, and on to the two granite bearings (themselves a gift from JA Clift in Paarl).

There was one other job – to refit the fourth 'Klapmuts' we took off and damaged slightly last time.

Jamie is below, keeping an eye on progress as usual and we are making progress!

Further progress at Mostert's Mill – continued

Jon continued to be busy with the sails during the following week. I visited towards the end of January to discuss in detail with Jon how we would go about assembling the sails and fitting the outer one to the windshaft, so that it could assist with the balance when inserting the windshaft into the cap. I also strung up the brakewheel and squared it up in preparation to be in line with the windshaft and so that we would be able to lift or lower it as the shaft goes in. I also used a 12-bore shot gun brush to prime the sockets for the sail bars in the stocks. Pilot John hadn't been able to reach all the way inside with a conventional paint brush.

The following week, (2 February) was a Red Letter Day at Mostert's Mill. Lots of planning had gone into our tasks for the day which were: first to thread the half-assembled sail stock through the outer mortise of the windshaft; and second to work out how much of a spacer to make for under the neck bearing and how to hold it securely in position when the windshaft and sails are craned in. A good team assembled to help Pilot John and me. Straight Jon had been assembling the latticework of the sails these last few days, so he was there with Theo and Khaya. Rob Uphill from Bruce Dundas sent two willing hands and Long John the Architect came to help. Pilot John pressganged Brent who was also a great help.

We set up the tripod with the 3-tonne chain-block to lift the poll end of the windshaft and moved the trestles around for safety so it was always supported in three places. We had to raise the poll end enough so the latticework of the assembled end would clear the ground. Jon made a trolley with a wheel set from me, which we attached close to the balance point.

Using a trick learned from the 1935 restoration, people in pairs on beams threaded through the latticework made work much easier.

Once that was in place, the team could lift the sail assembly and swing it through 90 degrees and we fed the bare end of the sail stock through the mortise with surprisingly little effort.

Almost through, I used another chain-block to pull the stock in. Long John had the honour of pulling the stock in the last bit, till the retaining block was snug against the windshaft.

Further progress at Mostert's Mill – continued

Now Jon and his team can assemble the latticework of the bare end, then the crane can come and lift the assembly into the cap.

The other job was done with a scaffolding pole and a disc I'd made here exactly the same size as the tail bearing, which fitted tightly over the end of the pole. The next photo is looking back along the scaffold pole with the disc at the end which is resting in the tail bearing,

We threaded this up in the tower and out of the neck bearing aperture, then spaced it up, aiming at the original 10 degrees of tilt backwards.

We found that at 10 degrees the neck bearing would be too high in the aperture, so we had to settle for eight degrees. This will bring the sails closer to the tower... hold thumbs! Jon now has plenty of homework to make spacers with a two-degree taper front and back, so that the bearings make full contact.

While the pole was in place we lifted the brakewheel off its chocks and lowered it so that the pole passed through the middle, and checked for clearance between it and the sheers, for the brake linkages. No problems.

We didn't wedge the sail stock firmly in the mortise at this stage, so it will allow Jon a bit of flexibility while assembling the other latticework, besides which Pilot John was busy priming them today; they will need undercoat and black paint.

So this is how we left it – in fact Jon's guys had already applied a coat of pink wood primer.

Obituary

Derek Ogden c1933-2023

Millwright and member of the Section since 1948

Having had a close relationship with Derek and his wife Joan, I can confidently say he loved his work as a millwright. We often spoke of mills he had repaired and how he got started in millwrighting.

Here is one of his many emails he sent me after moving back to the UK from America.

Mildred

Derek Ogden in the late 1990s at Flowerdew Hundred Mill in Virginia, USA.
Picture – Steve Bashore.

"Seems such a lovely day here, both weather wise and Chesterton mill wise, I am happy to give you a few details of how I got started as a millwright.

