

8223. DULVERTON FROM MOUNT SYDENHAM - JUDGES' LEAT.

PAST TIMES

Dulverton Weir and Leat Trust

WORDS & CONTEMPORARY PHOTOS
by Philip Hull, trustee

The launch of Dulverton Weir and Leat Group as a Charitable Trust in August 2016 marked the latest development in the group's journey to conserve and preserve Dulverton's Urban Watermill Landscape (weir and mill leat system).

The journey began late in 2014 when I noticed ancient oak stakes being unearthed whilst temporary repair works were being carried out on the weir.

The stakes were rescued (over 40 in total) and myself and Peter Romain (now also a trustee) clubbed together to pay the £600 needed to have them dated by dendrochronology by Dr Andy Moir of Tree Ring Ltd.

Whilst the dating of the stakes themselves did not prove that the leat system was medieval (they were either part of a repair or a partial rebuild dating back to the period 1717-1803), the interest attracted attention from academic experts in the UK and internationally, who quickly identified what residents with untutored eyes had been missing for years – the fact that Dulverton has a major medieval historical asset on its doorstep.

What makes the Dulverton system so important is that it is complete and intact. Most academic work on urban watermill systems involves piecing together history from the parts that have not been built over or destroyed by 'improvements' (car parks feature heavily here). In some instances, research has even involved archaeological excavation.

The Dulverton urban watermill system is in a poor state of repair (hence the need for preservation) and waterwheels may have been removed, but the wheel pits, sluice control mechanisms and buildings are all still in position. Those interested can still look at the system and see immediately how it worked.

Since the dating of the stakes, a steady stream of discoveries, academic studies and even an arts event have kept the town enthralled.

First academic on the scene was Dr Matt Edgeworth, Honorary Research Fellow at Leicester University. Dr Edgeworth has declared the Dulverton weir and mill leat system to be, "One of the best preserved medieval urban watermill landscapes in England," noting that, "it was the crucial element in the development of the town and is now one of the keys to understanding its history."

It was during one of his visits that our group found out about the casting patterns for parts of the waterwheel that was originally in the mill, which is now Dulverton Laundry. We were in Sue Pugsley's office (Sue is the owner of the laundry business) and she told us that one of her staff had seen stuff that looked like big pieces of machinery in the loft. We borrowed a ladder, went into the loft and there they were. The engineers had supplied the waterwheel and said to the mill owner 'you keep the patterns in case you need to make replacements'. So the owner put them somewhere safe (the loft) and they have lain there ever since.

