

# TIMS E-NEWS

## The International Molinological Society

Spring/ Summer 2015

Issue 18

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### INTRO BY OUR PRESIDENT

*Dear TIMS Members and Mill Friends,*

*we have a new TIMS E-News team, and this is their first E-News!! The new team consists of Katerina Toutouza, Holly Parton and Jan Spaens. Please support them as much as possible with mill news, small mill articles, information on mill events and new mill books, and so on.*

*They will also appreciate to get your feedback on this version of E-News.*

*I would like to take the opportunity to give to George Speis our sincere thanks for his work done on E-News in the past two years.*

*This year is going to be an interesting one for TIMS, with the 14th TIMS Symposium in Sibiu, and our 50th anniversary. The Symposium is fully booked with roughly 110 registrations from 23 different countries. The titles of the various papers promise that it will be a very interesting Symposium.*

*Not a member of TIMS yet? Well, with TIMS getting 50, now is the time to become a member. 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.*

*Enjoy reading the E-News !!*

*Willem van Bergen  
e-mail: [wdvb@gmx.de](mailto:wdvb@gmx.de)*

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## EDITORIAL

To introduce the new crew of TIMS, a short background description of the new faces in the TIMS arena, by Jan Spaens.

Let's start with Holly Parton.

A freelance archaeologist, Holly first discovered her love of mills whilst working in Jordan cataloguing hand mills from an excavation. The smooth, polished grinding surface was evidence of many hours of grinding grain into flour for bread. Working in Crete and exploring old villages led to the discovery of abandoned olive mills, watermills hidden down river gorges and small windmills perched high up on the hilltops. She extended her travels to the island of Karpathos where she undertook a detailed study of the mills in the area of Olymbos, on which she has presented papers to TIMS. She believes the community of TIMS is one of the best things that her interest in mills has brought and is happy to have an opportunity to give something back in return.

About myself, Jan Spaens.

About your devoted mill enthusiast. Now that I wined down my active career as business consultant there is more time to dedicate on what is my passion: mills and all what has to do with it. In one word, molinology. As one of the lucky ones that are around, I was able to acquire a watermill in the south of France that originates from somewhere in the 15th century. For over 15 years now (started in 1997) I am restoring it, doing as much as possible myself. One of the main objectives is also documenting its history as adequate as possible. Currently, the documentation of history of the mill and its activities is almost complete. The first document I have found in the archives of the city of Albi is a marriage certificate from the son of the miller that dates from 1582. The fascinating adventure of digging in history has delivered a treasure of old and some original documents. My intention is to share this with as many molinologists as possible.

## THE TIMS BOOKSHOP

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

For more than four 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 is on the Internet at: <http://shop.millsarchivetrust.org/home.php?cat=27>

## THE NEXT ISSUE OF INTERNATIONAL MOLINOLOGY (IM)

IM90 (May 2015) – Article Summaries

1. **The Millstone**, a Swedish story, freely translated from the German, and adapted into English by Susana V. Louro.

This is a short story about Mats and Katya, two Swedish children whose grandfather operated a watermill and their trials and tribulations when persuaded by another child to take an unused millstone from near the mill pool to sell so as to raise money to spend at the annual fair in their village.

2. **Processing of Madder in the Netherlands**, by Jan Both.

Madder is a plant whose roots provide a red dye, which was used for centuries for dyeing textiles. Up to the 1820s, the south west of the Netherlands, centred on the island of Goeree-Overflakkee, was the main producer of madder and supplied a large export market. The processing and drying of the madder roots in the specially designed and built meestoven is described, along with the

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the use of horse mills to crush the dried roots. The madder trade, whose merchants were based in Rotterdam, came to a halt in the late 19th century due to the discovery of making certain dyes from coal tar.

### **3. In Search of Mills in Cameroon**, by Benoît Deffontaines.

Visits by the author to the country of Cameroon in Central Africa showed that the local population relied on the use of pestle and mortars or saddle querns for preparing certain aspects of their culinary requirements. The saddle querns are used today for the preparation of condiments and also to some extent for cereals. Apparently most Cameroonian households had a saddle quern for this purpose, however today it is more likely that they have their condiments ground up at their local market stall when they are purchased. This has led to an increase in the number of hand powered mills imported into the country for this use. The author's searches for other types of mills discovered home-made wind powered pumps utilising second hand vehicle parts and one disused waterwheel that had been used to generate electricity. Unable to bring back a genuine saddle quern (due to weight restrictions) the author was able to find iconographic reproductions of them on jewellery and native carvings.

### **4. The Story of the Waterpowered Heritage in the Lower Valley of the Essonne**, France by Karine Berthier.

The city of Corbeil-Essonnes lies about 30km south of Paris at the confluence of the River Essonne with the Seine. An overview of the development of water power in the area and its relationship with the capital city over the last millennium is described. Starting in the early medieval period with corn grinding the use of waterpower diversified over the centuries to include oil production, cloth fulling and paper making. Later on in the post medieval period tanning, gunpowder manufacture and cotton spinning became prevalent by the 18th century. This article shows that France was well represented in the industrial revolution, employing distinguished scientists and inventors at the mills on the River Essonne, such as Lavoisier at the gunpowder mills and Nicolas Louis Robert, inventor of the continuous paper machine. Other well known figures form part of the story with Christophe Oberkampf, producer of textiles called "Toiles de Jouy", having a spinning mill at Chantemerle. In the 19th century the Darblay brothers were well known in the paper industry for their factory at Essonnes and the corn mills at Corbeil developed into the Grand Moulins de Corbeil, an enterprise that continues to provide Paris with flour today.

### **5. The Windmills of the Campo de Cartagena: Part 2 – Brine Pumping and Salt Crushing**, by Chris Gibbings.

Following on from looking at the water raising windmills of the Campo de Cartagena in the last edition of IM, the author now turns his attention to the salt mills. These are nothing like as numerous but are concentrated in the region of the inland lagoon of the Mar Menor. The author shows how two of the windmills with two scoop wheels each were used to raise sea water into the salt pans where it could be evaporated. A number of photographs show how they looked on his visit in 1978 and their appearance today. The remains of another four windmills that were used in the salt industry, both for raising sea water and for crushing lumps of salt are also shown although three of them are now merely truncated empty towers. Development along the spit of land known as La Manga del Mar Menor over the last 25 years can only be described as terraforming which has completely destroyed these mills natural habitat although local councils are now attempting to promote the windmills as tourist attractions.

