

TIMS E-NEWS

The International Molinological Society

Spring/ Summer 2014

Issue 16

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INTRO BY OUR PRESIDENT

Dear TIMS Members and Mill Friends,

Have you ever visited the island of Saaremaa in Estonia? Well, there now is a good reason to go there. In the village of Leedri the postmill of the Anetsi farm was restored. Our member Mihkel Koppel describes in a very interesting article in the newsletter how it all happened.

Next year, from the 6th till the 14th of June, the TIMS Symposium in Sibiu in Romania will take place. The venue will be the congress center of the Astra museum. The museum itself has about 70 mills (a.o. water-, wind-, and boat mills). A mill tour prior to the symposium will take us to the south-west of Romania, and after the symposium another tour to the north of Romania and the eastern part of Hungary.

I would like to call on all TIMS members and others to present their molinological research as a formal paper and/or as an informal, short contribution. Papers on all molinological topics are welcome.

Please keep an eye on our website and the next edition of our magazin "International Molinology" for the latest information on the symposium.

Not a member of TIMS yet? Well, it is easy to enroll, just complete the [on-line application form](#)..... as a member you will receive twice a year our magazin „International Molinology“ as well as all new issues of our "Bibliotheca Molinologica" series.

Do you want to be active inside TIMS? Just let us know by writing a short e-mail to me or Tarcis, our secretary (e-mail: tims-secretary@molinology.org).

Enjoy reading the E-News !!

Willem van Bergen

e-mail: wdvb@gmx.de

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NATIONAL MILL DAYS

FRANCE

1. Les Journées des moulins: Friday, 13-15 June.
2. Journéesmoulins et du patrimoine meulier: 17 & 18 May.

GERMANY

Deutschen Mühlentag: Monday, 9 June.

PORTUGAL

MoinhosAbertos: 5 & 6 April.



SCHWITZERLAND

Schweizer Mühlentag, Journée Suisse des Moulins, Giornata SvizzeradeiMulini: 31 May 2014



THE NETHERLANDS

NationaleMolendag: Saturday, 10 May & Sunday, 11 May.

THE TIMS BOOKSHOP

Our bookshop and more... you can find it [here](#):

For more than two years the Mills Archive in the UK has managed the TIMS Bookshop on our behalf. In that time we have raised hundred of pounds by selling our publications not only to members, but also to the general public around the world. The bookshop (below) is on the Internet at: <http://shop.millsarchiverust.org/home.php?cat=27>

THE NEXT ISSUE OF INTERNATIONAL MOLINOLOGY (IM)

IM88 – Article Summaries

Report on the TIMS Mid-term Tour of Greece, 2013

This mill tour started when approximately 50 TIMS members gathered in Piraeus for dinner on 5th October last. The first section of the tour was to the Peloponnese region looking at windmills, horizontal watermills and the water power museum at Dimitsana. Returning over the Corinth Canal the next stage of the tour was by ferry to spend three nights on the island of Andros where the delights of horizontal windmills and many ruined mills were visited (some by swimming!). On return to the mainland, the remains of the Roman mill at the Agora in Athens caused much discussion before going to the town of Livadia to view some industrial mills with overshot waterwheels and turbines used in the production of cotton. This report has been produced by various members that took part in the tour and is illustrated with their photographs.

Watermills in the Dodecanese Islands by Ioulia K. Papaefthiou

This article is based on the on-going research into the watermills of the larger islands of Rhodes, Karpathos and Kos. Almost all these watermills used

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horizontal waterwheels with their associated aqueducts and mill races, drop towers and gathering ponds which are illustrated by the author's photographs. The ruinous state of these mills makes the restoration of these mills to production not feasible but suggests that the restoration of specific mills can play apart in the tourist industry of the islands with the creation of mill trails. It is further concluded that there is a future for restoration to provide small scale renewable energy plants.

Flax Mills in Penafiel, North-West Portugal by Teresa Soeiro & Ana Dolores Leal Anileiro

The traditional production of flax and the introduction of flax breakers in Portugal is discussed and the construction and operation of the actual flax machines is analysed. The motive forces used to drive these flax mills using various designs of animal powered mechanism are described and shown in photographs and drawings, as are those powered by water. Finally the architecture of various styles of mill buildings is also illustrated. As the remains of this traditional industry are fast disappearing the article concludes with a plea for the conservation of those elements that still remain.

The Sugar Mills of Martinique by Vincent Huyghues-Belrose

The remains of sugar industry on Martinique are largely ignored by the population because of their connection with slavery in the past. The development of sugar mills in colonial times, under both French and perhaps surprisingly British influence is expounded and the basic operation of a sugar mill is explained. To raise awareness to the plight of these remains the author suggests that they could play a role in education, possibly in the teaching of technical subjects as well as environmental studies. This article is illustrated with old photographs and prints of the sugar industry in the West Indies.

E-NEWS - OLD VERSIONS /PRINTABLE VERSIONS

[Click here](#) to download Past e-newsletters AND PRINTABLE VERSIONS (without the blue band at the left).

2014 MEMBERSHIPS

Membership dues can be found [here](#).

Payments can be made to your country's representative or the TIMS treasurer. Click [here](#) to find your representative.

TIMS PRESENTATION

Do you want to learn more about TIMS? Do you have an organization or group of interested Molinologists?

Click [here](#) for our new presentation of TIMS. Please show to as many people as possible. Thanks to our TIMS president for putting this together. Help spread the news!



NEWS FROM AROUND THE WORLD

CANADA

SHARING THE PAST: A SYMPOSIUM ON PUBLIC ARCHAEOLOGY

We received information for a symposium held on March 20-21, 2014 at Saint Mary's University, Halifax, Nova Scotia, on a topic very relevant to the study of mills. So for those interested to seek more information these were the following speakers and their subjects:

1. Tim Schadla-Hall (University College London and Editor, Public Archaeology) Defining Public Archaeology.

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2. Dr. Jonathan Fowler (Saint Mary's University)
Research, Education, and Resource Management: Why Nova Scotia Needs Public Archaeology.
3. Charles Burke (Senior Archaeologist, Parks Canada)
Public Archaeology in a Contested Landscape.
4. Dr. Helen Kristmanson (Director, Aboriginal Affairs and Archaeology, Government of PEI)
Public Archaeology in Prince Edward Island.
5. Sara Beanlands (Boreas Heritage Consulting Inc.)
Other Voices, Other Views: Emerging Themes in Public Archaeology.
6. Karolyn Smartz-Frost (Harrison McCain Visiting Professor at Acadia University)
Digging for the Promised Land: Public Archaeology and the Underground Railroad in Canada.
7. Rebecca Dunham (Fortress of Louisbourg National Historic Site, Parks Canada Agency)
Mutual Benefits in Public Archaeology.

FRANCE

Bulletin Information
Issue N° 4—December 2013

www.moleriae.eu
contact@moleriae.eu

Dates to remember:

May 15 -17, 2014, Symposium "The grain mills from the Neolithic to the year one thousand" University of Reims Champagne-Ardenne Faculty of Arts and Humanities (Red Cross Campus), 57, rue Pierre Taittinger, 51096 Reims Cedex.

May 17 -18, 2014, Twentieth Mill Days: Days exclusively on mills, mill stone quarries, norias and wind turbines.

2015: European Year of Industrial Heritage, April 25, 2015, Second National Forum on operating Mills in Brittany, during the annual FDMF Congress.

-Andrée Fassbind, Honorary Moleriae Member, passed away November 8, 2013. Descendant of a family of mill stones manufacturers since the 16th century. She helped with her contribution this industry.

See her Interviews taken by the association " les Mains bleues "

<http://www.youtube.com/watch?v=JaU9HQylbXc&feature=youtu.be&hd=1>

<http://www.youtube.com/watch?v=K8r>



-Discovery: In Béarn, close to Oloron, a millstone at the foot of the Escou Cross.

On the road crests over Escou a millstone adorning the foot of a huge cross, may intrigue the visitor. This cross is not without history, it is the work of a priest, Father Joseph Camblong, pastor at Escou in 1929. Like any priest, Father Camblong had in his service a faithful housekeeper who fell seriously ill. The pastor decided a trip to Lourdes. The housekeeper was miraculously cured on February 11, 1939. Thanking God the priest decided to build a cross. He erected a monument, 15 meters high. The cross is hollow and has a staircase reaching to the top. At first it was built in a different location and bore no inscription. In 1971, the land where the monument was build became private property. The owner did not care about this cross. Dynamite threatened the reinforced concrete structure. In 1976, Father getting ready to celebrate his jubilee and the church elders asked him how they could mark the event. The priest said he wanted to move the cross. The mobilization of several good volunteers allowed the movement of the cross,



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which was founded on the site of an ancient dolmen (there is no evidence that this is a dolmen!). On this occasion the priest decorated the old baptismal church cross, he added an old mill stone and a plow on each side and the following inscriptions: "Dying = Maxi Proof of Love" and the 4 V's Victoire, Voie, Vie, Vérité (Victory, Path, Life, Truth).

<http://biarn-toustem.blogspot.fr>

- In November: official opening of the stone trail in the mill stone quarry of Saint-Julien Grindstone, town of Livinière (Hérault).

It is a dozen of years ago that Michel Sicard, Professor at the Paul Sabatier



University in Toulouse and vice -president of the Federation of Moulins de France at the time, discovered on the geological map the existence of a mill stone quarry at St Julien les Molière. He found the site exceptional since there were mill stones in situ with no vegetation, unlike many abandoned quarries, so that could make a tourist place. In addition, the

mineralogical analysis has demonstrated that these layers of quartz crystals in a hard limestone cement. Because of this rare situation, he met Monsieur Pédesseau Mayor La Livinière and agreed to try to develop this site.

(Michel Sicard).

- Stone quarries and archeology in the Bassin de la Charente: <http://pierre-et-carrieres.fr/carriere.php?id=48>

Geosciences and archeology Pays d'Oc: <http://geosciencesetarcheologieen-paysdoc.midiblogs.com/archive/2009/11/11/carrieres-de-meules-a-saint-julien-de-meulieres.html>

- Two large mill stone quarries: Saint-Crepin de Richemont in Dordogne and in Claix Rouillet-Saint-Estèphe (Charente). Visit by F.Boyer geologist and principles of scientific collaboration.

As part of a collaboration with a geologist, with long experience on old mill stones and their quarries, Moleriae promoted a renewed scientific contact with municipalities whose territory contains mill stone quarries having regional significance and a life span of many centuries. A first contact was made locally by François Boyer in November 2013 in two sites and with major excavations in Saint- Crepin de Richemont in



Dordogne and Claix and Rouillet Saint Estephe in Charente.

A memorandum written by F.Boyer, embodies a particular concept, that of the "lithohistory" for both the millstone of Saint-Crepin than that of Claix and Rouillet. Any millstone is the result of a natural lithohistory (geological) followed by human lithohistory (anthropogenic) and the link between the two lies in the technical specifications of the mill stone and its quarry, recognized by the user, but long before it acquired during the long and complex geological history of the rock later used by man. (F. Boyer).

- Blue Hands (les Mains Bleues) Association, Association for the preservation, valorisation and promotion of the heritage of the millstones of Ferte-sous-Jouarre.

This association, founded in 2002, published its first newsletter "The Daily Meuliers" (Le journal des Meuliers). Its website: www.assomainsbleues.pagesperso-orange.fr.



GREECE

The watermills of Malliondas valley, at Mesotopos , island of Lesbos, and the dream of restoring the Katahanas watermill, by Fotis Vasiloglou.



Malliondas valley

In the treeless, volcanic SW Lesbos, on the road to Eressos, descending from Mesotopos village towards the bridge of Malliondas stream, the visitor can see for the first time, the spectacular view of the entire Malliondas valley. From the last road bend and especially from Koukouli, the view is revealing. The stream bed unfolds like a green carpet between the dry mountains.

