Mill Matters by Michael Chapman

Traditionally winter is a time for windmills to be maintained ready for the year ahead. The grain harvested in the autumn would have been ground into flour at the windmill and the miller would have been paid for his efforts. Although at Windmill Hill we are not as yet milling we are, nevertheless, not required to be open for the public to view and so preservation work can proceed unhindered. Whilst sitting round the log fire we can also consider future plans for restoring the mill to grind again. Bread and fruit cake is never better than when stonground wholemeal flour is used.

A specification is in the process of being assembled to address the cost of reinstating the missing milling machinery and in the Spring the trust should be in a position to embark on the tortuous task of establishing the necessary funding. It is perhaps worth mentioning at this point that as the windmill was converted in 1895 from being powered by wind to being powered by steam a certain amount of the original machinery is just simply missing. As a result it is necessary to carry out a time-consuming degree of research to discover design details of the missing items so that the original mill can be faithfully recreated.

Models of windmills

Work has started in the education area located within the roundhouse to put on display the Frank Gregory models. For those of our members who are not aware of Frank Gregory, he was famous as an authority on mills in general and Sussex mills in particular and in his lifetime he carried out much research on this subject throughout the county. He was a proficient woodworker and produced many models of mills of all types. Frank Gregory died in 1998 and his family expressed the wish that his models be displayed in Sussex Mills for the interest of all. It is with this wish in mind that Windmill Hill has been given some of these marvellous models to display.

Alan Mead made shelves in the junctions of the roundhouse wall and brick piers, each length of t & g timber cut to fit the space. Perspex will be fitted on the front to protect the models.
**Block-and-tackle**

When carrying out any research it is essential that all pieces of the original mill, be they wood or metal, be saved for ultimate restoration and/or as examples for reconstruction reference. Whilst reviewing some of the ‘scrap’ metalwork we identified the very rusty parts of a block-and-tackle which had originally been employed in lifting the sacks of grain onto the trestle floor. We have successfully restored this piece of equipment back to working order and one can see cast upon the assembly are the words ‘WESTONS PATENT 10CWT’. Does anybody know anything about Weston and any patent information? The design seems quite unique and will now be on display in the mill.

We have to record with some degree of sadness that during recent gales the short-eared owl that was sitting on the top of the mill took off from its perch.

**Structural Monitoring of Windmill Hill Post Mill in High Winds**

*by Michael Chapman*

With old structures such as Post Mills it is a concern that they might not now be strong enough to withstand high winds. After all they were designed without any engineering calculations and in the past many had failed. To address this concern we arranged for the loads in the support structure to be monitored with the help and experience of Dr Jack Hale of the Dynamic Structures Department of the School of Mechanical Engineering at Newcastle University.

We used resistance strain gauges bonded to the quarter bars and these were connected to a data logging computer which recorded strain data related to all wind speeds including instantaneous periods of strong wind buffeting. From this data the shifting loads being experience could be calculated. This technique is commonly employed to analyse the complex stresses in modern structures such as aircraft and industrial machines. Using it on a large ancient wooden structure is quite new, so much so that a technical description of this work is soon to be published in the American scientific journal *Experimental Techniques*. In addition, the report has been accepted for publication in The International Molinological Society’s magazine.

The results are reassuring. As previously reported, during the period that we have been monitoring, the strongest gusts recorded by our instruments were 54mph in November 2010 and again in January 2012. This has the effect of a load of approximately 2 tons shifting from one quarter bar to another. However Dr Hale has calculated that a load shift of at least four times that would be required to make the structure susceptible to permanent damage. So we expect the mill to be standing for a long time yet, particularly as the maximum wind speed ever recorded by the meteorological station in Herstmonceux was 94mph.

---

**Castle Concert**

We are delighted to announce that we will hold our 11th annual concert in the ballroom of Herstmonceux Castle on Friday 15th June.

We are extremely fortunate that pianist Alexander Szram has arranged for Wissam Boustany – one of the world’s most celebrated flautists – to perform with him.

We can look forward to a very special evening.

---

**100 club prize draw**

The following are prizewinners:

11th December – No. 5
First  No. 63  Peter Carey
Second No. 55  Ann Vollar
Third  No. 16  Roger Wintle

11th December – No. 6
First  No. 16  Roger Wintle
Second No. 3  Alan Mead
Third  No. 7  Christopher Wigfield
Windmill Hill Windmill website 2012
With the new year comes a brand new website. Websites are a modern way of telling the world about our mill, what it has to offer and all its forthcoming activities. The website at www.windmillhillwindmill.org is designed to enable us to update our news at very short notice. In addition we thought members might like the opportunity to see the mill from the comfort of their armchairs, particularly in this cold weather and when illuminated at night. We are using an active webcam which shows an image of the mill at 1 minute intervals and just in case you wondered what the weather is like at the mill our very own weather station provides details updated every minute and recorded over 24 hours.

Why not take a look and let us know what you think – after all, it is your mill.
Bee Frost

Volunteers Christmas Party
Sunday 11th December.

Would you like to see our etchings?
Dennis Ball has very kindly given us a number of limited edition etchings he drew of the Windmill and which he exhibited at the Royal Academy Summer Exhibition in 1996.

These drawings are for sale on a standard mount with neutral backboard and shrink wrapped at £75 including postage. You can see this in our on-line shop on the new website or contact Bee Frost.

Front cover: The windmill in early December 2010.