## **E-NEWS - OLD VERSIONS /PRINTABLE VERSIONS**

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## 2015 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!



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## NATIONAL MILL DAYS

### GERMANY

Mill dates in Germany:

- 25 May 2015 Deutscher Mühlentag (National Mill Day - Germany)
- 6-7 June 2015 Britzer Mühlenfest 150 Jahre Britzer Mühle, Berlin
- 19-21 June 2015 DGM Mitgliederversammlung
- 13 Sept. 2015 Tag des offenen Denkmals

### PORTUGAL



11-12 de Abril 2015– Dia dos Moinhos Abertos  
7 de Abril (Terça-feira) – Dia Nacional dos Moinhos

## NEWS FROM AROUND THE WORLD

### GERMANY

**Practical information**, by Gerlald Bost.

Mills open to the public

If you plan a vacation or mill-tour in Germany, get prepared with the right information. The homepage of DGM (Deutsche Gesellschaft für Mühlenkunde und Mühlenerhaltung e.v.) provides every year an index of all the mills participating on the national mill day. You can download all the information by region, have a small map and get all the valuable information. Opening hours, short description of the mill, email-address, contact and phone-numbers.

How to find money for a mill

To restore or maintain an old mill is very expensive as we all know. Public money is not always available, especially at the time you desperately need it. At the Britzer Mühle in Berlin we have for many years a successfully joint venture with the local register for weddings. Young people like the idea to have a „special location“ for the most important day in their life and book the wedding at our mill. The registrar is doing the official marriage and the

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volunteer millers (specially trained for this event) do an additional ceremony. Sometimes, the older people of a weeding group come up and ask for a special day for their Silver- or Gold-wedding. Yes, we also are prepared for this. Last year we had over 40 wedding at our mill. And they all paid a premium price to the registrar office, of which we get a good share of the money. Something to think about!?

If you are interested in more information, please contact me:

Gerald Bost

[bmv@windmill.de](mailto:bmv@windmill.de)

Best regards / Mit freundlichen Grüßen

Gerald Bost

TIMS Repräsentant für Deutschland

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Exhibition “Flügel im Wind. Windmühlen in Europa (Sails in the wind. Windmills in Europe)” .

From the 10th of Juli till the 25th of August, this exhibition will show a fine selection of windmill photos from all over Europe made by Helmut Dollhopf, photographer living in Nurnberg.

Helmut Dollhopf is well known for his latest book “Windmühlen”, which will be on sale during the exhibition.

The Exhibition will be held in the Museum Industriekultur Äußere Sulzbacher Straße 62 90491 Nürnberg.

Phone +49 911 231-3878

## GREECE

ΙΝΣΤΙΤΟΥΤΟ ΤΩΝ ΕΛΛΗΝΙΚΩΝ ΜΥΛΩΝ

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## Recent Events at the Institute of Hellenic Mills

•During the last General Assembly of the Institute of Hellenic Mills, held at its premises at 45 Asomaton str., Athens on Saturday February 14th 2015 there was a presentation of the Institute's Annual Award established since 2010.

This award is given to the most outstanding accomplishment in the field of highlighting or protecting a Greek mill. The specific case of 2015 concerned the old windmill owned by Mr. Elpidoforos Amallos, who restored this old family mill previously owned by his priest father Giannis, in the village of Antimacheia on the island of Cos. The windmill is a typical example of the mills existing in the southern part of the Aegean Sea, complete with a rotating roof. This windmill ceased functioning during the sixties.



Now it is operating once more, for the benefit of all visitors.

Photos of the mill in question, as well as the presentation of the award to Mr Amallos are presented here.

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• On Friday March 3rd 2015 our members participated in an excursion to the Dirfy mountain area in Euboia, where we admired the imposing waterfalls near the village Stenies. We particularly located the ruins of three watermills, comprising a traditional water fulling mill, complete with washing and dyeing basins for woven fabrics.



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### USA

STOVER-MYERS MILL – Built 1800

Pipersville, Bucks County, PA

HURST FRAME RESTORATION, by Charles Yeske – Historic Properties Manager, Bucks County Parks and Recreation Department.

In July of 2006, millwright Derek Ogden deemed the Stover-Myers Mill's hurst frame "in imminent danger of collapse into the turbine pit." Most fortunately, within a year a temporary steel support system was installed, holding all the decayed, weakened and compromised components of the frame somewhat steady. This predicament was inevitable, due in part to a half-century of neglect but also in large part because the "existing hurst frame was poorly designed and constructed" and that it and "its faults are a good historic feature of how not to build a wooden hurst frame over an open turbine pit," according to Derek.



The design problem was with the frame's 26' front and rear sills being unsupported over the pit span and the stone bearers running lengthwise, rather than the shorter distance between the front and rear top rails. Deflection of about 3 ½ inches from the weight of 4 run of millstones ensued over the years, and the unwitting removal of two turbines 40 years ago transferred the additional weight of associated gearing to the hurst frame, as well.

With collapse still a threat, funding was sought and secured from the Pennsylvania Historical and Museum Commission, the Federal Community Block Grant Program, and from the County of Bucks (owner of the mill). Architect Dan Campbell, working at the time for John Milner Architects, drew up plans and specifications with Derek's valuable input. It was decided to pursue a two-phased approach: phase 1 to dismantle everything involved and phase 2 to reassemble, using original elements wherever possible and new material elsewhere to fulfill the scope of work – the realization of an operational mill.

By bid, Ben Hassett was awarded the phase 1 work and, as his work history attests, within a month the existing frame and stone set-ups had been disassembled and set aside. Included in this work was shoring of the first floor to support the stones in storage, removal of horizontal drive shafts, turbine gearing, and stone gearing, as well as some decking and flooring, elevator shafts and spouts.

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Now Dan Campbell went to work determining what was salvageable for re-use, with Ben's opinions considered. As a result, new material specified for the next phase included the front sill and rail, the two stone bearers and some bed-stone supports. Although the original stone bearers had somewhat failed, it was decided by Derek, Dan and me to reconstruct as originally done. However, to minimize any future deflection, a steel beam was to be positioned under the front sill, adding strength throughout the frame.