The Malliondas valley is a complete ecosystem and a well-balanced small habitat. Approaching, one can see the stream bed with tall plane trees, a series of cultivated fields near the stream banks with poplars and fruit trees (black cherries, quince, apricot, peach and others) along with gardens planted with the famous local green beans and okra. Just a little beyond, olive groves spread up the lower hill slopes. Farther up, from the strip of this fertile land, the landscape is dominated by rocks and low vegetation. Still higher up, the rocky foothills of the mountains dominate. Here one can find the “sitta europea”, characteristic bird to this area, locally called “lagitis” (flagon) because their nest looks like a flagon, and sheep sheltered under rocky crevices, being the main livelihood for many local residents.

A good observer can still discern some buildings, although their construction, consisting of rough stone masonry and tiles, blends into the surroundings, very characteristic to the landscape, where the bright green contrasts with the surrounding brown of the mountains. To a visitor, the challenge is without a doubt great, as long as one is aware that there is a small paradise waiting with its doors open.

The stream springs are high up the valley, approximately 2,750 m from the bridge, next to the church of St. Constantine. The water flowed down the stream freely throughout the year. So they built a dam to collect the water and a water channel, parallel to the western bank of the stream, to guide the water downstream to the mills. This channel carved into the volcanic rock



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or built with upright stones is still to be found in place. Vertical channels to the central one guided the water towards the stream bank, where the water mills were built. In the 19th century, local residents made plans to exploit the energy potential produced by falling water. At that time 12 mills were built in Malliontas valley. The abundant water still maintains a lush vegetation of plane trees with a diverse fauna of insects, reptiles and amphibians of a great interest to the die-hard hiker.

The water mills used to grind wheat and barley from the fields in the surrounding mountains until the time when the mills were driven by steam engines and later diesel ones. It seems, in the old times, even people from Eressos (with three water mills at Korasa) and Agra (two water mills), both villages further away, brought their grain to Malliondas.

It is known that during the German occupation in WWII, due to the lack of diesel in the Aegean, several water mills started operating as before, producing the necessary flour for daily bread. The mills were closed down during the civil war (1946-49), since they were accused of supplying the rebels operating in the surrounding mountains.

The Watermill restoration project



The Katahanas Watermill as it is today

Ten years ago, at the annual meeting of the “Renaissance” Association, the idea for restoring one Malliondas watermill was put forward. The specific watermill is located 110 meters upstream from the Malliondas bridge and was donated for this purpose by the owner, John Katahanas. The restoration includes the main house, two stables, the water tower and the surrounding grounds.

Over the years, this Association has funded the effort to formulate the proposal and along with the Malliondas Cultural Group of Mesotopos, prepared with the help by experts, a study of restoration and valorization of the Katahanas watermill, along with a project to protect and preserve the Malliondas area rural heritage. Today, the effort has matured and the proposal seeks funding from individuals, foundations and it is ready for submission to the NSRF in a bid for project financing. The renovation includes the main house, two stables, the water tower and surrounding property.

A) The main building:

It is the main operating area of the mill with internal dimensions of 10.50m x 4m . The space was divided functionally into two parts. On the left side entering the building, was the main area of the mill, the grinding mechanism; on the right, the living quarters for the miller and his

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assistant. The mill operated 24 hours a day and the two areas were separated by a curtain.

The building had a gabled roof covered with Byzantine tiles. According to the last miller, Artemis Katahanas, the living area had a fireplace probably buried in the rubble opposite the entrance door.

B) Two stables:

The first one has internal dimensions of 2.75m x 4m, and a gabled roof with tiles, while the second one has internal dimensions of 2.30m x 2.75m and a pitched roof with tiles.

C) The water tower:

The tower is preserved because the construction was done using “kourasani” (strong mortar). The same technique was used for all the other mills, while the construction of the channel, made with rough stones for the foundations and flat stones for the upper part, has suffered serious damage.

The surrounding area consists of a small courtyard in front of the mill entrance. The courtyard was originally larger, arranged in two levels. The lower level has been destroyed due to erosion.

The channel exit, placed on the east side of the mill, has also survived.

On the north side of the property is the old Community country road (a stone path) used for the transportation of flour (to Mesotopos , Eresos etc). It joins the main road on the north-south axis and served the other mills.

Restoration of the Katahanas watermill

The main building of the mill will consist of two separated areas (as previously). The left area will revert to its previous state. The main item of interest will be the reconstructed mechanism, which can operate during visits. Next to the mill, tools will be placed (scales, shovels, etc), one or two spare millstones and sacks of flour and wheat, drawings and other items to be found, all



relevant to the cycle of flour production, texts and photographs to explain the principles of operation of the device, giving to the visitor information on historical and technical details of its construction. The area to the right with the fireplace will be furnished with the kind of furniture existing in the mills at that time (a wooden bed, stools made of tree trunks, etc.). Signs on the walls will provide the visitor with information concerning the social fabric for the Malliondas mills (people, buildings, machines, channels, production, economic and historical data, etc.).

The large stable will be converted into a storage area, with a fridge, a sink and cabinets for storing small items and beverages. Toilets will be installed in the small low stable.

The Katahanas mill will receive visitors especially during the summer. Therefore, the landscaping is of particular importance. The aim is to enable the mill to welcome visitors coming in small groups (5-6 people) or in larger groups, such as visitors coming by bus (30-40 people). Two pedestrian accesses will be built in the mill courtyard: one on the south side, from the main community road from the bridge, and the other from the community road passing by the mill to the north. The access from the northeast requires a crossing over the streambed or the construction of a footbridge. Vehicles will be parked along the tarmac road, within walking distance.

The courtyard in front of the mill will be laid out on two levels and will be covered with stone slabs. The key support elements will be fully restored, while a stone staircase will be built for a more comfortable access from one level to the other. At both levels, in the shade of plane trees and near the cool stream waters, visitors will be able to enjoy warm care by the miller (the person responsible for the site).

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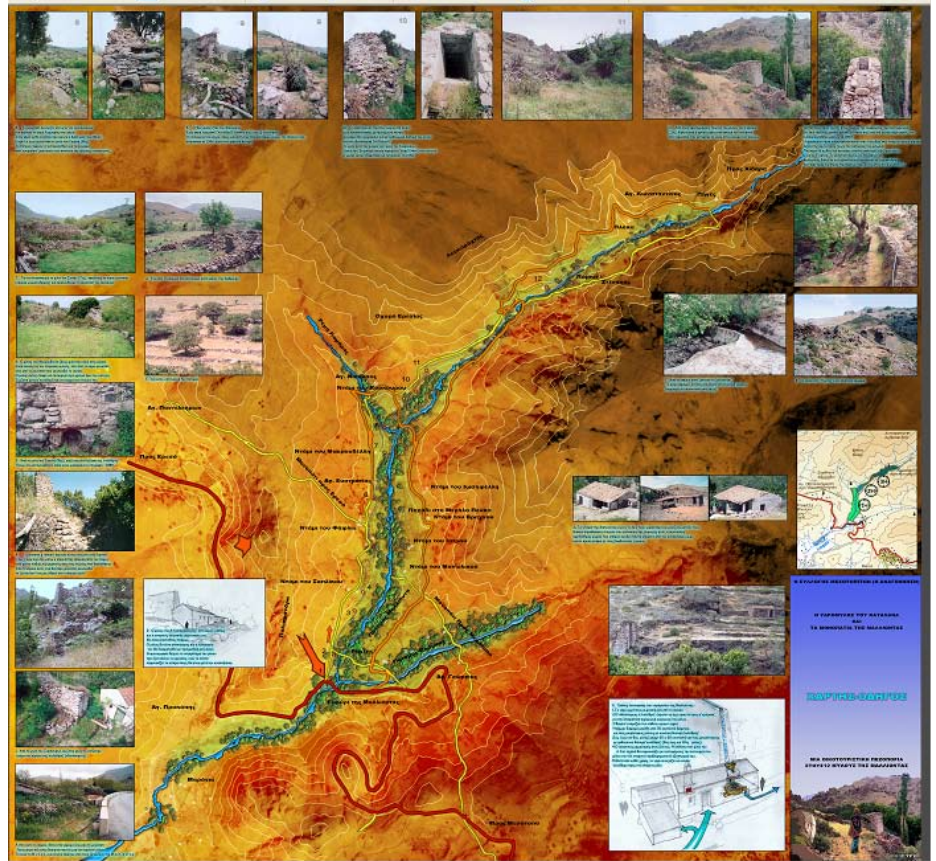
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The remaining empty space to the south belonging to the mill will be also landscaped. This space in future could host several outdoor events, both cultural and recreational, such as workshops, educational programmes, summer meetings of clubs, small celebrations, etc. Plans have been made for the restoration of benches, building new benches, pergolas and why not a traditional oven (last step in the production of bread). Suitable vegetation (mainly fruit trees and poplars) will be planted to have the necessary shade. The dry stone fencing will be also restored.

The contribution of the watermill to the area's sustainable tourist development.



The map of the area with the watermills

“The restoration and valorization of the Katahanas watermill” is a major task for the sustainable tourist development of the Malliondas and Mesotopos. The Malliondas valley and the 12 mills have the necessary physical and cultural elements which could be one of the main attractions for the Mesotopos area development. The beauty of the place, the ecological and historical significance, the importance for all the old watermills and their water channels, the good opportunities for hiking and the easy accessibility offer advantages for the sustainable exploitation with great advantages for this the region. It is undeniable that the restoration of the Katahanas watermill and its surrounding area is an important step in the overall development plan of the Mesotopos-Eressos area. The Katahanas watermill can play the role of a showcase for the surrounding valley, inviting visitors to discover the wealth of the valley, its products, participation in various cultural activities, recreation, etc., thus supporting sustainable development for the region.

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A snapshot from the past, in the background a ruined watermill (left side).

The beauty of the place, the ecological and historical significance, the importance for all the old watermills and their water channels, the good opportunities for hiking and the easy accessibility offer advantages for the sustainable exploitation with great advantages for this the region. It is undeniable that the restoration of the Katahanas watermill and its surrounding area is an important step in the overall development plan of the Mesotopos-Eressos area. The Katahanas watermill can play the role of a showcase for the surrounding valley, inviting visitors to discover the wealth of the valley, its products, participation in various cultural activities, recreation, etc., thus supporting sustainable development for the region.

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«Νερόμυλος Καταχανά», Σύλλογος Μεσοτοπιτών Λέσβου «η Αναγέννηση» Πολιτιστικός Εξωραϊστικός Μορφωτικός Όμιλος «Μαλλιόντα», Αθήνα, Ιούλιος 2005.

(Study by RCL-Rossieut –Haralampidou-Laskaridis and associates, “The Katahanas watermill”, Association of Mesotopitans of Lesbos “The Renaissance”- Malliondas Cultural Group, Athens July 2005.)

- Αξιότης Μάκης, «Ο Μαλλιόντας και οι υδρόμυλοι», περιοδικό «Μεσότοπος-Παράδοση-Πολιτισμός», Σύλλογος Μεσοτοπιτών Λέσβου «η Αναγέννηση», Αθήνα, Δεκέμβριος 1999 (Axiotis Makis, Malliondas stream and the watermills, “Mesotopos-Tradition-Culture” magazine, Association of Mesotopitans of Lesbos “The Renaissance”, Athens, December 1999.)



SPAIN



PRESENTATION OF CONGRESS

Murcia, 9, 10 and 11 of May 2014

The International Congress of Molinology is the national leader in the study of mills, and has accumulated a significant knowledge in the two decades of ACEM operation throughout Spain.

HUERMUR, the Association for the Conservation of the Huerta de Murcia, organized along with ACEM the 9th International Congress of Molinology, focusing on the ethnographic heritage of the Huerta de Murcia.

The Congress is open to all persons and entities interested in traditional mills. The conference will consist of four study areas :

- 1) History, inventory and protection
- 2) Anthropology and intangible heritage
- 3) Architecture and landscape restoration
- 4) Engineering and energy resources.

Parallel activities to the congress are:

- “Mills River Area - Stables” guided tour.
- Walking the hydraulic heritage of Aljufia Acequia .
- Visit to exhibitions organized for the congress.

Parallel - Activities for companions, visiting Cartagena and Lorca.

INFORMATION AND REGISTRATION : www.molinologia.es
congreso@molinologia.es



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UK

Hampshire Mills Group Newsletter

No.103 Winter 2013

www.hampshiremills.org



- Minutes of the Annual General Meeting of Hampshire Mills Group held at Whitchurch Silk Mill on 13th September 2013.

