

FORMER TIDAL MILLS WITHIN THE GWENT LEVELS

David Plunkett

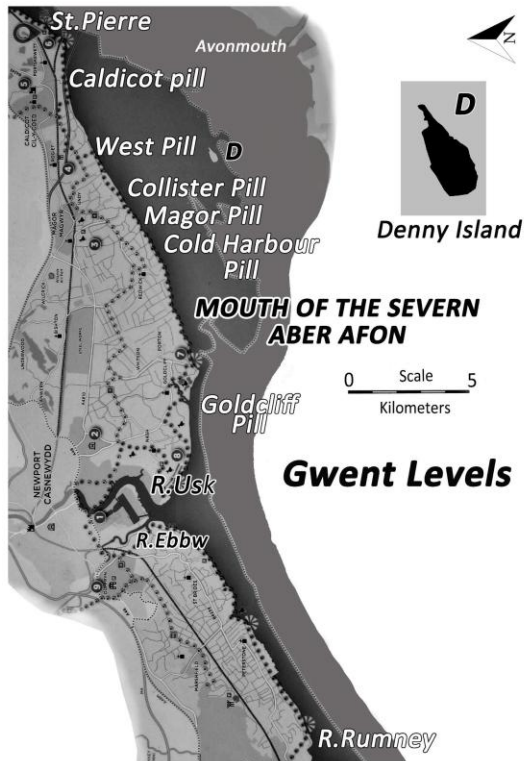


Fig 1. *The Gwent Levels*

There are no tidal powered water mills in working order left in Wales and only two substantial tidal mill structures remain standing in south or west Wales. It is a different story generally in north Wales and Anglesey, which I have previously surveyed and published with Mills Research Group (Mills Archive Trust collection) which we will leave aside for now.

This article concentrates on the coast east of Cardiff and the Gwent and Caldicot Levels (*fig. 1*). There were times in the past few years when I believed I was part of a detective story. So many historical clues and not enough facts and answers to make a coherent true story! I still believe there were numerous former tide mills on the south coast of Wales that have not been recorded effectively. I will do my best to explain where these missing mills were in the past and if possible, to consider how they were lost.

How Tidal Mills Work

‘The Hydraulics of Tide Mills’ was a paper written by my friend the late David H. Jones as an aid to explaining the rather complex daily function of tidemill operation.¹ Every mill is different and depends on where in the coastal tidal range and terrestrial landscape it is positioned. They vary enormously and are found

all over the sea-fringed world and date back to the 6th century AD at least, in France, Ireland and England.

For researching tidal mills, tide tables need to be understood, and one modern route is via the Internet using <https://tide-forecast.com>. For those who have little knowledge of the tidal regime or mills around the coast of Wales or other areas of the UK, I would advise using: <https://en.wikipedia.org/wiki/tidemills>.

Much like conventional watermills, tidal mills were used not only for grinding grain, but many other rural and industrial power uses over the centuries. Perhaps timber sawing is one of its commonest uses in past centuries.

Tidal Mills In Wales



Fig 2. *Carew Tidal Mill. David Plunket & John Brandrick.*

A small number of mills in Wales were tidal powered, even before the nineteenth century. Perhaps a handful ground grain into flour but most were used for other industrial purposes.

There are two tidal mills remaining in 2024. Carew Tidemill, located near Carew Castle in Pembrokeshire, is in 'conservation mode' and though previously fully restored, is now unable to operate due to lack of repairs. Back in the late 1970s, I saw it producing flour. Carew Tidemill (*fig. 2*) was once used for edge-grinding animal bones to produce fertiliser, almost next to millstones grinding grain into flour.

A little further west, a tidemill once stood within the existing north stone bridge near Pembroke Castle. A small plaque now marks the site stating that the old corn mill burnt down in 1955. A town plan showing fourteenth-century Pembroke (in the current Castle guide book) shows both a West Mill and an East Mill. Perhaps these were both tide mills? Research is continuing.

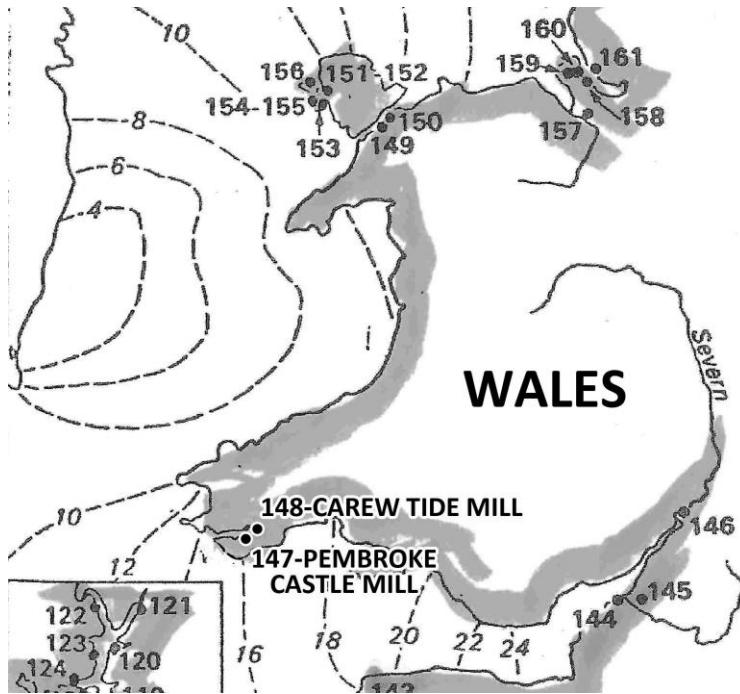


Fig 3. 1977 Minchinton Map Showing Tidal Mill Sites Around the Coast of Wales

Steam power quickly overtook water power in most industries by the mid- nineteenth century. Waterwheels and water turbines often continued as a back-up, as at the mouth of the River Rhymney, at the Iron Works owned by Richard Crawshay (1803-1810). Please note that the old meandering route of the River Rhymney was to the east of the present river mouth. Perhaps this mill site ('Little Wharf', very close to the sea) pre-