Other phase 2 work was to include reinstallation of all shafts, gearing and stone components, dressing a pair of stones, reconstruction of a meal elevator, replacement of cogs, replacement of the main drive belt, flooring and decking repairs, and replacing some posts supporting the mill's main center beam. As the restoration of the head gates, mill race and turbine pit were not of this project, and as therefore a turbine could not be used to power the equipment,



a motorization scheme was designed, and as such was to be connected directly to the main drive shafts to power all the mill operations.

Phase 2 work was awarded to Richard Harlow, by bid quote, and work progressed by fits and starts. Two issues, unsuspected, evolved. When Harlow was installing the main horizontal drive shaft, we discovered that its connection to the main vertical drive shaft was off by 3 1/2 inches, the same deflection caused by the frame's collapse.



It appears that when the roller plant was installed about 1880, the drives and shafts were installed in accordance with the conditions then – the horizontal, vertical and roller line shaft all meshed. When Harlow assembled the new front sill, it was level and didn't have the deflection. The building needed to be raised that amount, and it was, enabling correct alignment of the shafts and gears. This had no effect on the hurst frame, which is independent of the main building.

About this time Harlow died unexpectedly. His brother, Albert, was contracted to finish the job according to the original specs. Now the second of the evolved issues needed attention, namely providing support for the two existing turbine shaft and gear components, since the turbines had been removed years ago. Only one support needed to be designed, as only one run of stones was going to be used. A steel beam was slung underneath the frame and a brass thrust bearing attached, to which the turbine shaft to be used was set. The gear of this shaft meshed with the operational stone gear. The other turbine shaft was simply blocked to the frame for support.

Albert Harlow wisely contracted with Ivins Smith, miller at Cooper Mill in NJ, for consultation and guidance on remaining work items – the meal elevator and balancing and setting the run of stones to be used, previously dressed by John Lovett.

At last, after a dry run, corn was run through the system, successfully. Running at about 84 rpm by means of the motor, the stones produced a nicely cracked corn and meal mixture, flowing smoothly into the elevator, discharging into a bin. A diverter also allows for by-passing the elevator to another bin directly. Of possible interest to readers is the cost of this project. In 2008 the estimate

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was \$396,480. Finished this past September, the actual cost was \$389,222.65. Under budget!

Plans are now underway to open the mill for tours and scheduled milling days beginning this spring. I had often said that once I had the first bag of meal in my hands, I would announce my retirement, but after almost 40 years of waiting for that moment, I guess I'll just hang around a bit longer to enjoy the experience.

### **SOUTH KOREA**

Tidal Power Station Gunsan, South Korea – a modern Tide Mill.

This tidal power station is part of a 50 km long causeway across the Gunsan bay which also links some of the small islands to the Korean mainland. The China sea is a high tidal zone [up to 3 metres between high and low tide]. The sea level is on the right and the bay level is higher on the left. It is low tide and the bay is draining back to the sea.



Each radial gate houses a Kaplan turbine around 500MW each. The turbines are reversible so at high tide when the water flows the opposite way, they carry on generating electricity.

The construction of the causeway is quite incredible as it is over 50 metres wide at the top and has a four lane dual carriage expressway on it as well as service lanes and parking bays for viewing. The causeway took about 15 years to build as suitable rock from all over Korea [mainly basalt] had to be excavated and trucked in. Some of the rock was fill from construction sites where the ground had to be blasted and levelled.

There are two tidal power stations like this on the causeway.

### **THE TIDE MILLTIMES**

Fall-2014

[www.tidemillinstitute.org](http://www.tidemillinstitute.org)

(Info, photos and summaries from the TDI's Fall 2014 Issue)



#### **TMI's 10th Conference at York . . .**

Nearly 70 people gathered last November in York Maine for a two-day celebration of TIDE MILL INSTITUTE's first decade of service to the tide mill heritage community. The meeting rooms at the Museums of Old York and the local Congregational Church were crowded for presentations by molinological newcomers, experienced tide mill researchers, illustrators, installers and even a real tide-miller. As if this weren't enough, they listened to a state representative involved in writing legislation about tidal energy, explored the history of tide mills on the York River and braved chilling cold for a field trip to the nearby early Barrell Pond tide mill site.

. . . and Beverly Mass will host the 11th !

We're happy to be able to announce that next fall's tide mill conference will be held November 6th and 7th at a doubly-historic location in Beverly Massachusetts. CUMMINGS CENTER is right across the street from the site of a 17th century tide mill and highly visible remains of the 19th century Friend tide mill profiled in our last issue. Built in 1904, the CENTER is itself of historic importance as one of the most significant early reinforced concrete industrial buildings in America, home for years of the famous United Shoe Machinery



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works. Yes, that's a tide mill grind stone at its corner!

As always, the goal for this conference will be to offer a wide variety of presentations to give established researchers and newcomers the opportunity to share stories of their work. We'll also focus on modern tide mill activity and take a guided field trip to the remains of Beverly's nearby historic Friend tide mill.

### Conference Presentations

What follows are descriptions and images from talks at this year's event, arranged in the order they were presented. We hope these pages will give participants and others a sense of the rich breadth and depth of a TMI conference and may make the latter want to attend future events. Should you wish to contact any of the speakers, email us at [info@tidemillinstitute.org](mailto:info@tidemillinstitute.org), and we will let you know how to get in touch with them.

### MILL IN THE MARSH: SEABROOK NEW HAMPSHIRE – Jessica Cofelice.

About 1640, blacksmith Andrew Greeley built a tidal grist mill in Salisbury, then part of the Massachusetts Bay Colony, later Seabrook, New Hampshire. About ten years afterward, he added a sawmill. Though registered (in the 1980's?) the site was not investigated again until last summer by Cofelice, a fellow archaeologist, and Bud Warren.

She shared how she pinpointed its location, and led the audience in her search for the remains of the dam that stretched, partly anchored by a ledge, for 1200 feet across the stream. She then described details of the extensive remains,



including pieces of two broken mill stones. A proposed interpretation was presented, and a lively question and answer period followed.

### DISCOVERING A TIDE MILL IN SALISBURY MASS – Ronald Klodeski.



Given an old map showing a grist mill just across the Merrimac River from his home town of Newburyport, Ron began researching, but found little about the mill's history, so he visited the site with a friend by kayak and found good evidence of an early



mill whose features are similar to many other small coastal New England tide mills.