After the Annual HMG business discussion the status of the following mills was presented: Eling Tide Mill, Island Mill, Headley Mill, Bursledon Windmill, Whitchurch Silk Mill, Hockley Mill and Alderholt Mill.

- Romancing the (Mill) Stone



The Ashlett Tide Mill millstone was recovered from its garden resting place and transported back to its rightful place at the mill.

- Take a Peek at Peak Stones in the Peak District
The Ashlett Tide Mill's stones may have come from the Peak District in Derbyshire and here, from an article by Professor Alan McEwen on the internet, is a little about them. <http://www.sledgehammerengineeringpress.co.uk/pdf/Seeking-Millstone-Curiosities.pdf>



Alan McEwen stands at the mouth of the 'Deep Hole' and two huge millstones near the 'Delph Hole' © Alan McEwen Industrial Heritage Collection.



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- News on Eling Tide Mill by David Plunkett



Eling Tide Mill



Looking down on the new pit wheel in situ.

- Mills Archive Research Award Competition:

The Competition is going on with two prizes: The Mills Archive Research Prize of £500 is for a major piece of research of about 25,000 words. The winning entry will be presented as a stand-alone individual edition, published by the Mills Archive Trust; The Mills Archive Research Award of £50 is for shorter research communications of about 5,000 words. The winning entry will be published in a special edition of Mill Memories. The deadline for submission for the competition is 31st May 2014. The right to participate was closed by 31st December 2013 with the submission of the intended title .

- Some information on 'The Gainsborough Artist', Karl Wood (1888-1958) windmills, Guy Blythman's next book: The Windmills of Hampshire and the Isle of Wight and finally a presentation on the Watermills of the Lambourn Valley and Newbury.

- Whitchurch Silk Mill Welcomes a New Chairman Rupert Nabarro

- Presentation of various mill books

- Mills Research Group 2013 Conference Report by David Plunkett

This was the first time that the MRG annual conference has been held in Totton, near Southampton on Saturday 28th September. There were the following first presentations:

1) The use of AutoCAD and rendering by John Brandrick.

2) Some Mills on the River Kennett in Cornwall by Alan Crocker.

3) A field with 225 mill stones by Philip Graves

4) Watermills on the Whitewater River by David Plunkett.

5) Research and History of Testwood Mill by Roger Grier.

The Conference included visits to Beaulieu Tide Mill, Eling Tide Mills, Chase Mill Bishop's Waltham Testwood Mill, Bursledon Windmill.



An early flour delivery at Beaulieu Tide Mill



Chase Mill, Bishop's Waltham



Testwood Mill



Bursledon Windmill

-Obituary on Jonathan Minns.

Bishopstone Tide Mills in East Sussex

1. A visit to Bishopstone Tide Mill in East Sussex by Kerr Canning Pictures taken on September 14, 2013. The web site <http://tidemills.webs.com/> gives the location as being:

"Between Newhaven and The Buckle at Seaford East Sussex, access and

parking from the A259 at Mill Drove between Bishopstone and Newhaven. It is one of the last areas of accessible undeveloped coast in the western direction for many miles.”



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2. Two videos-examples of an interesting way to present history on the Bishopstone tide mills found by Bud Warred. The Forgotten Village of Tide Mills

<https://www.youtube.com/watch?v=uOr31nAVy5c>

The Tide mills @ Bishopstone e.sussex

<https://www.youtube.com/watch?v=WfL2sGmyPg0>

3. There is a very interesting thesis by Pat Thomas on “Bishopstone Tidemills 1761 - 1901. The development, life and demise of an industrial complex in East Sussex”.

USA

TIDE MILL INSTITUTE

Committed to Sustainable Industrial Heritage

www.tidemillinstitute.org

We invite you to help us celebrate our first decade and to participate in planning for what is expected to be a gala event!

This year TIDE MILL INSTITUTE will be celebrating our 10th birthday in York, Maine, site of the Maine's first tide mill (1634), just an hour north of Boston. The conference will be held at the Old York Historical Society. We urge you to SAVE THE DATES! – November 14 & 15th - and to submit proposals for presentations about tide mill topics you would like to share with others in our special fraternity. We hope to focus on tide mills and tide milling

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internationally from historical, archaeological, technical, artistic and contemporary viewpoints.

We have enlivened the program schedule to allow a wider than normal range of presentations and have included a low-tide field trip to an interesting nearby tide mill site that has had many lives. As always, there will be time for collegial interaction, viewing special exhibits and studying literature about tide mills. TO THAT END, we invite you to submit a brief proposal for a presentation.

Here's your chance to tell about a favorite mill or an unusual aspect of salt water-molinology. The schedule will include slots for brief 10-20 minute "sharings" as well as for longer, more formal papers. Our goal is to open the gates to a new generation of tide mill aficionados as well as to offer established researchers the chance to highlight their recent work.

Please submit a description or abstract of your intended presentation by April 30th. A response to your proposal will be sent by May 30th. We look forward to hearing from you. Should you have questions or suggestions about making this conference a really special event, please feel free to contact me at:

budw@myfairpoint.net or by phone at 207-373-1209. Please feel free to share this invitation with others who you think will be interested.

We look forward to receiving your presentation proposal and and suggestions.

THANK YOU!

Bud Warren – President

TMI DRAFT CONFERENCE SCHEDULE

FRIDAY - November 14

11:00 - Pre-Conference Activity

Visit Barrell Mill site, with presentation about tide mill sedimentation

Noon – 1:30 – Lunch on own

1:30 - Registration begins

Exhibits, displays & videos available for participants

2:00 – 4:00 – Short, informal Presentations

6:00 - 8:30 – Tide Mill Reception – Possible special appearance or award

SATURDAY - November 15

8:00 – 9:00 - Registration & Refreshments

9:00 – Welcome and Introductions

9:15 – Noon - Morning presentations (with break)

Noon– Lunch (provided)

1:00 – 3:45 - Afternoon Presentations

4:00 - Adjournment

Tide Mill Times, December 2013

IN THIS ISSUE

The Conference topics

1. APPLE RIVER, NOVA SCOTIA - Kerr Canning

It was described how dikes (called aboiteau) made of peat, mud and marsh grass were built to create a pond on Apple River in Nova Scotia for an old mill

2. ORPC (Ocean Renewable Power Company) – ON THE CUTTING EDGE OF OCEAN POWER - Chris Sauer

Tide mills are more than just a historical oddity. They are alive and well and making a splash in the 21st century.

3. DUTCH TIDE MILLS ON THE GOWANUS – Angela Kramer

The Dutch built were some of the first tide mills in America. The first of these was in Brooklyn NY. Angela Kameran, who works with Proteus Gowanus, an interdisciplinary neighborhood gallery and reading room shared some of the ways her group is making people today aware of the rural, agricultural, piscatorial



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and milling background of their urban landscape. One way she has done this was by focusing the neighborhood's attention on the tides of Gowanus Creek where once there were three tide mills.



The Gowanus then



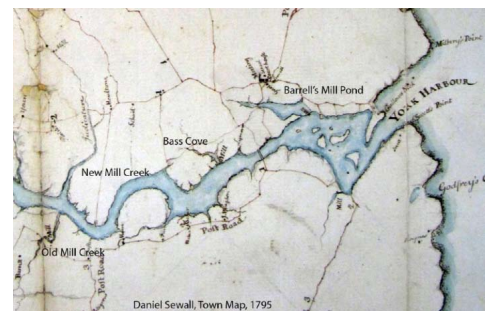
The Gowanus now 4

4. TIDE MILLS ON THE YORK RIVER - Robert Gordon

This is a report on work in progress that explores tide mill operation along the York River in Maine, where tidal-powered saw and grist mills were built from 1634 onward, and continued in use through the late nineteenth century. There are no archaeological data on the 1634 mills, but deeds show they were on Old Mill Creek.

5- 8. OUR NORTH SHORE PRE-SENTERS

Although Topsfield never had any tide mills--being situated inland from all known tide waters, Topsfield historically was close to a number of significant tide milling



centers. This fact was hammered home at the 2013 conference by four speakers who represented the diverse communities north of Boston (and not far from Topsfield) that included Salem, Beverly, Gloucester and Newburyport.



Curzon Mill - Newburyport



Friend Mill – Beverly



Hodgkins Mill – Gloucester



Gardner-Wyman-Peabody Lead Mills - Salem

9-10. REPORTS FROM TIDE MILL GROUPS

Doug Butler, project manager for Kennebunkport Conservation Trust, brought participants up to date with progress at Kennebunkport's 1749 Perkins Grist Mill.

Doug Morrill, president of the Friends of Souther Tide Mill in Quincy, gave a good background of his group's activities over the past few years.

The Tide Mill Institute annual Conference was held in the wonderful historic Gould Barn adjacent to the Parson Capen House in Topsfield, MA.

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THE HISTORY OF TIDE MILL HISTORY

One of the earliest documented and clear comments about English tide mills was written by Richard Carew, High Sheriff of Cornwall in his Survey of Cornwall (1602):

“Salt water mills – Amongst other commodities afforded by the sea the inhabitants make use of divers his creeks, for grist milles, by thwarting a bancke from side to side, in which a flood-gate

is placed with two leaves; these the flowing tyde openeth, and after a full sea, the weight of the ebb closeth fast, which no other force can do and so the imprisoned water payeth the ransom of dryving an undershoote wheele for his enlargement.”

From that time till today there was an effort to document and study tide mills on both sides of the Atlantic. Three organizations are studying today tide mills, The tide mills Institute, TIMS and SPOOM.

TIDE MILL DETAILS 2: TUB WHEELS AND TURBINES IN THE MUD - A CHALLENGE FOR RESEARCH

Experts in milling history indicate that vertical wheels were characteristic of southern tide mills, but horizontal tub wheels were the norm in New England. One obvious reason is they wouldn't ice up in the winter. Recent archaeological work done at the Perkins Tidal Grist Mill in Kennebunkport Maine exposed a most interesting 19th century iron turbine.



Probably a 19th century iron turbine in the mud at the Friend tidal mill site in Beverly. [Photos: Earl Taylor]



Bud Warren photo



Remains of a wooden impact wheel that was photographed at a particularly low tide by John Morse, a sixth generation sawyer at his family's old tide mill site in Phippsburg Maine. [Maine Maritime Museum]

Do Tide Mills Make Economic Sense?

There may be some existing private micro hydro power operations that are working out economically, but it's obvious that tidal power is in its infancy, and will be until the price gap can be narrowed.

TIDE MILL PEOPLE presentation.

IN MEMORIAM: Ted Hazen and his great web site (<http://www.angelfire.com/journal/pondlilymill/menu.html>)

ARTICLES AND INFORMATION FROM AROUND THE WORLD

ESTONIA

Restoration of Anetsi farm postmill, Leedri village, Saaremaa island, Estonia

by Mihkel Koppel, Kuressaare, Estonia.

During the winter 2013 the postmill of Anetsi farm was restored. This was a local community project, which received funding from the European Union (80%) and the Estonian government (20%) sponsored Agriculture program. The Leedri village community was able to put their own funding (10% of total building cost) as partial voluntary work.

The voluntary work meant that some of the building works were carried out by local villagers. So the village people helped to transport the postmill mechanism to a barn, where it was taken apart. Local men repaired the stone foundation with mortar which took around 2 months. This was the most difficult work, because the men were ordinary villagers with different professions. They were not specialised in the restoration of sloping (and changing shape) masonry walls as was this stone foundation. The result is surprisingly good. In the end they helped to transport the mechanism again. They also kept the mill surroundings clean and organised during the building works.

The mill was built in 1905 and was used until early 1950s. In 1988 local men tried to repair the windmill as a decoration, they put on a new windshaft and sails, made a new gallery and changed the wall planking, but without proper maintenance the mill fell to bad state again. During the restoration works in 2013 the millwrights took the postmill to pieces and repaired the construction in the workshop during March and April 2013. 90% of the construction parts had to be replaced because they were totally damaged by insects and rot. Only the oak beams were able to be reused. Also we hoped to reuse the metal roof from 1930s, but all the rafters were insect damaged and it was not possible to change the rafters from inside. The old metal sheets were from an English company, Bingley, which was wide-spread in Estonia during 1930s.