I saw my first windmill in south Birmingham (Trittiford Windmill) in 1945 just at the end of WWII and it spurred my interest in finding a few more of those beautiful machines. Being an avid cyclist, I coaxed my old bike as far as Tysoe in Warwickshire and had my first glimpse of Compton Wynyates, which I still regard as the most beautiful house in England. In 1949 I bought a new Triumph motorcycle and took my grandfather with me to look at Tysoe Windmill. He immediately fell in love with it and was sad it was so neglected and the obvious target of vandals, he asked me if we might help repair it together. It was then we discovered it belonged to the Marquess of Northampton and we needed his permission before we could do anything. We walked down the long hill to the house and my grandfather knocked on an important looking door. Cannot remember who came to see us but he said he would ask his Lordship when he next arrived. In due course permission was received and we began the simple work of cleaning the inside of windmill and making it more secure. We looked after it until 1952 when I had to spend three years in the Army.

Our work must have caught the attention of Monica Dance because I soon received information from her to get in touch with Rex Wailes and also join SPAB. It was through Rex that I made my first visit to Chesterton Windmill in 1950 as he was undertaking some work for the then owner, Lord Willoughby de Broke. I had taken the precaution of visiting Chesterton Windmill before I met the 'great man' as I did not wish to arrive with him and know nothing about it. Yes, it was impressive, quite beautiful and with a magnificent setting but could never quite be like Tysoe windmill and Compton Wynyates.

In 1947 I began a four-year Student Apprenticeship with General Electric Company in Witton, Birmingham and was provided with a good training which would be of enormous help in later life. During Army service I had the good luck to spend over two years at the School of Military Engineering in Chatham and there was an instructor in engineering and occasionally ran a good-sized power station just because they knew I had spent some months of my apprenticeship working in power stations for GEC. After leaving the Army I returned to GEC for a few years and was involved in Price Fixing with several other large European Electrical companies but by 1961 was finding it quite difficult to spare any time to go to work because of my wind and watermill activities for SPAB. This problem was solved for me by Jack Crabtree who suggested that I should repair Sarehole Watermill in Birmingham for the City of Birmingham who reluctantly owned it. So, in about 1965 I became a professional millwright.

I never had any fears at all of being short of work or failing in my profession because no sooner had I started repairs to Sarehole Mill I was approached by many other mill owners to help them. To provide me with a good working base and workshop I bought Great Alne Mill, near Alcester in 1967 and realised there could be no going back. The only sad part of my

Derek Ogden c1933-2023 – continued

work was there was never the money available then as there is now, so most of my work was of a 'holding nature', apart from a few exceptions. Like when I was in London to attend an SPAB meeting, a man approached me in Southampton Row and asked if I was Mr. Ogden and could I build him a windmill! I told him 'No I could not build him a windmill today' but I will visit him in a few weeks time. And so began another friendship with Norman Stoat of Cann Mills, Dorset. There were many others too complex or amusing to mention here.

It was in 1973 I received a telephone call from the USA asking if I could meet a David Harrison who owned Flowerdew Hundred Plantation in Virginia. Another very long boring story but culminating in my going to America in 1974 to commence building an English Post windmill.

Looking back I should have been better to refuse but here I am and none the worse for it. But I do miss the English weather and Chesterton windmill but most of all Tysoe windmill and Compton Wynyates. I shall return there in the not-too-distant future. [Which he did.]

Hope all this makes some sense Mildred. Please feel absolutely free to axe whatever you wish and I wish you luck with sorting my files and drawings which have given me such pleasure over the last several decades. Oh! and I am still a British citizen and never became an American – no way!

Best wishes ...

Derek

Kibworth was one of those jobs which Monica imposed upon me while I was doing something else, Lothersdale I think or maybe Woodbridge. Whatever it was I remember we had to work very hard to get it done and back to the other job as I hated being away for even a few days in case the owners thought I was a millwrong.