Remains recorded included evidence of a dam with two lines of vertical sheathing, structural mill timbers and flooring and a set of unusual bulkheads. Particularly interesting were a millstone and a granite slab with a hole, perhaps a shaft bearing for a horizontal wheel.



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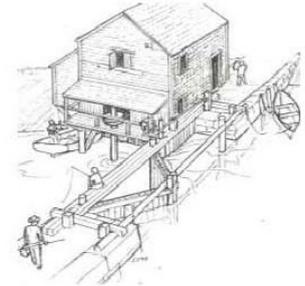
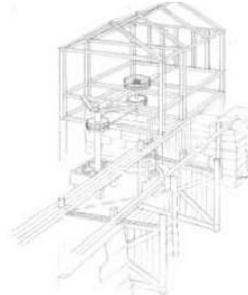
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### KITTERY'S THOMPSON TIDE MILL AND LAND TRUST – John Viele.

A key player with the Kittery Land Trust since 1991 when it gained a conservation easement for the property, John focused on preserving the character and natural habitat of the site, and only recently became interested





## ERNEST HASKELL'S PHIPPSBURG TIDE MILL ETCHINGS – John Goff.

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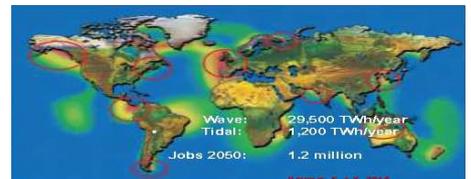


Ernest Haskell trained in Paris, knew and worked with James Whistler and became a master of the art of etching.

Some of his finest work featured landscapes and tide mills of the coastal town of Phippsburg, Maine. A historical architect, John Goff presented a lively, illustrated biography of Haskell, and using several of his images of landscapes and buildings showing how he practiced his craft and achieved great accuracy in picturing tide mills.

### REALITIES OF TIDAL POWER TODAY - Roger Bason.

In his presentation titled “Ocean Energy: Infrastructure Design with Natural Systems,” Roger Bason, founder of Natural Current Energy Group, looked broadly at different types of ocean energy, and explored some of the different technologies being utilized



to capture it. In addition to the more familiar tidal, wave and current approaches, he described the exciting concept of ocean reefs and development of bio rock structures. He particularly recommended installation of cross-flow turbines, timely filing of application permits for localized utilities and limiting use to local sources.

### PUBLIC POLICY AND TIDAL ENERGY – Deane Rykerson.



A member of the Maine House of Representative's Energy, Utilities and Technology Committee, Rykerson explained the patterns of energy proposals presented to the



PUC and explained its ambitious goal to have renewable 40% of the state's electrical generation by 2017. He pointed out the permitting challenges to barrage

or impoundment tidal projects, the latter being characteristic of historical tide mills.

### MAINE'S FIRST TIDE MILL: 1634 – Emerson Baker.

Historian and archaeologist “Tad” Baker shared the history of early tide mills on the York River, indicating the poor performance of the first, a saw mill on “Old Mill Creek,” because of poor construction of the dam and breakdowns of the machinery. He explained the cultural and economic context of tidal and other saw mills in the developing community through the social and family

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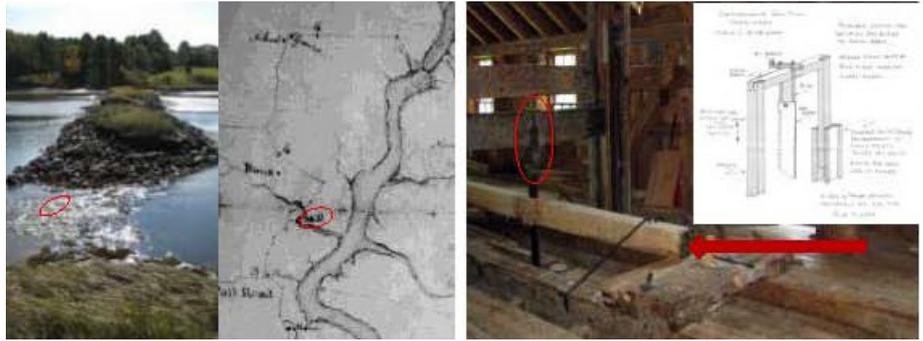
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relationships among their owners and operators. Pointing out the many mills in the region, he used deeds, maps and artifact images from a range of York area and other sites, showing how they were constructed and worked. For the most part, they were profitable for those involved.



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**YORK'S BIGGEST MILLPOND: THE BARRELL MILL** – Robert Gordon. Bob Gordon, who lives at the head of the millpond, discussed how tide mill lumbering in the region was bountiful until near the end of the 18th century, but leveled off as the forests were stripped. Jonathan Sayward Barrell's sawmill failed in 1810, and over time the dam deteriorated. It was repaired, and a couple of ice pond ventures were attempted there in the 1870's and 1880's. Near the end of the century, a resort development was begun on the



fringes of the pond, and over the next quarter century or so the dam became a path to the local golf course. Thirty years still



later, the suspension bridge was erected. In 1946 a water park plan was proposed but dropped, and the property was finally donated to the York Historical Society.



After his presentation, Gordon led a field trip to the site.

**ILLUSTRATING PORTUGAL'S CORROIOS TIDE MILL**- Xavier Pita. Xavier Pita described his master's thesis in scientific illustration, a project to illustrate the 611 year old Corroios tide mill. Belonging to the town council in Seixal, Portugal, which supervised its restoration, this working mill is also



integrated into the town's municipal Ecomuseum, home base of Claudia Silveira, a former conference speaker and long term TMI friend. Pita's task was to develop illustrations for infographic posters and publications. His research for the project included contacts with staff, milling and equipment specialists, visits to other mills and many planning meetings to develop thematic units. His final product included introductory information, illustrations of the pond, dam and building, its machinery, how it all worked, the tides and how they powered the installation.



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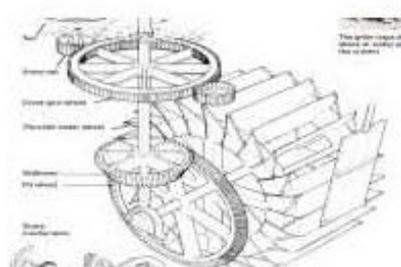
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An unexpected outcome was illustrating the varied wildlife that inhabits the area around the mill. To achieve his spectacular results, Pita used a number of 2D and 3D digital programs, including Photoshop, Cinema4D, and Adobe illustrator and design.