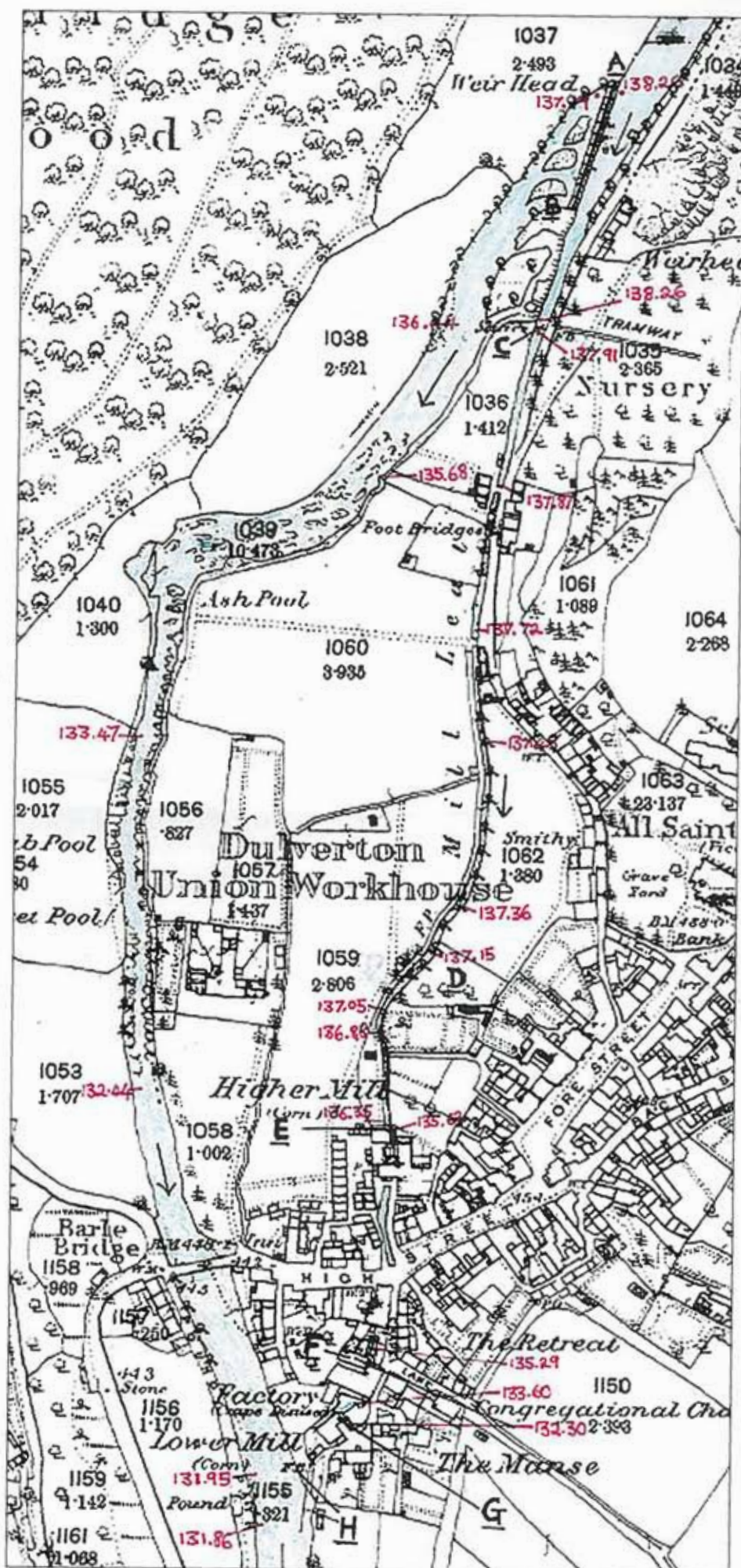
They must have been there since the late 1700s/early 1800s. They were filthy and I ruined a set of clothes getting them down from the loft!

Dr Edgeworth's visit was followed by one from Martin Watts, Honorary Associate Research Fellow at Exeter University. He immediately identified the original cobbled floor of the leat behind Town Mills.

Medieval leat builders knew their craft well. The trick was to take water off from the river, put it into a mill leat but run it as horizontally as possible whilst keeping it moving. That way they could build up the maximum head of water which they could then use to drive whatever machinery they had in mind (the total fall of Dulverton's mill leat from inlet to outlet is 6.4 metres – more of which later). The amount of power you get from water is related to the volume of water and its speed as it meets the waterwheel. You can increase water speed just before the waterwheel by increasing the angle of descent (a mill race) and by making the leat bed as smooth as you can, with a cobbled floor.

Further visits followed from Somerset Industrial Archaeology Society (SIAS) (Dr Graham Wills, Peter Daniel, Geoff Fitton and 12 other interested SIAS members). SIAS have been very supportive and have given donations to further the trust's work. Nowadays a substantial part of the trustees' time is taken up with giving tours to interested parties.

In August 2015 we issued a report on the history and structure of Dulverton weir



written by Peter Romain, and this was followed, in November 2015, by a research and recording assessment of Dulverton weir made by Hazel Riley. This was funded by Exmoor National Park Authority who have recognised the weir as an important historical structure in its own right. Hazel Riley recommended further areas of research and clarified the context of the urban watermill landscape within the history of the town.

In April 2016 the Dulverton system featured in a conference on comparative water technologies at the University College London Institute of Archaeology's Annual Conference, and this was followed, in July, by an archaeological survey of the mill leat which was funded by the Society for Post Medieval Archaeology (SPMA).

Led by Dr Edgeworth and supported by Martin Wilson of Souterrain Archaeology Services, the survey was able to plot the height above sea level of both the river and the mill leat for the whole system – from its inlet (at Weirhead) to its outlet (below Lower Mill). We can now see on a map (fig. 1) and height graph (fig. 2) exactly how the leat was laid out and marvel at the skill and ingenuity of the engineers who built it.