This type of postmill is seldom seen in the islands of Estonia, because it was pulled to the wind with a winch. Around the postmill there were originally posts in the ground to fix the winch to. So, this solution for winding the postmill, which is wide spread in Europe, is rare in the Estonian islands. However, it is almost the rule for large postmills on the Estonian mainland. In the islands, the windmills are so small, that only the force of one man is enough to turn them into wind. For example, the ground floor plan dimensions in this windmill are 2,4 x 2,7 meters.

At the Anetsi postmill the aim was to restore first the windmill construction. The local community wants to propose a new project to put the postmill into



Old photo - The windmill in the end on 1950s



Village men repairing the stone foundation.

working order. Then it will be possible to reconstruct the winding system and some missing mechanisms as well. In this project I made the architectural drawings for restoration and afterwards I supervised and controlled the millwrights work according to all heritage rules. The windmill is not listed, but has been waiting in a queue for over 4 years to be listed, together with 4 other Saaremaa windmills.

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The windmill had a ceremonial opening on Mid-summer day and it is opened for public during the tourism season.

The windmill after restoration.



GERMANY

The “Scheunen Windmuehle” in Saalow, near Berlin.

Photographs by Susanne Louro

Full size Scheune muehle



Entry Scheune muehle



Interior Scheune muehle



Detail Scheune muehle

GREECE

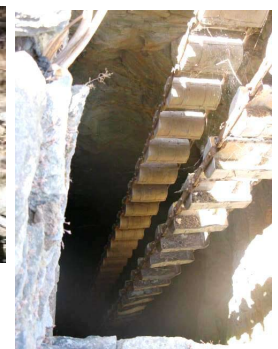
Pottery bucket from an old persian waterwheel in the island of Andros



The pottery bucket was hung by ropes



A persian wheel in Andros with a chain and metallic buckets

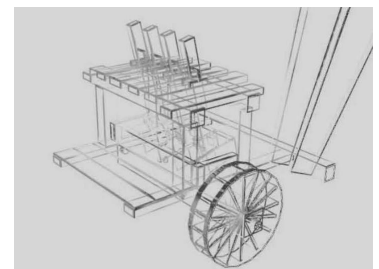


The watermills of Kalama region in Epirus (NW Greece).

Fulling mill (Design by Viki Karachaliou from her research paper on the Kalamas river region).

In the following url you can follow the virtual reconstruction and visit of watermills, fulling tubs and fulling mill by the architect Vicky Karachaliou on the Kalamas river.

http://www.youtube.com/watch?v=b5jnZt8Y7Qw&list=PLczwKvxd63OQma8cuyRT_H8RHYf3zAyi



SOUTH AFRICA

160. 4th November 2013 Visit to Josephine Mill, by Andy Selfe.

Tony Davenport was a fellow guest at a dinner party given by Jayne Beaumont in January 2012. He is involved at Porcupine Hills not far from Bot River in the Van Der Stel Pass. More importantly, he has been running Josephine Mill in Newlands for several years. When we met, I expressed a wish to have a good look at the Mill.



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I last saw Josephine Mill in about 1966 or 7. It was a ruin, and I clearly remember looking in through the broken windows and seeing the sky above. There was no roof and the floors were missing. At the side was the water wheel, waiting to be 'woken up'. It was good news to hear many years later that the Cape Town Historical Society had restored the Mill.

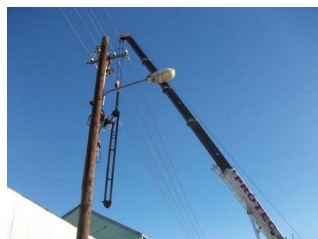
Recently Tony contacted me saying they had a request to mill a large quantity of Kamut Khorasan wheat and that there was a problem with the Mill which the electricians were blaming on mechanical drag. It should be mentioned at this stage that the original water supply has been cut off from the water wheel, so the Milling machinery is driven by an electric motor and the water wheel by recirculating water with a pump. It didn't take me long to take up the offer of going through to Cape Town with him to investigate. The team for the day's activities consisted of Tony and me, for a start. As we arrived, we were met by Krzysztof Wolski, unexpected, and just arrived from Poland. Before he left home, he'd tracked Tony and Josephine Mill down on the internet. On arrival, he was astonished to find his



B&B on the doorstep of Josephine and still more to find out that we were planning to come through the next day and work on the Mill! He is very knowledgeable on Mills and particularly the benefits in food and even the medicinal properties of stone ground whole wheat meal. Tony's two sons also popped in, and also Derek Chittenden, a business partner with Tony in Josephine Mill. Two permanent staff members were on hand, Zabes and Bongani who both got stuck into cleaning with great enthusiasm! The Mill is very different from how I remember it! It's not easy to photograph, but this picture gives an idea.



Inside, the Milling machinery is pristine; relatively new as explained on one of the many information boards: The machinery consists of a Vitruvian Mill, a grain elevator, an auger and a meal elevator. Each elevator is just one storey high; short compared with those we removed in Grahamstown:



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There is also a stone crane and a spare runner stone. On the lower floor is the line shafting from the electric motor and reduction gear, with bevel gear drive to the Mill and pulleys to drive the elevators and auger. The pulley from the water-wheel is loose on the shaft.

We had previously decided to dismantle the furniture to be able to do a thorough inspection inside. This was easily done. The auger-fed hopper is fixed to the auger trunk by four screws. Likewise four screws hold the horse and shoe assembly in position in sockets cut into two wooden strips on the lid.

The lid is fixed to the tun by too many screws, it actually doesn't need any! And the tun is fixed down on the hurstings by large coach screws; again about four would suffice. The damsel is removed by loosening off two square nuts on the horse. The 'crook string' is interesting; two

leather straps. A

leather thong is also used between the shoe and the Miller's willow to keep the rap in contact with the damsel. Wooden wedges at each end of the twist peg apply the friction needed to keep the shoe in the selected position. The furniture is very German, as Volker would describe, Black Forest carpentry!



We decided to give the whole tun and contents a good clean using wire brushes, sandpaper and a vacuum cleaner:

We soon had the stones exposed:



The runner is on gimbals and the four pockets for adding balance weights can be seen, with steel cover-plates held in place by studs set in the composite stone. A loose bucket-shaped funnel is fitted to the eye



of the runner to prevent stray whole grains from missing the eye.

There was partly ground meal amongst the whole grain, which can lead to clogging. We decided to do a complete clean of all we found in the tun, eye, auger and elevators. This was a good decision, particularly in the eye where we found a nasty looking deposit!

We then turned our attention to the lower floor with the electric motor, reduction gear, line shafting and bevel gear drive to the Mill. The complaint was excessive mechanical drag causing the electric overload to trip. The lighter screw is fitted with two hand wheels, one on each floor. The upper one can be lifted off a square shaft protruding through the floor. Turning it clockwise from the top opens the stones.

We opened the stones to remove any drag between them but found that the yoke through which the line-shafting passes is not central and it rubs on the shaft.

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This can be remedied easily by attention to where the yoke rests on the 'bridge tree'.

We weren't sure about lubrication of the bridging box. After all, the combined weight of the runner, stone spindle and wallower/stone nut must be close to two tonnes. We raised the cover, pumped grease into the cavity and lowered the cover again, not knowing if this would help. There is no grease nipple or Stauffer.

The neck bearing in the bedstone is sophisticated with three adjustable wedges. I've read of these but this was the first time I'd seen one in the flesh. I tested the square adjusters, one moved, the other two were stuck. A square key is needed.



We filled the cap of the Stauffer greaser several times and pumped this in by screwing the cap fully home each time.

While we were waiting for the electrical system to be checked and repaired, we slipped the belt off the pulley to the elevators and tried turning the line shafting. For the four of us it was hard work, pulling on pulleys and gears. Eventually

we could switch on and try it out. The stones were wide apart and tended to wobble and touch, so we switched off, lowered the runner on to the bedstone to square it up and then raised it a small amount to just clear. We were rewarded by a shower of meal from between the stones!

We tried the stone crane out but found that the wing-nut of the lifting screw fouls with the auger trunk. It needs a spacer to raise the wing-nut.

We decided to leave the stones set just like that and to reassemble the furniture. The tun went back with loose coach-screws and the lid with no screws at all. It has wooden blocks which centralise it on the tun anyway. We refitted the horse and shoe, leaving the remainder of assembly for Tony to do when he returns. I suggested that he bend up a piece of cardboard and insert it in the meal-spout at the inspection cover, so that he can at first monitor the quality of the meal before feeding it into the meal elevator.

During the morning, the water wheel was set in motion using recirculated water.



The lightness of the construction of this rim-drive 'suspension wheel' is astonishing! The design is attributed to Thomas Hewes and was made famous at the Strutt 'fireproof' Mill in Belper in the Derwent Valley. Alternate sets of spokes cross over one another to stiffen the assembly like a bicycle wheel. An inward-facing ring-gear bears on a pinion, so rigidity is essential. As no power is transmitted from the buckets to the axle, the spokes can be light.



With the stones floor cleared of the parts, it was possible to get a feel for the Museum. There is also a sifter, not connected up and lacking any kind of screen:



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Copies of portraits of the key figures in the history of the Mill hang on the walls.

On the right, Crown Princess Josephine of Sweden after whom the Mill is likely to have been named. On the left is Jacob Letterstedt who built the Mill in 1840. He fled Sweden 20 years before, to avoid debtors' prison and travelled to Cape Town with the 1820 Settlers.



He did well enough in the Cape to pay back all

the money he owed and returned to Sweden on a visit in 1837 and presented the Royal Swedish Academy of Sciences with a collection of birds and buck. He was granted an audience with Princess Josephine who gave him a diamond brooch in thanks. Later he became Consul-General of Sweden at the Cape.

When Letterstedt died in 1862, he left £17 000 to the Academy to found the Letterstedt Foundation for Industry, Science and Art. How is this for a Blast (pardon the pun!) from the Past?

“In 1868, the year after the first patent for dynamite, Alfred Nobel and his father were awarded the Letterstedt Prize by the Royal Swedish Academy of Sciences. This prize, which Alfred valued highly, was awarded for ‘important discoveries of practical value to humanity.’ We can hear an echo of this wording in Nobel’s will, where he stated the criteria for awarding his own prizes.”

161. November 2013 Compagnes Drift Mill. Broken Cog on Pit wheel; Open Gardens.

The meshing of the two cast iron pinions with the Pit-wheel has been deteriorating for some time. The rim of the pit-wheel as well as two of the spokes must have been under water for a while, probably soaking out the pungent oils which protect the wood, particularly the stinkwood of the spokes. We have already repaired one spoke with a ‘stepped splayed scarf joint’ and have planned for at least a year to do the other. But the rim of the wheel has been gradually deteriorating as we’ve used it, as a result of dry rot. The lack of proper support for the cogs has allowed them to move while under load, and meshing has suffered. Eventually on the first Sunday of Open Gardens, there was a nasty noise and a cog was split:



We stopped the Mill quickly and Noel rushed home and made three new cogs. We tried them, but another broke so it was clear that we were being irresponsible, continuing to run the Mill. We

decided to use this opportunity to do a proper repair. It has to be done quickly, because on 30th November, we have our second Field to Loaf demonstration!

There wasn’t much we could do on that Sunday, except to take photos and consider options. In the picture below, the repaired spoke can be seen on the left, the end of the rotten one in the middle, and the poor state of the rim of the pit-wheel, particularly at the back. The straps have been holding temporary blocks in place between the tangs of the cogs.



On the following Saturday, between showing Open Gardens visitors around and trying to convey to them how the Mill would be running: the noise,



the grain, the meal; I started working on the rim. I numbered and removed 14 cogs. Some of the original ones were still held in place by pieces of thick wire threaded through radial holes at the back. Once these were pulled out and the cogs removed, the true state of the rim of the pit-wheel became apparent, it was worse than we thought!