Harcourt Postmill. The slides were taken in 1972 and there are 15 altogether, mostly of the new stock and common sails we built for Brian Briggs. I do remember he was downright fed up with Monica and SPAB who were dithering about not knowing what to make of it all. I think Monica sent me because she must have known I would be diplomatic but stand no nonsense from Briggs. He was always fine with me and we got on well together. I made a few visits later and even after I came to US and he was always friendly with me. I cannot imagine it is Brian Briggs you are now dealing with as I think he was older than me.

The spring sails were only frames and never had any sort of operating gear.

I also had to make a new weather beam as the old one was rotten and would not support us let alone the sails. Plus several other items as well, but the details will probably be in the work file."

Dear Mildred,

I was going to send the attached to you last night but the size was much too large. I could not remember how to reduce it until this morning – so here it is. Great Alne Mill some time in 1970s at time of SPAB Mills Section visit. I know Vincent was there and a few others with him and you can see Harry Dance on left plus a few others but I cannot remember their names. Cannot see Monica but perhaps in the house drinking tea. It all looks just as a mill should, with none of the trappings seen on so many restored mills today. Just as bad here, if not worse than in UK. If the mill got a coat of new paint it was unusual as the money was needed to keep machinery repaired and running. You will know it all, but few will agree with us.

Obituary

David H. Jones 1926-2023

Longstanding member of the Section since 1953

David: a lifetime interest in mills

David H. Jones was born in South Kensington, within walking distance of the Science Museum. Claiming to have always been interested in machines of every kind, later in life David read all that he could to find out how things worked. Although intrigued by watermills and windmills, mills were for some time just one of many types of machines David was interested in.

David Jones at the 2019 TIMS Symposium in Berlin. Picture – Charles Yeske.

Yet David's curiosity in mills persisted, with a series of anonymous magazine articles on watermills, windmills and tide mills catching his interest. Alas all the examples mentioned were out of his reach. This was until, as luck would have it, a family holiday included a day at Emsworth, West Sussex. After taking off on his own in search of tide mills, David recalls that Slipper Mill was the first mill he ever saw.

Given these early interests, a career in engineering seemed inevitable for David. He went into electronics, eventually becoming a design engineer.

After the war David became interested in cinema and decided that Slipper Mill would make a good subject for a film. On visiting, he was made welcome and started work. Yet no sooner than the very early stages of the project, the mill stopped working. Unperturbed and determined to produce the film, even if it meant visiting a mill at another location for the interior shots, David enquired at Emsworth about nearby working watermills. Pointed in the direction of Terwick Mill, plans changed, as David decided this mill was in its own right an excellent subject for a film.

In 1953 David contacted the Society for the Protection of Ancient Buildings (SPAB) to offer his services to the cause. Very soon after, he began a survey of the watermills of Hertfordshire, although he never finished recording the mills of the northern part of the county. It was after discovering Anders Jespersen's booklet *Gearing in Watermills* that David came to appreciate how much understanding could be gained about mills and milling from gathering sufficient information about particular mills and plotting them on a map. He was also astonished by some of the watermills shown in the booklet, which were unlike any he had ever seen. They were overdriven, which David could understood made sense in a windmill, but could see no reason for in a watermill.

David's interest was well and truly sparked, he felt he had to see these strange mills for himself. He began learning Danish and the following summer took a train to Odense to begin his journey of discovery. Here he saw a number of mills, ending the trip with a visit to Jespersen, which marked the start of an enduring friendship.

On returning home David began searching for the extension of his distribution pattern but met with little success. Realising that local studies of mills could not answer the bigger questions he had in mind, David saw the need for a national survey of mills and decided to produce one! He recognised that it was impossible for one person working in his spare time to see more than a small fraction of the surviving mills, but felt that a sampling survey would be sufficiently extensive to answer some general questions and was within his capacity.

Soon he discovered that seeing about 10 mills in a small area was enough to isolate the special cases and reveal local patterns. Areas were chosen at random as opportunities arose. For several years David continued to search for gearing patterns. Instead of patterns David discovered great variety, including other features of mills which called for explanation such as the number of floors, their uses and why floors in some mills had split levels.