The map shows the points at which readings were made and the height graph

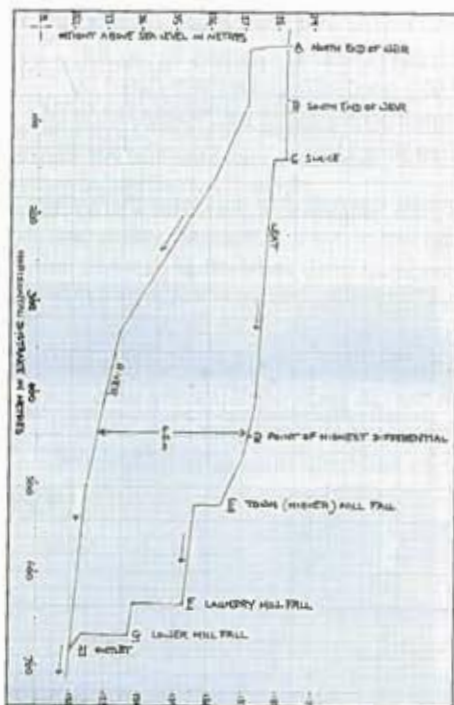


Fig. 1 (left): Selected levels marked, with OS first edition map (1890s) used as a base plan.

Fig. 2 (above): Profile of heights of leat and river (vertical dimension accentuated).



Clockwise from top left: Philip Hull with the rescued stakes; all bundled together; the casting patterns which were found in the loft of Dulverton Laundry; Kinetic Sculpture by Luke Tupper; the SPMA survey in progress; the cobbled floor of the leat.

shows the comparative heights above sea level at those points of both the river and mill leat. As mentioned earlier, the total fall from inlet to outlet of the leat is 6.4 metres and at one point the mill leat is 4.5 metres higher than the river which feeds it. This necessitated the construction of banking; probably using technology later used in canal building.

Fig. 2 shows that after the leat has left the sluice in Northmoor Road (at point C) it runs for 300 metres, dropping only 0.81 metres in height to the point where it enters the 'mill race' (point D). It then runs for 70 metres, dropping 0.75 metres to where the waterwheel was positioned in Town Mills (point E). The vertical drop for the wheel is 0.78 metres. After Town Mills the leat slows up again, running for 110 metres under the road and Holland House, dropping just 0.33 metres to where the laundry waterwheel was positioned (point F). The vertical drop for the waterwheel at the laundry is estimated to be a massive 1.5 metres and, looking at the size of the gear wheel found there, this seems perfectly possible (the trust has more work to do here – other water channels have also been identified).

After leaving the laundry, the leat runs for 30 metres, dropping by 0.2 metres before reaching the point where the waterwheel at Lower Mill was positioned. The vertical drop for the Lower Mill waterwheel is 1.3 metres, but here also the trust needs to investigate further as there is evidence of more than one wheel at this point (both above and below Lower Mill). After exiting Lower Mill, the leat drops roughly 0.5 metres before rejoining the river.

As well as participating in academic research, the trust has launched what it believes to be the only annual Kinetic Sculpture Exhibition in the UK. Kinetic sculptures will be placed in the leat itself every July, allowing for some 500 yards of public viewing space. This year it featured a work by Luke Tupper, an artist from Bath, called 'Transforming Movement'.

An interesting postscript to the Kinetic Sculpture Exhibition is that the sculpture had to be unlocked and locked morning and night for security and safety reasons. Whilst doing this trust volunteers began to notice that the sculpture seemed to be digging itself down gradually through the shingle in the leat bed. When the

sculpture was removed it was found that it had dug itself down to such an extent that it had exposed the cobbled floor of the leat by Leat Bridge (next to Rothwell & Dunworth's bookshop).

We now know that the cobbled floor extends at least from the back of Town Mills to Leat Bridge (a run of some 100 metres). Eyewitness accounts suggest that the cobbled floor extends under Holland House down to at least the laundry (a further 50 metres). It seems improbable that the builders should cobble only this section and it is therefore likely that the whole of the leat, from above Town Mills right down to Lower Mill, is cobbled.

Since starting this journey we've been overwhelmed by the enthusiasm of local people for the project. The trust is now embarking on more fundraising and academic research. We have lots of people volunteering but need more to take the project forward.

If you would like to find out more please visit www.dulvertonweir.org.uk or contact me directly via email: philip.hull@dulvertonweir.org.uk.