**OPERATING THE UK'S 400 YEAR OLD ELING TIDE MILL** – David Plunkett.

The millwright builds the mill and works on the machinery. The miller grinds the grain. David has done both jobs at this popular working grist mill in Hampshire and shared his experiences to make sure that the 400 Eling tidal grist mill runs smoothly. He told the history of the old building, explained how the machinery worked, and how he and a team of volunteers help him maintain it and respond when



things don't go well. Some photos showed subtle inspection, new wallower wedges and even installing a pit wheel!



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**WHAT DOES TMI DO?** –and an invitation.

Like most non-profits with no staff, TIDE MILL INSTITUTE operates on the good will and free time of its leadership and interested members. As we do not yet have a “membership” program, we consider all of you who get our newsletters in that category. Thus, as “members,” YOU are an important part of our effort to explore and share the story of tide mill heritage anywhere in the world. Feel free to jump in anywhere along the line – sharing tide mill tidbits, asking questions, or making suggestions. It's ALL important! In fact it's all important! Feel free to get in touch with us at [info@tidemillinstitute.org](mailto:info@tidemillinstitute.org) about anything “tide millish.” Several people did last summer and became speakers at the November conference, and others have since then. A number of you responded to our survey about the conference. Thank you.

As you know by now, our biggest public efforts for a decade have been our conference and producing this newsletter. But much goes on behind the scenes. We've incorporated, and just since November's conference have opened a bank account and are in the process of producing an application for IRS 501(c)3 status. We're in discussion with someone who will help us make our website more attractive and user-friendly. Several new people have joined what up to now has been an informal “Board of Directors.” We're trying to acquire a significant tide mill archive, and are exploring ways to create an appropriate public educational platform. Several of us have led tours to tide mill sites and given talks at various public venues. And of course, the mail is busy - email and otherwise. Just since the conference, people have offered information about account books of several early tide mills (these are woefully rare!); someone researching the working structure of windmills has written to us about details of wooden gears in mills; our contact in Florida has added one or two tide mill sites to his growing list there; another has asked for details about a flutter wheel; tide mill folks in Tasmania and Australia (yes, all the way; from down under!) are sharing their information; contact has been made with a historian in Basra, Iraq about its ancient tide mill from about 1000 AD. TIDE MILL INSTITUTE is becoming the place to go for information about tide mills! All of this activity is being recorded and added to a slowly-growing data base. It's an exciting time; we invite you to jump in!

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## AVAILABLE FROM TMI

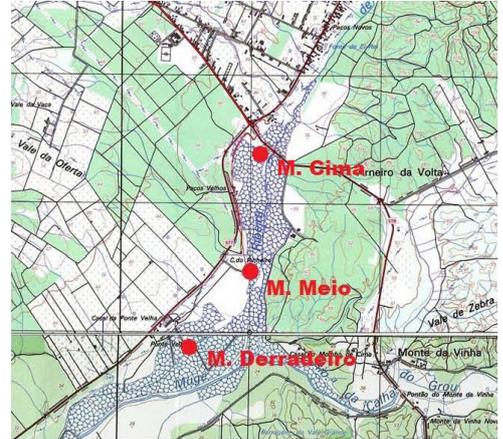
Two discs are available for your personal study of tide mills! The TIDE MILL TIMES – includes five years of all ten editions packed with information about mills around the world!

Also available is WHAT IS A TIDE MILL? a spooling power point program illustrating the basic elements of tide mills. Great for explaining what tide mills are and how they work.

\$10 each or both for \$15 postage paid. Send remittance to TIDE MILL INSTITUTE – 5 Berkeley Lane – Topsham ME 04086-6119.

## PORTUGAL

Big news on the Day of the Open Mills 2015 in Ribeira de Muge - Almeirim - Portugal. The Academia Itinerarium XIV, an association for the defense of the Ribeira de Muge heritage, has for the first time in 2014 joined the 'Open Mills' initiative, promoted by the Portuguese Mill Network. With the intent of preparing the 2015 edition, it is now planning a footpath between two of the old 'Palha Mills'. Location of Palha Mills.



This group of 3 mills used to be Vasco and Francisco Palha's, in the beginning of the XVI century. The oldest record that we have from them is from 1511, in a description of the terrain where the king Manuel I would end up founding a palace - Ribeira de Muge's Royal Palace - a hunting residence in the Almeirim court. In 1515, the Palha would offer their mills to the king.

The footpath that the Academia Itinerarium XIV proposes to put in march in April starts precisely at this old royal hunting residence, passing through the place where the Cima Mill was located going through into the Meio Mill - it's called Pinheiro Mill or Bento's Mill (in honour of his last miller) nowadays. This footpath's about an hour long, through plain terrain, perfect for family groups.

While testing the paths and trying to know the space better, we got a bit disappointed. We knew that the Pinheiro Mill was abandoned already... but it was noticeable that it had been quite vandalized throughout the years. Upon further exploration, however, we found a bit of a treasure: a pair of french millstones. After dusting them off, there was no room for doubt: they were inscribed 'Dupety Orsel & Cie - LA Ferte Sous Jouarré'.

The La Ferte Sous Joarré windstones (like the Epernon - International Moliology n.º82) are known simply as 'French Windstones' in Portugal. When we spoke to an elderly women, that in her youth worked at her grandfather's mill, she told us: 'My grandfather never had french windstones. They were better than the ones we had, but they were too expensive for his pockets'. A french windstone is without a doubt a sign of a great investment in the milling sector, at least in the Ribeira de Muge area, where in the middle of the XX century there were still 11 mills.



French Millstone (detail) – Pinheiro Mill

A small treasure that will enrich the 2015's Open Mills Day in Ribeira de Muge. But that's not the only surprise the Academia Itinerarium XIV investigation brings: There was up until the late 60's in Paço dos Negros, a windmill that was demolished by then. It left its mark however in the name

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of one of the village's streets - 'Street of the Windmill'. Everyone in the area feels that the mill is a structural element of their local identity, however a lot of them can't remember how it looked like and don't have any picture of it. We will try to bring its image back to the community in this event.