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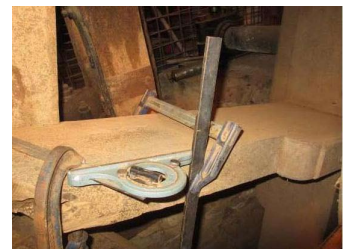
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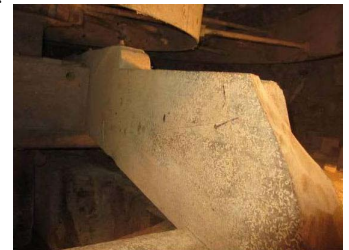
Pieces of rotten wood simply fell out. However, there was a saving grace! The rim is made from two layers and the front half was not so bad. When the pieces were removed, a fairly solid rear face of the front layer was exposed, giving a square datum to work to. Another advantage soon became apparent; the rot ended at the level of the inside of the tapered holes! It was possible to chisel and sand away the spaces between the slots to be level with them. This leaves a surface on to which we can laminate strips of new wood with strong glue.

The length of the gap is about 1.35m and the width is 65mm. The radial thickness to be built up is 110mm. The wood of the rim is not stinkwood as we had suspected, possibly so that the tapered holes could be cut more easily. Teak was the most likely choice. Re-making the tapered rectangular slots through the new wood is going to be difficult!

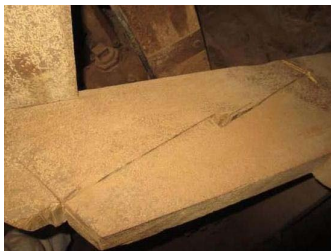
Once I was happy with that, I started marking out the rotten spoke, to cut that off in preparation for the second scarf joint. It was more difficult than I thought, because one edge had broken away and the combination square had nothing to register on! It's also very difficult to crawl into the space there, above and below, to get to both sides of the spoke. I had to clamp on and square up a steel strip and rest the body of the square against it each side to mark the first cut.



I remember from last time being relieved that the hole I had to drill for the step in the middle of the scarf came out at the right place at the other side; now it was even more difficult, drilling from the bottom up! The full length of the scarf will be shorter than the other one because I had to cut more of the original spoke off on account of the worm holes.



The cutting of the second 'table' is very difficult.



The cut from the outside to the step was much easier, but still hard; remember it's stinkwood! I made sure I was always sawing on the 'offcut' side of the line!

On Sunday evening it still was not fully cut; I ran out of time. While I was cutting, sitting on the ledge beyond the yellow line in the picture above, squeezed between the upright of the hursting and the axle-tree bearing, with the bridge-tree behind my neck, I noticed the nasty smell of burning as the sawdust fell on the halogen lamp below..... How I got out in such a hurry, I don't know, but the lamp was quickly unplugged!

A visitor on Sunday was well-known Grabouw businessman Kallie Smith. He makes our apple picking bags and has a sawmill. He confirmed that he thought the rim was made of teak and offered to supply and saw up the strips for the laminations.



During the following week I decided that it would be more economic in time and wood to have blocks sawn for between the tangs or roots of the cogs. I visited the Mill in the week and made up a cardboard template of the exact shape required, but it was just too complicated to replicate!

Only two faces were parallel; everything else had a taper, either because of the radial positions of the slots, or for the taper of the roots of the cogs. I decided to have them all made the same, one cross-section

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and each 65mm long. These can be chiselled and sanded down to fit the cogs. Outside these blocks the remainder can be built up with 10mm thick layers as previously planned, steamed if necessary and glued and screwed.

Kallie came and delivered the blocks on the following Saturday, with a few extra for good measure! He also brought plenty of thin strips of teak which we can steam and bend to fill out the space to the outer rim.

I was already busy with the scarf joint when he arrived, making the last cuts, so that the offcut could be removed. I remembered from last time that it would be necessary to chisel out a slot in the rear face of the pit wheel so the block could slide out sideways.



Once the old piece was out, I spent a long time squaring up the two 'tables' (the bigger flat surfaces), the step in the middle for the 'folding' wedges and the angled ends.

Noel had gone home to make some cogs, but found that the apple wood I'd brought for him was too soft, despite having been cut down about two years ago. We'll have to find the remainder of the Comice pear wood which has been so successful. Between times, I started drilling and fitting Kallie's teak blocks, the first two where the new spoke will be. I drilled one hole lengthways in the middle of each block and two radially. I applied Balcotan regular glue and clamped and screwed the blocks in place with 'chipboard screws'.



When Noel came back, we started marking out the wooden block he laminated out of Eucalyptus more than a year ago. This is a painstaking process, with angles and

lengths and more angles to work out by measuring from datums on a straight edge.

Noel then went home and cut his block according to the lines marked on it and when he came back we offered it up. There were a couple of changes to make, again best done by him going home again and doing the cuts on his band-saw. Soon we were ready to slide it in, but the spoke just needed to be jacked out of the way a touch! That's all it needed before we could slide the new piece up into place and work out where to shave off a little more wood, from which piece and by how much. Noel



had to go home yet again to fashion a pair of 'folding' wedges: simply two which work opposite each other so the outward force is always parallel. By supper time (!) we had fitted and removed the block about five times, every time getting closer to a good fit between new block and original spoke. I marked the end so Noel can band-saw the radius to match the metal ring on the outside of the pit wheel.



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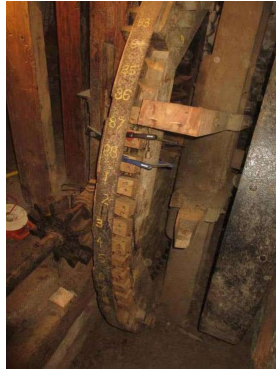
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Whenever there was a chance, I fitted more of the blocks, but the last two and a half defeated me!



There's still an enormous amount to do, but progress for this one day was very satisfying! All the time, rain was pouring down, and an unfortunate victim was the newly rebuilt bread-oven. I have my doubts whether the single-course brick arch was going to be thick enough to absorb, then reflect the



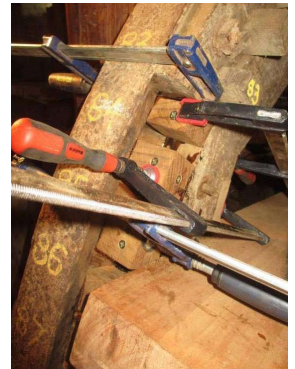
heat.

The Bot River was in full flood.



162. Late November 2013 Compagnes Drift Mill. Rebuilding the Pit-Wheel Rim

I managed to slip away from work mid-morning on Thursday 21st so that Noel and I could get as much done towards rebuilding the rim of the Pit-wheel. The previous Saturday I had glued and screwed most of the teak blocks which Kallie Smith made for us. Noel cut one in half and brought it along, so there were 2½ blocks to glue and screw for a start:



I left those to dry while tackling the next job, shaping the sockets between the blocks for the roots of the cogs. I started by roughing out the taper with a chisel.

The teak peeled off nicely:

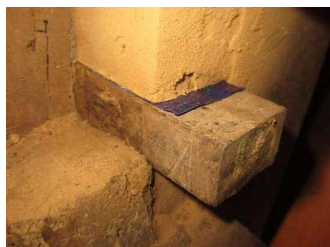
Next, the Black & Decker Power File came into its own! It really is the cleverest of tools! With a new belt, it chews wood away at an alarming pace, so one has to work gently.



I reckoned that if the sockets match the root of the cog which came out of that position, then any new cog ought to be able to be fashioned to fit

the new socket. It wasn't difficult lining up with the front part of the original socket.

Test fitting the cog in the slot was a start, but as the cog got closer to fully



in, it was necessary to find out exactly where to remove material from the socket, either with a chisel or the power file. A trip to the office and a sheet of carbon paper was the answer!

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With the carbon facing outwards, knocking the cog in and out a few times, it was easy to see where to remove the high spots:

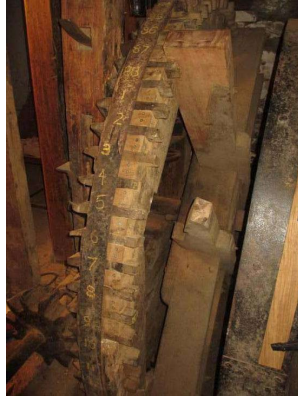
It was a painstaking process, taking most of the day until late to 'fit' all 14 cogs! The most difficult slots were those in line with the 'new' spoke, where we'd done the first scarf joint a year or two ago. The power file wasn't quite long enough to reach the end of the slot from the front, so a chisel



was needed from the

side at the back, to square-off the last part. Luckily we hadn't glued the second scarf in yet!

The next stage is to laminate on the outside of Kal-lie's blocks, using teak strips which he also cut for us. Some of the blocks were fitted slightly skew, so I ran the disc sander around the outside of them to remove any high spots. We will remove the cogs before laminating. Some of the sockets will then need material removed from the first layer, radially outwards, but not many.



To help with the bending of the laths, Noel brought his steamer.

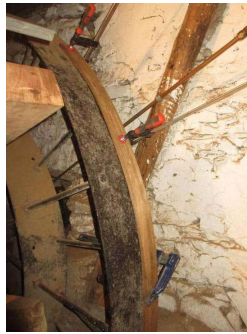
We left the strips to soak up the heat and moisture for about 15 minutes, took them out and



clamped them to the pul-

ley behind the pit-wheel, which is slightly smaller in diameter than the job. No harm in that!

There was quite a lot of spring-back when I took the clamps off. Next we did two together, in the hope that the heat and dampness would soak in better. There was no time to glue and screw the first lath on, but there was time to improve the fit of the second scarf joint, by cutting with the Scorpion saw where the joint did touch, giving a full saw-blade width kerf. When clamped, this gap closes, bringing the other surfaces closer. Simon of



Overberg Joinery Works, <http://www.ojw.co.za/> who has been coaching me, says this is a commonly-used 'trick of the Trade'!

Once I was happy with the 'tables' (the large mating surfaces), I could do the steps. At the very end of the second cut (the tighter one), the saw-blade jammed as the force exerted by the 'folding' wedges (a pair used opposite one another to keep the outward force parallel) pinched it.

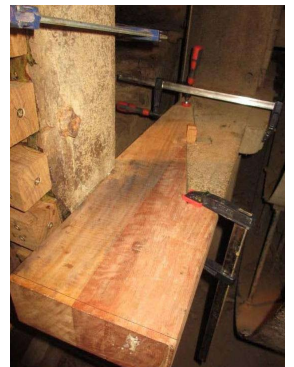
Eventually I was happy! Ready for glue, but not yet! First the laths, which are going to be difficult enough to feed in behind the first scarf joint!

I drilled shallow holes



line with the holes in the Pit-wheel and dismantled it and brought the block home to drill in the pillar drill!

During the day, Reuben came with some of the farm workers and dismantled what hadn't collapsed of the bread-oven, which also has to be working by the end of next week!



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Noel went home earlier with two Comice pear trunks which I'd brought, the same which Keith Wetmore used to make the first 13 cogs. He only managed to make four; the rest of the wood was rotten.

It was a lot of work to shape the spaces between Kallie's blocks, but much less than what would have been needed if we'd laminated the whole rim

and had to cut the slots in the rear half from scratch! It was also much easier trueing up the slots before attaching the first layer of teak on the outside of the blocks!



163. Late November 2013 Compagnes Drift Mill Rebuilding the Pit-Wheel Rim and Bread Oven, Part 2

When I arrived on Saturday morning, Howard the Bricklayer was already applying plaster to the bread oven which he had rebuilt the day before. Cousin Tony had brought him out on Friday, shown him the Kleinplasia drawing and actually laid out bricks, flat on the ground, to demonstrate the method of corbelling the domed roof. He had excelled himself and did so again with the plastering! Without any kind of former he made a pretty perfect semi-circular arch over the mud bricks.



The mud bricks had been sourced from a local ruin and the clay from the Bot River Bricks quarry, so they are likely to be compatible.

For the brick-laying, only clay was used; for the plastering, 10% of cement was added, as indicated in the Kleinplasia instructions.

The arch is temporarily held up by a wooden framework supported by plastic crates.