In 1958 David made his first visit to Wales and discovered the features of Welsh mills yet again radically differed. Yet from these differences and with his growing experience, David saw a basic national pattern forming. But he still had

to prove it! Over the next 10 years David gathered much more material. Although still lacking data from some areas, David felt the evidence he had gathered was sufficient to support the pattern he had found and to risk publication.

Thirty years later, after much further recording by himself and others, the regional pattern David proposed still stands up to scrutiny. To his great relief Devon and Cornwall are the only regions for which the pattern requires any revision.

David's passion for mills later led him to follow another line in France, discovering French mills with lifting waterwheels that could be adapted to extreme changes in water levels. This line of enquiry led him to other designs in Germany.

An episode from his interest in moulins-pendant, entertainingly recounted by David, illustrates the hazards of exploring mills by boat.

Kimberley Neate
on behalf of the Mills Archive

David: a tribute

When I joined the SPAB Mills Section in 1982, David Jones was already one of the major figures in mill research, and his contribution is probably far greater than has been recognised so far. Born in 1926, he started serious research into mills in 1953 and contributed a massive 54-page "preliminary account" of watermills in England and Wales to the second TIMS symposium in 1969, drawing significantly on his own research to show an analysis of regional trends. He pioneered the study of mills at a time when the researcher could still ask questions of the last miller, and lived well into the age when the mill owner would ask questions of the researcher. Some of his work took a long time to reach completion; a film of Belbroughton scythe mill, filmed in difficult conditions in 1955, did not get completed until 1993.

He was working as a college lecturer when I first met him, and his talks on mills showed the amount of thought he put into the details – but often with the result that his visual aids would go wrong, as with a memorable attempt to demonstrate gear teeth shapes using cut-out acetates, string and a pencil on an overhead projector. Sometimes inaudible and frequently running over the scheduled time, his talks must have been the bane of the chair of many meetings, but the content in his talks and published papers demonstrates his dedication to asking questions nobody else had thought of. A glance at the topics in his papers for the Mills Research Group, of which he was a founder member, showed his breadth of interest from the mathematical analysis of tidal flow to the superstitions behind carved meal spouts. His last published paper for the MRG gives a number of these "unanswered questions". He particularly wanted to see a full analysis of running millstones, which he proposed in 1985, a good three decades before the technology became small and robust enough to make the study possible in a mill rather than a laboratory. It was probably through the research of David Jones that most of us first heard of the lifting waterwheels of France and the very different ones in Germany.

David Jones was interested in almost everything. Occasionally he would phone me to ask for an opinion on some obscure subject, usually quite late in the evening, and I would know that the call was likely to last at least an hour. Once I called him to find he had been dismantling a photocopier to extract the gearwheels in case they were useful. On tours or at meetings he would randomly reveal his knowledge of some hitherto unsuspected subject such as locomotive valve gear. I remember a long conversation in a car park after a gathering of the MRG where he wanted to explain some gadget he had found decades previously in a cupboard at (I think) the Dollis Hill research establishment which he suspected to have been a previously undocumented encryption device.

He revealed that he had once attended a meeting in Wales to discover on arriving that every single delegate was called David Jones, and they had to use Jones-the-baker type nicknames to make the meeting possible. While his name may not have been unique, David Jones certainly made a unique and extremely important contribution to the study of milling, not just in England and Wales, but across the continent, and played a pioneering role in establishing the discipline of mill studies. He deserves our appreciation.

Duncan Breckles

David: some happy memories

I am sure many of us have personal memories of David, a couple of mine are his interest in flat wooden flour scoops, similar to an artists palette. David discovered these in Wales and later I was pleased to show him several during the TIMS symposium in Portugal.

One everlasting memory is of our day meetings in London when he always wanted to do his presentation using an 'overhead projector'. On some occasions he brought his own along. Other times we spent quite some time sourcing one!

Mildred


E & HINDLEY
1875
BOURTON DORSET