## ARTICLES AND INFORMATION FROM AROUND THE WORLD

### SOUTH AFRICA

**The Mostert's Mill**, by Andy Selfe.

Secretary Steve Craven of Friends of Mostert's Mill asked me to visit and give some advice on some technical problems at this the only working Windmill producing meal in Africa.

The team of Volunteers set the Mill working, giving all of us the opportunity to observe the faults while the Mill worked lightly. Also present were Neville Boyd, John Hammer, Paul Jaques, Adam an Apprentice Miller and a visiting Windmill owner from the North of Holland, Pieter Br..... Unfortunately Brad Wallace-Bradley has decided to retire.

There are two main problems, one at the top with the meshing of the brake-wheel and the lantern pinion, the other with the stones themselves.

The meshing at the top can be watched on this short clip: <http://youtu.be/DNO-4qh7cMh4> There are two factors to this problem, one that the brake wheel is



not running true, the other that the lantern pinion is not set central to the rotation of the vertical shaft. The run-out on the pinion is exacerbated by the fact that the 'pintle' is loose in the wood at the top, and has had to be wedged in place as a temporary measure. The round bar of the pintle engages in the bearing of the sprattle-beam and that also has excessive play.



One can see in the clip when watching the cog-face of the brake wheel in relation to a fixed object like a brake block, that the brake wheel has a wavy profile, but in one area of about half a revolution the distance from the pinion is excessive. Without actually measuring it looks as if the run-out is about 25mm.

The run-out on the pinion is perhaps less, but it means that about every three revolutions the meshing is either too close, with the clasp-arms rubbing against the upper disc of the lantern, or in danger of to going out of mesh. If this was to happen, re-entry into mesh could easily cause a fracture of a cog or stave.

Before any attempt is made to true-up the pinion, the problem of the loose-and-wedged pintle must be properly dealt with. Discussing this with Neville who has an engineering background and Paul who is an architect, we decided that a modern material which might help would be an ABE product called Epidermix. This is close to what is called in Europe and UK Araldit(e), a two-pack epoxy which is popular in engineering and building.

Rather than the quick-fix possibility of simply pouring this into the top of the vertical shaft, making it probably impossible to remove the pintle ever again (it may need to be machined or re-sleeved in the round section at some time in the future), it would be better to apply some kind of release agent to the metal parts, even cling-film, so that it can be removed if necessary. Here is Neville's drawing of the metal part along with the wooden (?) block which holds it in place. There is a square iron band which fits over the top of the shaft which can just be seen in the picture above.

If the wear in the wood is not too bad and the problem can be cured simply by

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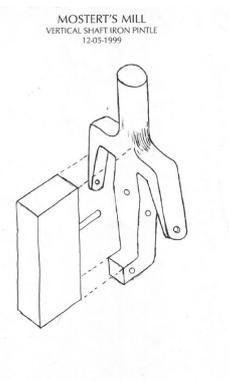
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applying more clamping pressure all round, it might be possible to substitute the iron band with four interlocking eye-bolts similar to those around the wind shaft (see picture below) and poll end. It might be an idea to do both! The pintle with its wedges can be seen in this short clip <http://youtu.be/O9yD3wn5R6w>. The brake wheel also runs out vertically, causing the brake blocks to take unevenly. It would be good to reduce this when aligning the cog face, which should be a fairly straightforward operation involving adjusting the wedges. I found two of these wedges loose today. The other problem is on the millstones and the uneven load at every turn is not helping the problem at the top. I have read Brad's notes and seen Neville's pictures of uneven wear on the bedstone. It appears that the bedstone is not flat and level and never has been. It must be remembered that in the restoration of 1995, the Dutch Millers never had a chance to completely commission the Mill. They returned in 1998, and explained the stone-dressing procedure but it still wasn't done. It is also not known whether there is play between the stone spindle and the wooden bearing in the bedstone and it is suspected that the runner, even though it is on a stiff rynd, is out of balance. An added slight complication is that the stones are not a pair, one is dressed with harps, the other is sickle-dressed.



Clearly the first stage is to level and flatten the bedstone. Brad's notes mention that he picked up 13mm out-of-level using a water-tube level. It isn't possible to use an accurate builder's level while the runner is in place and to remove that means the vertical shaft has to be hoisted out of the way; no small task! However if that is done and an accurate tool is made to take the place of the cock-head of the stone spindle from which the runner can be suspended, static balancing can be done. Brad suggests skimming off some of the top surface of the heavy side. I would suggest adding weight to the light side, that was a common method with weight-boxes set into the stone top face.

Apparently furrows on the higher areas of the bed-stone have been completely worn away, so a combination of levelling, flattening (as described in Kick and Kosmin's books and which I did at La Motte) and re-cutting of the furrows and cracking if necessary should be done.

If the stone spindle is loose in the bearings of the bedstone and if the bearings are not adjustable, then this needs to be cured by sleeving the spindle oversize (there is bound to be wear on that as well as the bearings) and honing the bearing blocks, as I had to do at Compagnesdrift. Addition of grease pipes to the rags in the spaces between the bearing blocks has proved an advantage there.

As the problem of the stones has been there for a long time, I would suggest that the problems at the top be tackled first, the sooner the better.

Watch the impressive sight of the sails working in <http://youtu.be/xRRzyzFZ724>.



### 27th September 2014 Compagnes Drift Mill Thomas Corbett Winnower, by Andy Selfe.

The first surprise on entering the Mill was the array of harvesting scythes! Noel has been making prongs, involving steaming and bending strips of recycled Japanese Beech to replace missing or broken ones, but the biggest surprise was that he had re-made one which Annette and Rupert had given us which was not much more than



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than a few sticks and a blade! We now have five which can be used to demonstrate a phalanx of scythe-reapers working together at our Field to Loaf Demonstration, scheduled for 6th December.



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The other addition was bought several months ago from a farm in the Nuy valley and only brought to the Mill today, a Thomas Corbett winnower.



We had been searching for one for several years because all the 'clean' grain at the Co-op in Caledon is treated for planting at the same time. The thought of stone-grinding grain full of nasty chemicals does not ring true, and it's something of an effort for them to hand-clean a bag of 50 or 60kg at a time.

Once we have mastered the technique we should be able to take ex-silo grain and this can be an additional demonstration in the Milling process. Selection of the right screens according to the degree of



contamination is the first step.



The machine has slides for two at a time and there are three others in a storage bin at the 'dirty' end of the machine. Some of them have been patched in a rudimentary way with fine wire.