There is a set procedure to dismantle the

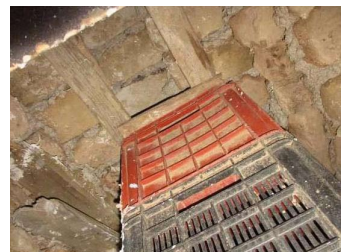
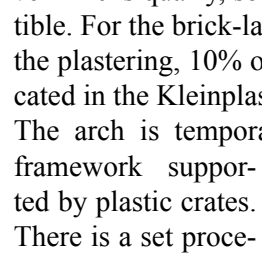
support, starting with the two short planks, looking from below:

We were worried that the plaster would dry too quickly, so sacks were hung over the dome and we watered these from time to time during the day. In the evening, as instructed by Tony, we pulled the plastic sheet over it.

Noel will uncover it on Sunday for the day, wetting the sacks again, as the forecast is for a very hot day! It must get a waterproofing coat of white-wash early in the week, as there's rain forecast midweek! Many thanks to Tony and Howard, and James the gardener who worked as builder's mate!

Our job was to complete the outer rear rim of the Pit-wheel with the strips of teak which Kallie had supplied. Some had been steamed and bent on Thursday and had held their shape well. Noel steamed the rest. It was necessary to measure very accurately so that the strips butted on to the existing wood of the rim, each layer being slightly longer than the previous one.

First I numbered the cogs again where the marks had been spoiled from knocking them in and out while fitting. Then I removed them all, but marked those with an X which didn't protrude beyond the height of Kallie's blocks; about 2/3rds of them.



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By rights, these should knock straight back. Then, with a bit of effort, it was possible to feed the strip behind the spoke of the first scarf joint and into position with clamps, first without glue to check the length, then with glue on the blocks and on the inside of the lath, followed with screws.

Then the next layer, staggering the screws; inside, outside so that one didn't screw into the head of the one below:



When we got to layer 5, we had to decide whether to use the full thickness strip of 10mm, or the one of 8mm which Kallie had supplied. It was going to be touch and go, but we decided that we'd go for the full thickness!

It was necessary to chamfer the edge to get it in under the steel (wrought iron?) band

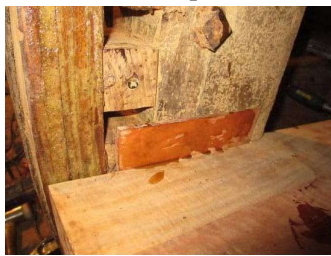
and to apply some force, first by mallet:

..... then by cramp:

We cheered Kallie when it juuuust went in!

We could then fit the second scarf joint. It was pleasing to find when it was all clamped and wedged, that the end of the new spoke extension just touched against the five laminations.

We had seen on Thursday that there would be a tapered gap between the new spoke extension and the inner part of the rear face of the pit-wheel, so I asked Noel to cut a thin wedge from the offcut. This needed a bit of fet-ling before it slid in without applying any pressure on the back of the pit-wheel.



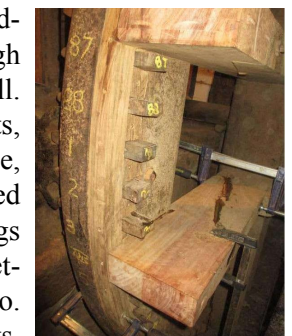
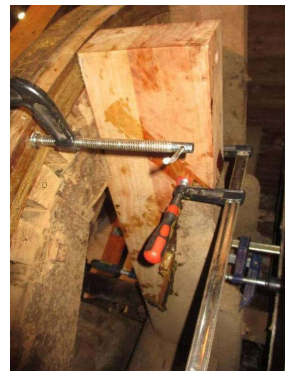
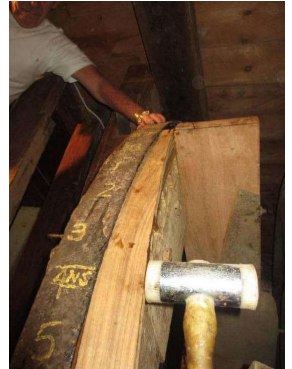
We could then drill through the laminations so I could refit square-headed bolts I'd removed in the stripping process. Some of these bolts will have to be built up with redibolt. At home, I had drilled through the new spoke extension, so these holes just needed extending through the new laminations with a long spade-drill.

The cogs could then be refitted in their own slots, but not before a bit of sanding on the rear surface, just to remove the build-up of glue which had oozed out from between the laminations. All those cogs marked with an X went back in without further fet-ling as expected. In fact most of the others did too. So, I think with a little time off in the week to refit the bolts,



we can run by the weekend for the Field to Loaf demonstration, but it's been touch and go! We're still hoping for some help from Keith Wetmore from Somerset Timbers in the line of new cogs!

Small problem.... What to do about these? No amount of soap and water takes the Balcotan off!



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USA

Sawmills and Deals

By Kerr Canning

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Introduction

The development of water and wind powered sawmill technology is an interest of mine and in particular, I am curious to know how the technology of the seventeenth century was transferred from Europe to North America.

At the 2013 Tide Mill Institute Annual Conference in Topsfield, Massachusetts, Robert Gordon presented material relevant to these questions. His material included details on the construction date and location of two colonial sawmills built by the settlers who founded Maine's first permanent English settlement in present day York County, a county that borders on New Hampshire and forms the southernmost region in Maine. His presentation was a progress report describing his work on the energy requirements of several tide driven sawmills constructed along the York River that runs through York County. In addition to his interesting energy calculations, Dr. Gordon mentioned that the earliest tidal driven sawmill on the York River was built in 1634 "on Old Mill Creek, which is an estuary formed by the convergence of Fulling Mill Creek and Dolly Gordon Brook; it empties into the York River." (Robert Gordon, 2014, private communication). The sawmill was built by settlers who recently had been sent from England to this region by Sir Ferdinando Gorges; he wanted them to colonize the land that he had been granted.

It was surprising to learn that the English settlers were able to construct sawmills as early as 1634. Howell claimed that "the first sawmills of the New World trace their origin directly to continental Europe rather than to Britain". It was also stated that in New England these "...early sawmills were built and operated by men who were not English, due to a lack of familiarity and skill level that the English colonists had with this technology" (Pennsylvania State University, Section on Wood) This lack of familiarity and skill level existed, according to E. W. Cooney (Cooney, 1991 and 1998), because "sawmilling in Britain was hindered by a gradually increasing and widespread scarcity of timber, especially in the form of substantial forests and plantations, a difficulty not common on the Continent – although the districts of Holland where sawmills were established seem to have relied on imports."

Robert Gordon's presentation provided an example of a colonial sawmill built and operated by men who were English. Furthermore, Bud Warren, the conference organizer provided a second example of a sawmill built and operated by another group of men who were also English. This sawmill was constructed in York County in 1634. The location was in a "Rocky Gorge" on the Great Works River below Brattle Street Bridge in present day South Berwick. This adds a new dimension to the search for an explanation of the way in which the technology of seventeenth century sawmills was transferred from Europe to North America.

After the conference, it became my goal to develop a plausible explanation for the reasons for these English men who were supposedly not familiar with sawmill technology to be able to build and operate two water powered sawmills in Maine's first permanent English settlement. Upon further investigation it was learned that Britain was not necessarily unfamiliar with sawmills.

A plausible explanation was found in a study of the so-called Northern European Timber Trade (Halstead, 2004 and British House of Commons, 1835). This trade was operating on a large-scale when the settlement in York County was formed. England imported lumber from such regions as Scandinavia, Belarus, Russia, the Black Forest and Alsace. The lumber was shipped to England's east coast ports "including Boston, Great Yarmouth, Hull, Kings Lynn, London, and Wisbech" (Peter Filby, 2013, private communication). The timber trade was conducted by merchants and builders, and the first permanent English settlement in Maine was organized by London merchants who hired builders to construct the

two 1634 mills. In fact one of the organizers, Captain John Mason, was born and raised in the Port of Kings Lynn where lumber was imported. Another organizer, George Griffith (a London merchant) was the owner of the bark, Warwick. This vessel could have been used to bring lumber from the Baltic to England. The documentation located on the Timber Trade does help in building a convincing argument for the reasons for the skills of the Colonial English settlers in constructing sawmills. There is detailed and extensive information on a much broader project involving the development of water and wind powered sawmill technology in general. The implications for such a project will be discussed in this paper and I hope that these implications and the 1634 Colonial mills will be of interest to the TIMS membership. Comments and questions are welcomed.

The sawmills built in 1634 in Maine's first permanent settlement

The Maine sawmills built in 1634 are mentioned briefly by John Winthrop, the Governor of Massachusetts, in a detailed journal in which he recorded events of historical importance. On July 9, 1634, he noted that "Sir Ferdinando Gorges and Captain Mason sent carpenters to Pascataquack and Aguamenticus, with two sawmills, to be erected, in each place one" (Candee, 1970, p.132). Aguamenticus is a reference to the region containing the Old Mill Creek tidal sawmill and Pascataquack is the region where the water powered sawmill was constructed for Mason. It was located at what is now the Great Works River below Brattle Street Bridge in present day South Berwick. Captain John Mason was an associate of Sir Ferdinando Gorges; both men had extensive land grants. Detailed documentation for the sawmill built for Mason on the Great Works River, called the Newichannock River at that time, has been transcribed and was published in 1887 as a collection of Mason's letters, papers, and grants (Dean, 1887). Several items in this collection provide insight into the knowledge of sawmills and the skill level of the settlers and organizers of Maine's first permanent settlement. These key pieces of information include the following facts: 1. The Great Works River watermill, and probably also the tidemill on Old Mill Creek, were the enterprise of a group of British investors called the Laconia Company. The members of the company included Sir Ferdinando Gorges, Capt. John Mason, and the seven London merchants, Thomas Eyre, George Griffith, Thomas Warnerton, John Cotton, Henry Gardner, Edwin Guy, and Eliezer Eyre. (Dean, 1887, P.57). Capt. John Mason was born on Dec.1, 1586, in King's Lynn (Dean, 1887, P.34). As mentioned earlier, King's Lynn is one of the ports on England's east coast that imported lumber as part of the Northern European Timber Trade and "Their veffels were known in the Baltic, on the stormy coast of Norway, in the Hebrides, and even in Greenland. Such was the current of daily life in King's Lynn during young Mafon's residence there." (Dean, 1887, P.8).

George Griffith, another Laconia Company member, was the owner of the bark (barque), Warwick. In 1630, this vessel carried a group of settlers to the Newichannock River. As a London merchant and ship owner George Griffith may have been involved in the Timber Trade and it is possible that other Laconia Company members may have been timber importers. 2. Further information is found in a letter from Eyre dated London, the 1st of May, 1631 to Gibbons, an agent already on site at the new colony. The letter contains the following:

"I like it well that your Governor will have a flock of boards at all times readie. I hope you will find fomething to reload both the Pide-Cowe and the Warwicke. I will now put on the fending of you the modell of a faw-mill, that you may have one going." (Dean, 1887, p.284).

What type of "modell of a faw-mill" was sent by Eyre to the new colony? Was it a sketch, a scaled drawing or a well constructed built model? If the answer were known, it would help explain the reason that Mason's settlers were able to construct a sawmill.

3. In 1633-34, Mason made contract with "James Wall, William Chadbourne and John Goddard Carpenters." These men were being recruited, from England, to build and operate a sawmill on the Newichannock River (Dean, 1887,

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p.322). In fact they were to “Deals” (Dean, 1887, P.324).

It is not surprising that Mason hired English carpenters. As carpenters, they probably had experience building corn mills and timber-framed buildings in England. Based on my experience in the sawmills and lumberyards of my youth, where the term the term “Deal” was in common usage, the fact that Mason hired three carpenters to construct a mill to saw deals suggests that both John Mason and the three carpenters had a substantial familiarity with sawmills and the products of these mills.

One needs to understand why Captain John Mason and the three carpenters knew the meaning of the term “Deals” and to explain why they wanted to manufacture deals in the new colony. An answer may be found in a 2004 web article, that cites sources by Gary R. Halstead titled The Northern European Timber Trade in the Later Middle Ages & Renaissance “. Halstead writes that “Based on documentary evidence, large scale trade in lumber appears to have begun in the late 12th to early 13th centuries.” For England he states that “England was one of the least forested countries in Europe, large areas of England had no significant wood resources”. England must import and:

“The primary sources for timber were the forests of the eastern Baltic in what are now Poland, Belarus, and Russia; Scandinavia; and the Black Forest and Alsace on the upper Rhine. Trees were generally cut in the winter when the sap was low, the snow aided in transportation, and surplus labor was available. The trimmed logs were rolled or dragged to the edge of convenient waterway to await the spring thaw. In the spring, logs were floated downriver to a port where they were converted into one of a number of grades of lumber.”