The machine is in otherwise good condition, even the Makers' badge is still legible: There was another surprise, not so pleasant; the rats had attacked



the vacuum cleaner we have been using for cleaning out the tun after a day's milling. What's left of suction pipe looks like a sloughed snake-skin:

Having eaten through that, they entered the drum and have left little of the sponge inside!



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We have been unwilling to use poisons for fear of secondary poisoning of raptors, but there are apparently rat poisons which are 'safe' in this respect.

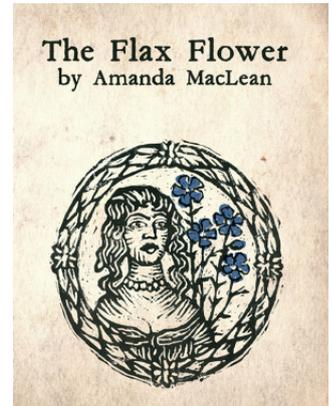
## BOOK REVIEWS

### **The Flax Flower**

An old Scots ballad featuring a miller and his daughter is retold in Amanda MacLean's first novel, *The Flax Flower*. Inspired by one of Scotland's favourite traditional songs, *Mill of Tifty's Annie*, the book relates not only the tragic true story told in the ballad, but the story of how the ballad itself came to be. Set in and around a real-life working mill in 17th century rural Aberdeenshire, *The Flax Flower* gives a rich insight into the culture and traditions of a rural community where millers were both respected and resented.

*The Flax Flower* was shortlisted for the Dundee International Book Prize, the UK's premier prize for unpublished works, in 2011.

Available as an e-book or in print online from <http://www.Lulu.com>. (Note: to change to their preferred currency, users should click on the flag at top right and then on 'Change Store').



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### **Practical Instructions for Millers and Carpenters for Constructing Mills**

A Rare Book on 18th Century European Mill Design and Construction Found in Pennsylvania by Thomas P. Rich, Professor Emeritus of Mechanical Engineering of the Bucknell University in Lewisburg, Pennsylvania.

For over a decade the author of this article has been researching the development of water-powered gristmills in his region of Pennsylvania. During the late 1700s and early 1800s a number of Europeans emigrated to America to begin a new life. They brought with them the technologies of agriculture from their homelands and those needed to refine the grains that they hoped to grow in the new world. One of these technologies involved the knowledge of design and building of gristmills. During his research, the author posed the following question. Was there a written template for the colonial mills built in America that was indicative of the level of technical knowledge present in Europe at that time?

To find an answer to his question, he tried a long-shot, a search on eBay under the subject, "mill design." Low and behold up popped a book titled, *Practical Instructions for Millers and Carpenters for Constructing Mills*, by Heinrich Ernst. It was published in 1805 in Leipzig, Germany. After winning the auction, he was interested in learning where in the world this book was located. The reply from the owner came back, and the book was located in Mifflinburg, Pennsylvania ... less than 20 miles from his home. He quickly went out and picked up the book and opened it up. There were 17 beautiful, copperplate engravings that illustrated in great detail the design and specific construction steps for gristmills run on undershot water wheels. Given that Pennsylvania was the home to many German-born mill wrights and millers in the late 1700s; this indeed was a template for their colonial mills. In addition, many of the streams in Pennsylvania were (and are) relatively flat and gentle, which made undershot wheels an obvious choice

Since many molinologists in the U.S. believe that Oliver Evans provided the template for American mills with his 1834 book, *The Young Mill-Wright and Miller's Guide*, the Ernst book offers a new perspective on a blueprint for early American mills. In addition, Ernst's book provides many more fascinating and informative pieces of information on some of the advanced concepts of European design in the 18th Century. For example, there are chapters that explain the building of water-powered mills with multiple water wheels and mechanisms for

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adjusting the height of the wheels for varying water conditions. There are also descriptions on how to design and build mills with multiple millstone sets. Some specific details are provided on the design and construction of sluices and weirs. One particularly interesting chapter in the book gives specific information on the measurements of flow and fall of a given river or stream using the simple instruments available to millwrights of the time. In fact the author here used these descriptions to teach a historical measurement techniques to



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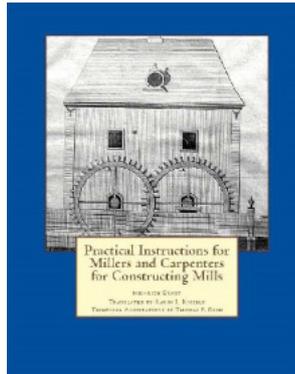
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his students in courses on water-powered gristmills. There was one twist in the preparation of the material in this book; it was written in old German. Fortunately an American Translators Association-certified translator was found at Bucknell University, Karin I. Knisely. Through her efforts the book was translated into English, and the author of this article provided technical annotation to answer questions and provide a modern, technical context for the work. Together, they have published the book, and it is now available for sale. This book has been published on Create Space by Amazon. It can be purchased through Amazon and Amazon Europe. While logged in to Amazon Books, simply search Heinrich Ernst Millers.

### **Watermills and Stoneground Flour Milling**

There's an old saying about "Don't judge a book by its cover" but in the case of the new Watermills book, both are equally charming, informative, and colorful. The cover of Nigel Harris's new book shows a wonderful old color view of the Mapledurham Watermill of Oxfordshire (on the Thames River), grouped around a vertical waterwheel, with a wooden punt or rowboat in the foreground. The book itself presents an extraordinary explosion of wonderful color photos illustrating subjects as diverse as waterwheel & millstone representations on 13th century pewter coinage, boat mills, millstones, historic watermills, miller's wagons, mill gearing and all sorts of related molinological marvels. The color illustrations and photos are complemented by a high number of superb black & white technical views. These include architectural and engineering details, diagrams, sections, perspectives and axonometric drawings all rendered to make the most mysterious mill subjects better understood. The text was just produced by Nigel S. Harris, while the drawings were prepared by the talented engineering draftsman John Brandrick. Harris maintains the website [www.watermills.info](http://www.watermills.info), while more of Brandrick's fine work, developed over a 50 year career, can be seen at [www.milldrawings.com](http://www.milldrawings.com). All of the drawings in this extraordinary volume are completely new and previously unpublished as are most of the photographs.

Nigel Harris, a member of the HMG (Hampshire Mill Group) and Mills Section of SPAB (The Society for the Preservation of Ancient Buildings) plus most recently MRG (Mills Research Group) in England, was professionally trained as a scientist. Between 2010 and 2014 he developed new interests in old mill history and operations after finding that one of his ancestors, David Harris, was a late-18th century owner and operator of a water-powered gristmill in picturesque Surrey. Frustrated by realizing how much old milling knowledge had been lost over the centuries, he set about to answer such questions as: What did various cereal grains look like, when they first entered the mill? What were the various pieces of water-powered machines and equipment used in the traditional 17th, 18th or 19th century British watermill?

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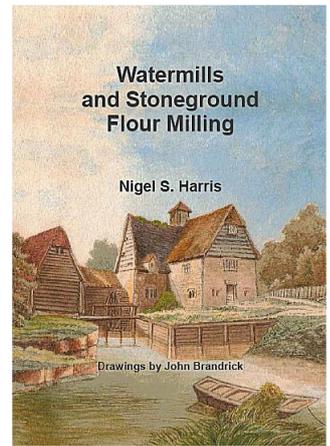
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What did they look like, and how did they function? When David Harris was owner and miller at his family's Gomshall Mill in the U.K., what were his daily concerns and duties?

By facing the unknown and the mysterious directly, and by applying systematic new study and logic to understand how mills evolved long ago, Nigel Harris has achieved a thorough understanding of the processes and problems in the old water-powered mills. Harris's *Watermills* book is a true treasure and a major accomplishment—a visual and verbal walk through the many parts of old waterpowered gristmills—to see how many were commonly (and some uncommonly) designed and operated.

Harris's new book is an extremely rich and finely structured resource that covers such topics as traditional waterwheels, gearing, penstocks, water flow, meal, bran & flour production—and more. This volume receives an A+ rating in all respects—and is one that will benefit all 21st century mill buffs. It is a “Must Read” new molinological reference and one that would make David Harris profoundly proud. We must also give thanks and credit to John Bedington (miller of Charlecote Watermill for 34 years) who proof read the book draft and made many constructive comments. To obtain a single volume or multiple copies of this book, consult [Amazon.co.uk](http://Amazon.co.uk), [ebay.co.uk](http://ebay.co.uk), or the Mills Archive Trust in the United Kingdom.

Research is being done in 2015 to determine the feasibility of making new American-printed copies to reduce shipping costs to mill experts, enthusiasts, schools and libraries in the United States, Mexico and Canada.



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### **Digital visit to Nootdorp windmill,, by Leo Van Der Drift.**



In Nootdorp, near The Hague, The Netherlands, a fully functional thatched smock mill of 1885 called “Windlust” still stands proudly at the edge of the built-up area, excellently cared for by a group of local volunteers. The mill is definitely worth a visit, and it is now possible to do this without leaving your house. Following Street View which allows you to explore the world along the roads, Google now works on making the interior of buildings available online. This Indoor View facility initially allowed you to explore world famous buildings such as big museums and palaces, but now a tour inside less famous buildings is also offered more and more. And Nootdorp windmill is one of the first windmills worldwide that gives you the opportunity of an online visit. The easiest way to start your visit is to go to Google Maps and search for “Windlust Nootdorp”. You will get to the mill’s location and a pop-up window will appear. You can continue by choosing “more” (down right), then choose Street View. You will find yourself in front of the mill now. In order to get inside, click on the arrows pointing to the entrance door until you are inside. You can then look around you, or going up by clicking on the floor you want to visit. Floor numbers are on the left hand side of your screen. Each floor is digitised 360 degrees, allowing you to look around wherever you like, with the possibility to zoom in for a closer look. You can get up as high as the cap floor to have a look at the windshaft, the brake wheel and the brake mechanism. And don’t forget the special bonus: while on the first floor, you can just walk outside onto the reefing stage, and walk around it taking in the views of the surroundings!

For more information, please visit <http://www.windlustnootdorp.nl/engels>. Enjoy your digital visit to Windlust windmill !

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**Muhlen in Niedersachsen: Region und Stadt Hannover** Rudiger Hagen, Wolfgang Neb, Niedersachsisches Landesamt für Denkmalpflege.

In the book-series „Muhlen in Niedersachsen und Bremen“, this new book describes the mills in the so-called Region Hannover including the town of Hannover. The first publication of the series was describing the mills of the middle area of lower saxony by Prof. R. Wormuth in 2013.

Now the second book describes another very interesting area with all places of windmills, watermills, boatmills, steam- and motordriven mills which have been explored in the historical documents, or found on archeological sites. And all the mills which still exist. The history and technical devices of the mills are described in short and overlooking form with many pictures and drawings.



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The reader gets an impression of nearly 450 mill-places in the area.

The first part the book gives an overview of all sorts of mills in the area, the development of the millwrighting firms and factories here, especially since the time of the industrial revolution. Followed by describing how mills were used and conserved today.

The area around Hannover belongs to the most interesting landscapes for mills in northern Germany. All sorts of mills (past and present) have been found here or still exist today: Watermills with all sorts of waterwheels, turbine-driven mills, boat-mills, postmills in all forms including these mills with rollers, tower- and smockmills, paltrokmills, steam- and motordriven mills in all variations.

Furthermore this area was formerly known for its rather early start with modern millwrighting and the founding of many companies in mill related business and for milling-technology since the beginning of the industrial revolution.

Muhlen in Niedersachsen: Region und Stadt Hannover

Rudiger Hagen, Wolfgang Neb, Niedersachsisches Landesamt für Denkmalpflege

ISBN: 978-3-7319-0189-1

Arbeitshefte zur Denkmalpflege in Niedersachsen, Band 44

Published: Imhof-Verlag, Petersberg b. Fulda, Marz 2015

Language: German

21 x 27,7 cm, 400 pages, 551 colored- and 83 s/w pictures and drawings

Hardcover, Price: (D) 49,95 Euro.

### **MESSAGE FROM THE E-NEWS TEAM**

The E-News Team has changed! New people...new ideas! Don't hesitate to send your news and ideas. We need you to keep on going. See you all in Romania to celebrate 50 years of TIMS!!!

*Holly Parton Jan Spaens Katerina Toutouza*

Please send your e-mails to: [ktoutouza@hotmail.com](mailto:ktoutouza@hotmail.com)

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