It appears reasonable to assume that the members of Laconia Company were well aware of, and possible involved in, England’s import lumber trade. It is even possible that a few Company members travelled to one or more of the primary sources for timber. An advertisement for a book now in production titled “Trade and Shipping in the Medieval West Portugal, Castile and England” states that “Europe contained a highly mobile society in the later Middle Ages, in which merchants and seamen, nobles, diplomats and soldiers, churchmen and pilgrims travelled frequently, often long distances, and returned home to disseminate information about places they had seen and peoples they had met.” (Childs).

So it is even possible that several members of the Company travelled to the mills where the lumber was sawn. Also, if English merchants and builders were able to import lumber from the Baltic, they should have been able to import the working parts of sawmills to be used in the New World.

It is not surprising that the Laconia Company was able to have two sawmills constructed in the new colony for the production of lumber to supply the colony and export back to Britain. The colonization of the New World guaranteed that the Timber Trade would no longer be confined to Northern European; a Colonial source of timbers and deals had been found.

Timbers, Deals, Wind and Water Powered Sawmills.

The two Timber Trade sources, (Halstead, 2004) and (British House of Commons, 1835), cited in this article, might be used as a starting point for a project on the development and evolution of wind and water sawmills in Northern Europe and North America. Halstead and his sources provide an overview of “Deals” in the Late Middle Ages and Renaissance. Examples will be drawn from the British House of Commons, 1835 and the use of the term “Deals” will be emphasized.

The 1835 British House of Commons publication, titled Report from the Select Committee on Timber Duties, is a 465 page book, available online, containing an extensive, diverse and fascinating collection of information gathered during interviews conducted by the Select Committee. The interviewees range from merchants in Britain’s timber trade to builders and architects who not only used imported lumber but also were importers themselves. The Report deals mostly with the Baltic and North American trade. “With Spain the trade has fallen off

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a good deal, and with Portugal also since the troubles (British House of Commons, 1835, p. 38). For present day Canada, it must be remembered that Canada did not exist as a country in 1835. The Report uses the terms Canada and “The Canadas”; the reference is to Upper Canada (part of present day Ontario) and Lower Canada (part of present day Quebec). The Colonies mentioned in the report are Upper Canada, Lower Canada, New Brunswick, Prince Edward Island, and Nova Scotia.

Since “Deals” play such a major role in this article and in the Report from the Select Committee, I will expand on my experience with “deals”.

My Contact with Deals

In my first summer job in a sawmill, I was helping another young man pile wide, long, 3 inch thick pieces of sawed lumber; many were wider than 9 inches and longer than 12 feet. The logs from which the deals were sawed had been in the mill pond for several weeks and a considerable amount of water had been absorbed by each log. Each deal was extremely heavy and after a half hour, we could not lift them. The mill owner had to bring two men from the so-called slab run in the mill to take over this work and we replaced them in the slab run. The slab run involved operating a large saw. We had a great time and we never had to pile water drenched deals again. Fig.1 shows a drawing of the slab run where we worked taking turns pushing the slabs and operating the slab saw. Notice that the man who carried the newly sawed lumber away from the mill to be air dried was called the “Deal Carrier”.

Fig.3 shows deals at Advocate Harbour where they will be loaded onto a vessel.

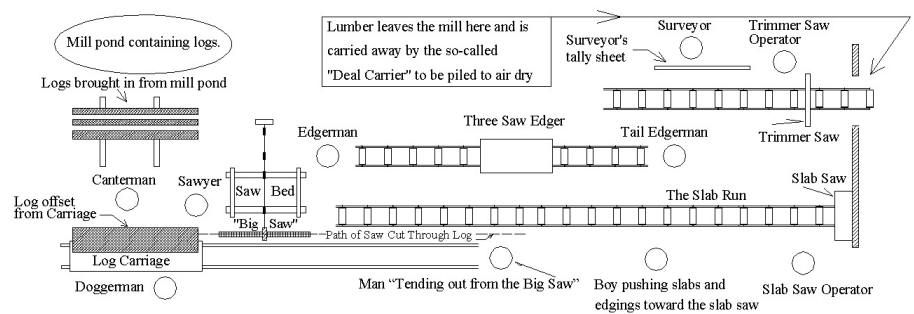
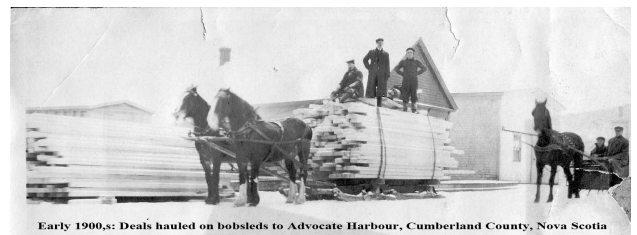


Fig. 1: A schematic diagram of the steam-powered sawmill where I worked for a few weeks each summer during my youth. The man who carried the newly sawed lumber away from the mill to be air dried was called the “Deal Carrier”

Fig.2: Deals piled on a Bay of Fundy coast ready to be loaded on to a vessel. Defining deal as it applies to lumber is a problem.



It is possible that the deal is a term only used for softwood and it is used for pieces sawed to a variety of thicknesses and lengths. For the age of steam driven sawmills, Barbara Robertson, in her book *Sawpower: Making Lumber in the Sawmills of Nova Scotia* (Robertson, 1986, p.232), defined “Deal” to be “Lumber cut to a specified size from which other dimensions are cut. A deal is 3”, sometimes less, in thickness; a standard deal is usually 3” thick x 9” wide x 12’ long and of fir or pine. This is the English measure; deals made in Nova Scotia were exported to English markets. Deals were also produced in Nova Scotia from spruce and hemlock.” Notice that Robertson’s definition contains the qualifier “usually”. The word “Deal” has a long history and surviving documents show that the

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length, width, and thickness were not a standard size. This will be explored in the next section.

Deals: What's in a Name?

This section will examine the material in the Select Committee Report in an attempt arrive at a plausible concept of the word "Deal". This section will provide interesting and historically valuable stories. Only a few of these stories are presented here. Many of the others will appear in later editions of TIMS E-News. Unless otherwise indicated all of the references in this section are from the 465 page Report from the Select Committee on Timber Duties, published in 1835 by the British House of Commons. Henceforth this document will be called the "Report" and only the page of the reference will be given.

It is often difficult to know the species of wood mentioned in the Report. Wood can really only be identified when its Latin name is given and we cannot expect this from an 1835 document. Also, one should keep in mind that the North America and Northern European timber trades imported lumber from at least four types of forest regions that have suitable stands of tall straight hardwood and softwood trees that could be sawed into lumber. These regions are the so called Acadian Forest Region of the Atlantic Coast of North America, and the Longleaf Yellow Pine Region of South Western United States, the Boreal Forest Region as well as the Alpine Biome of North America and Northern Europe.

It is important to understand why England had to import most of its lumber. An expert witness told the Select Committee that "the article is not indigenous, for it is very clear, from the immense quantity of timber we import at high duties, that this country itself is not to be considered as a source of the supply" (p.12). The building industry may have required both hardwood and softwood lumber and Britain may not have had substantial stands of both conifers and deciduous trees. This is only a partial answer and additional insight can be gained from Jean R. Birrell's paper "The Medieval English Forest" (Birrell, 1980).

The term "Deal" appears often in the Report. In fact, James Deacon Hume's reply to the Committee when asked to give an "account of the progress of the duties on timber for a series of years", indicates the importance of this term. Hume, "formerly of the Custom-house and now of the Board of Trade", was the first witness interviewed by the Select Committee and he began his reply to the question with:

".. I would submit to the Committee, that timber and deals form so large a proportion of the whole wood trade, that perhaps the subject will be most conveniently considered with reference to them chiefly, I have therefore directed my attention more particularly to those two articles."(p.2).

Timber as an article is not hard to define. Witness John Mitchell, who for the last 50 years had been involved with the timber trade with Russia, described long timbers he supplied to the Navy: "We were bound to deliver an average length of 36 feet, a few of those 60 feet long, in the square 12 ½ to 13 inches all the way, and all free of knots." Fig.3 shows a timber in the process of being created from a tree.

Fig.3: Early 1900,s at Advocate Harbour, Nova Scotia. James Edward Morris, facing the camera and an unidentified man are using broad axes to make a timber from a round tree.



A plausible concept for deal can be put forward by examining the context in which "Deal" is used in the Report. I think deal may have started when water and wind driven sawmill technology was in its early stages of development. Or perhaps earlier still, when the pit saw and/or splitting (riving) was the method for making lumber from a log.

Since a log was sawn from end to end into a number of rectangular solids, a name had to be assigned to a rectangular solid (Fig.4). It is possible that the chosen name varied from timber region to timber region. Possible names were early variations of deal, board, plank, timber, stick, scantling, batten, wainscot etc. Only further research will reveal its true origins..

This object is known by many names: rectangular parallelepiped, cupoid, rectangular solid, and rectangular prism. All of its faces are rectangles and it has the same rectangular cross-section along its length.

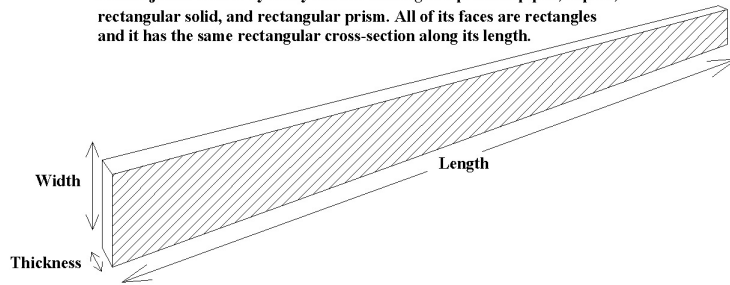


Fig.4: A rectangular solid sawn from a log.

Fig.5 is an interesting drawing prepared for the Committee by witness John White (p.211). John White was an Architect and Surveyor extensively engaged in the timber trade at Whitehall wharf, Westminster. As an architect he was engaged in building, both for himself and as a hired architect. It is interesting to note that his drawing contains English deals and French deals and that the thickness of both types is variable.

SELECT COMMITTEE ON TIMBER DUTIES.

No. 1. Two English 3-inch deals; Two 1 1/2 French deals.—No. 2. Two 2 1/2 English deals; Two 2 1/2 battens; all 12-inch Logs. Mr. John White.
14 July 1835.

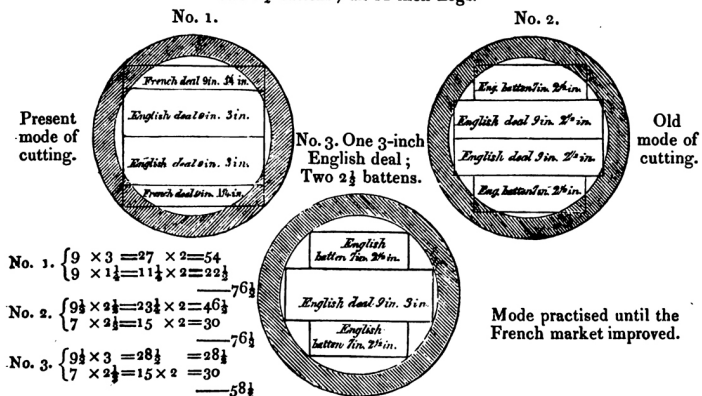


Fig.5: A drawing prepared by Architect John White for the 1835 Select Committee on Timber Duties. The view shows the cross-section of rectangular solids that can be sawed from a log 12 inches in diameter. The Report has many entries from witnesses who used the term “Deals” for rectangular solids of various thickness and other special names for “Deals” such as “Battens” and “Planks”. Henry Warburton informed the committee that “Battens, which are deals 7 inches wide, are principally used for floors; but those of the very best description are also used for making window frames. The best yellow battens are imported from Christiania.”(p.368). He also mentioned that “Russia, Poland and Prussia, but principally Russia, supplied yellow plank, as they were termed; that is, deals 11, or above 11 inches wide.” The Committee asked John White “Do you find that European fir wood which comes here is brought to the market in a state the most suitable for your purposes?” (p.200) White answered in the negative and explained: “Buildings require the greatest variety of form and shape which can be had, so far as they regard qualities of the materials, particularly in the article of fir timber and deals; oak not so extensively; I allude more particularly to what formerly came into the market as 2 1/2 inch deals, “which suited the builder for all purposes of flooring, doors and windows, as well as sashes, and were more generally useful than three-inch deals. There was likewise formerly a greater variety of lengths than there are at present, and it will be evident to the Committee that the

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lengths of apartments being different, the greater variety of lengths are required to work in the more advantageously; the same applies to doors, sashes, window-shutters, and all other fittings of houses.”

For the last example, once more, I quote Henry Warburton. Warburton, on his father’s death in 1808, inherited a wholesale business that had business dealings in foreign timber and had timber trade records going back to 1757. From these records and his own experience, Henry Warburton was able to provide the committee with 38 pages of a detailed history of the timber trade back to 1757.

The following quote, pages 337 and 338, shows that the tariff on deals can have a negative effect if not carefully applied. It is an extract from Henry Warburton’s reply when the Committee asked what he ascertained from an examination of the timber trade records in his possession concerning “the effect of the duties on that trade:

“From 1757 to 1787, the duty with which deals were charged, the 120, was 30s.; yet as the average dimensions of the deals in Norway cargoes were below 12 feet in length, and three inches in thickness, in apportioning the duty to the various goods which a Norway cargo contained, more than 30 s. must be apportioned to the 12 feet 3 inch deals. The effect of this very low or nominal duty was such as most obviously have resulted; namely, that the deals imported, as well from Norway as from Russia, were of much lower dimensions than are brought to this market under the present system of duties; thus there were deals 7 feet, 9 feet, 10 feet, 11 feet long, 3 inches, 2 ½ inches, 2 inches, 1 ½ inches, 1 ¼ inches, and in some cases, even 1 inch thick. This was of great advantage to the consumer in this country: since obviously, when the converter of timber abroad was able profitably to dispose in this country of deals of every dimension, he could, without waste, turn every part of a tree to account, and could afford to sell the whole of his deals, on the average, so much cheaper. Not only, however, could he sell his deals cheaper, but he could manufacture them of better quality, and assort them better. A deal, to be well manufactured, should be cut clear of course knots, of the center or pith of the tree, and of the external sap or laburnum. This the manufacturer will easily accomplish, if, according to the quality of the log, you leave him to choose of what dimensions the deal shall be; but if, by making it his interest, you force him to cut all his deals of one thickness, and, as nearly as may be, of one length, you make it difficult for him to produce a deal without one or the other of these defects.

The effect of our present tariff on deals, therefore, is to raise the price of shipment, and to render them of worse quality. By referring to the specifications of cargoes of deals imported into London from different countries, prior to 1787, or perhaps even to 1795, (up to either of which periods the duty was so moderate as to cause but little disturbance in the natural course of trade), we shall be able to judge what description of cargoes would now be brought from each of these countries were the trade perfectly unrestricted, or the tariff properly adjusted. During the period in question, each port in Norway, from which deals were exported, had its own pattern or dimensions for deals which it principally manufactured. Thus the deals, ordinarily imported in greatest number from Dram, were from 9 to 10 feet long, and from 1 ½ to 2 inches thick; those of Krageroe were from 9 to 14 feet long, and from 1 ½ to 2 inches thick; those of Longsund and Porsgrund from 10 to 16 feet long, and 2 inches thick; those of Larwig, Moss and Frederickstadt, adopted the dimensions prevalent at Christiania, namely, for white wood, 9 to 13 feet in length, and 3 inches in thickness; and for yellow wood, 9 to 13 feet in length, and either 1 ¼ or 2 ½ inches in thickness. All of these peculiarities of manufacture, at the different ports, have been abolished in great measure by our present tariff, which makes it the interest of the manufacturer to produce a deal approaching as nearly as may be to the largest dimensions that the tariff allows. From some of these ports, namely Longsund, Porsgrund, krageroe, and Larwig, the shipments of deals to London were formerly very considerable, but they are now comparatively insignificant”

Henry Warburton went on to say that “As the duty, by tale, was raised, the

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thickness was increased to 2 ½ inches; and about 1800, it began to change to 3 inches, which shortly after became the established thickness exclusively, and has so continued ever since.”

Only a small sample of the Timber Trade material in the 1835 Report from the Select Committee has been presented. To summarize 465 pages of presentations by expert witnesses would be an important but time consuming project.

Where have all of the Sawmills gone?

The 1835 Report from the Select Committee indicates that a large quantity of lumber was imported into Britain from North America and from Northern Europe. This would have required many sawmills. The lumber exporting regions of Northern Europe must have had many sawmills. Have any survived as restored and operating museums? I located one restored “knock and drop” sawmill, the “Kloppsäge” in 79677 Fröhnd, Germany. However, I do not know if this region of Germany exported lumber. The restored mill Oppgangssaga i Herand, Norway, did I believe, export lumber to Britain.

In North America, water powered sawmills with their working parts have largely disappeared. A few that were located in stone buildings have been converted to other uses (Fischer and Harris 2007). In Canada, the 1871 census has a section called Industrial Establishments. This extensive and comprehensive collection of records is a valuable source of material for those researching nineteenth century water mills, both sawmills and gristmills, as well as shipyards. Unfortunately, few of these industrial sites remain in existence.

One could also ask: Where have all of the forests gone? In some cases they have been clear-cut and replaced by “plantations” where all of the trees are the same age and same species.

Conclusion

The mills built for Maine’s First Permanent Settlement were constructed 200 years before the 1835 Report from the Select Committee. However, in the early seventeenth century, the Timber Trade with Northern Europe was well underway according to Halstead and the sources he cites. Furthermore, certain European groups such as the merchants and builders were very mobile. It is a reasonable assumption that the members of the Laconia Company knew how to arrange for two sawmills to be constructed and operated in their new colony in New England.

An examination for the term “Deal” as used in Select Committee Report indicates that until approximately 1800, it was an inclusive term for almost any width, length, and thickness less than or equal to 3 ¼ inches of a rectangular solid, manufactured from a log, possibly only a softwood log. The standardization was to a thickness of 3 inches. However, even the standardization was qualified by the adjective “usually” by Barbara Robertson in her 1986 publication *Sawpower: Making Lumber in the Sawmills of Nova Scotia*. Robertson wrote “A deal is 3”, sometimes less, in thickness; a standard deal is usually 3” thick x 9” wide x 12 ‘ long.”

Acknowledgements

Tide Mill Institute members Bud Warren and Robert Gordon contributed references; they brought to light the fact that at least one New England colony had water powered sawmills built and operated by men who hailed from England rather than Continental Europe.

When I read that Captain John Mason brought carpenters from England to build a sawmill to saw “Deals”, I ask Elizabeth Trout, Information Manager at “The Mills Archive” in Reading, England, if the “The Mills Archive” had reference material defining “Deals” as a product produced by early sawmills. Elizabeth’s search located the article by Gary R. Halstead (2004) “The Northern European Timber Trade in the Later Middle Ages & Renaissance”, and the 1835 “Report from the Select Committee on Timber Duties”.

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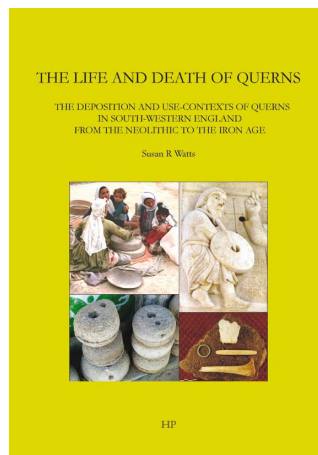
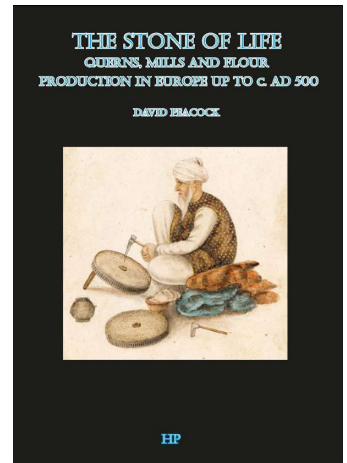
BOOK REVIEWS AND BOOK PRESENTATION

David Peacock. *The stone of life: The archaeology of querns mills and flour production in Europe up to c. 500 AD.* Southampton Monographs in Archaeology New Series No 1. The Highfield Press Southampton. 220 p., 98 figs, many in colour. ISBN 978-0-9926336-0-8. Hb. Price £45

This book is about the archaeology querns and mills, simple stone instruments which are vital to survival in a society which adopts bread as its staple. They become the 'stones of life', an essential ingredient in the subsistence strategy of settled agriculturalists.

It might be expected that as querns and mills are commonplace in archaeology, they would be key artefacts, studied exhaustively. Alas, this is far from the case. They have been woefully neglected, although in the last decade there has been burgeoning interest throughout much of Europe and because of this, it is timely to survey the subject, adopting a broad viewpoint. A study on this scale has not been attempted since the late nineteenth century when Bennett and Elton published their magisterial work on the History of corn milling.

The author is Emeritus Professor of Archaeology at the University of Southampton and a Fellow of the Society of Antiquaries. He was awarded the Kenyon Medal of the British Academy in 2011 and the Pommerance Medal of the Archaeological Institute of America in 2012. He has had a lifelong interest in querns and mills on which he has published widely. His work includes the discovery of key mill quarries in the Mediterranean – Orvieto in Umbria and Murgaria in Sardinia, while in Britain the Lodsworth quarries remain the only ones to be found by a deliberate search strategy. The reader will be grateful to Chris Green, also a Fellow of the Society of Antiquaries, for the clear and elegant illustrations which enhance the book and elucidate the text.



Susan R Watts. *The Life and Death of Querns. The Deposition and Use-contexts of Querns in South-Western England from the Neolithic to the Iron Age.* Southampton Monographs in Archaeology New Series No 3. The Highfield Press Southampton. A4, 183 p., b/w and col illus. ISBN 978-0-9926336-1-5. Pb. Price £35.

Querns are special artefacts as they are concerned with subsistence and supporting life in a manner which few other artefacts can emulate: they transform raw material into a usable consumable commodity. Their association with women, the production of food and the movement of the upper stone, suggests symbolical links between querns and life

cycles - agricultural, human and building. They can also be read in terms of gender relations and the turning of the heavens. It is not surprising therefore that they have a special symbolic role in early societies.

In 1995 JD Hill published his seminal thesis that many of the rubbish pits commonly found on Wessex Iron Age sites, were carefully 'structured' deposits, with meaning reaching far beyond the mere disposal of refuse. He mentioned the special role of querns, but as his thesis focussed on animal bones this idea was not followed up – until now. This book analyses the deposition of querns in prehistoric south-western England, cataloguing how and where they are buried, the associated artefacts and their possible significance. The discussion is broader, however, exploring the object biography and symbolism of querns,

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taking the reader to unfamiliar territories around the world. This is a new ground-breaking work, which with its full bibliography will stimulate fresh studies and at the same time set the agenda for a new field of investigation.

A long standing interest in querns led to the author taking a degree in archaeology as a mature student at the University of Exeter. This was followed by the in-depth research presented in this book, which formed the basis of a thesis for which she was awarded her doctorate at Exeter in 2012. She has studied and reported on querns from a wide range of sites, from Wharram Percy in Yorkshire to Dichin in Bulgaria, and has presented papers at both national and international conferences on the object biography and the function and symbolism of querns and millstones. She compiled the Data Sheet on querns for the Finds Research Group and has written and co-authored several articles. She lives in Devon with her husband, Martin, a leading molinologist, and two black cats.

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We are not native English speakers our selves, our English is not perfect! But we dare to communicate. Don't be afraid of mistakes, the only mistake you can make is not to send us information about your country!

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