dates the iron works by centuries? The site was probably reused for other use following closure of the iron works. Eventually it became part of the Lamby landfill site which has largely been redeveloped as a solar farm in 2023.²

The coastal shores facing the Bristol Channel and Severn Estuary have their own history of storms, severe flooding and even a tsunami which affected coastal communities and mills.

Other similar uses of tidal power do not seem to have survived in Wales. Perhaps I am wrong, and news is about to be sprung on us soon?

How Tidal Ranges Work

The tidal range at Cardiff, is around 10.20 m. At Spring tides, it can be 14.00 m near Sudbrook. This makes them the largest in the UK (and the second largest in the world)! For comparison, the tidal range at Southampton (mean high water springs) is only 4.5 m.

The Gwent Levels coastline in the fourteenth century was generally about 0.5 to 1 km further south than it is today. The exception is the great foreshore, leading out to the small Denny

Island, which stands proud in the sea, halfway to the Somerset coast. This is often marked as Welsh Grounds.

Remember that a full tidal cycle is approximately 12.5 hours, twice a day. You can still walk out to Denny Island on the right low tide and not get too wet if you are very quick on the way back! This small island was not marked on early charts; was this because the land has since been eroded? The long foreshore that can be seen at low tide is only a few hundred years old and is very variable, with the sea wall measuring about 35 km long. Earlier recorded settlements have been eroded away over time. Two sites known to my research are south of Magorpill Farm and near Redwick.

Extracts of historical data can be found to support our case as follows:

A John de Meriet in (1227) held Magor in the marshes and pasture called Greemore and a port called Aberwythel, now wholly deserted, held by courtesy of England as inheritance of Mary his wife by one quarter of a sixth part of a knight's fee.²

A Charter dated 20th March 1307, confirms a grant to Richard de Clare, Earl of Pembroke of land at Merthyr Geryn, (to the north) and meadows (to the south) held in the moor at Magor.⁴

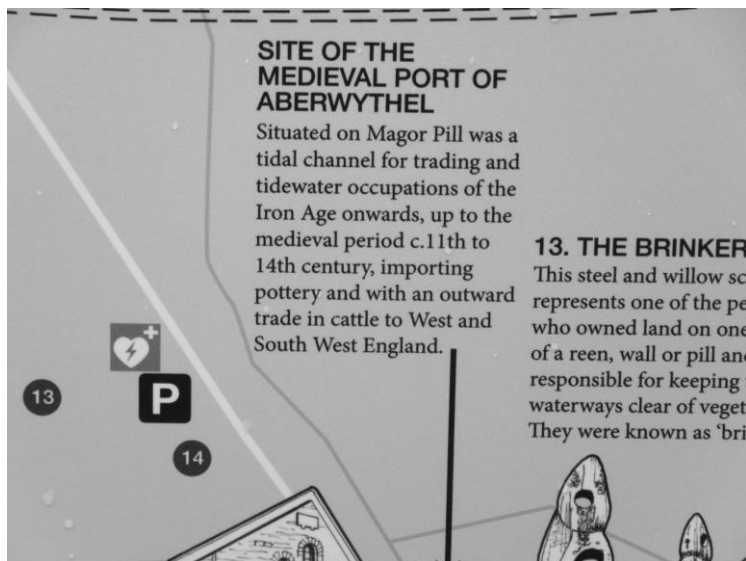


Fig 4. Aberwythel Public Information Notice Board

Around 1327, Aberwythel (*fig. 4*) - with other spellings - and part of Merthyr Geryn (near the coast) were overcome by the sea and destroyed, of which no upstanding remains now exist, I understand. This included a seventh century church and also, to the east, a port with a watermill or sea mill with a community of housing and families. The exact position of each has not been

defined by me yet but they were perhaps around 2 km apart. Current research and archaeology are attempting to clarify but so far this does not match currently with my estimated position of the early tidal pond needed for a tidemill.

Another ancient lost settlement may come to light, to the east of Goldcliff and west of Redwick. An eighth century charter in the Book of Llandaff includes mention of 'shore rights'. Also, a later twelfth century settlement by the name of 'Hreod Wic' translates as a 'dairy farm where the reeds grow'. This site in the manor of Porton, included lands reaching out beyond the current coastline to Denny Island. This early manor also had a mill recorded but the site is still currently unknown. The current parish church at Redwick may have been built around the late fourteenth century.

Just to complicate the local history further, a major tsunami swept inland on the 30th January 1607, causing great devastation. This is well recorded in surviving local churches in the area and even further afield in the Somerset Levels. It was caused by an earthquake off the south coast of Ireland. The properties surviving within Whitewall Common and Magor Pill route date from before and soon after the devastating flood.

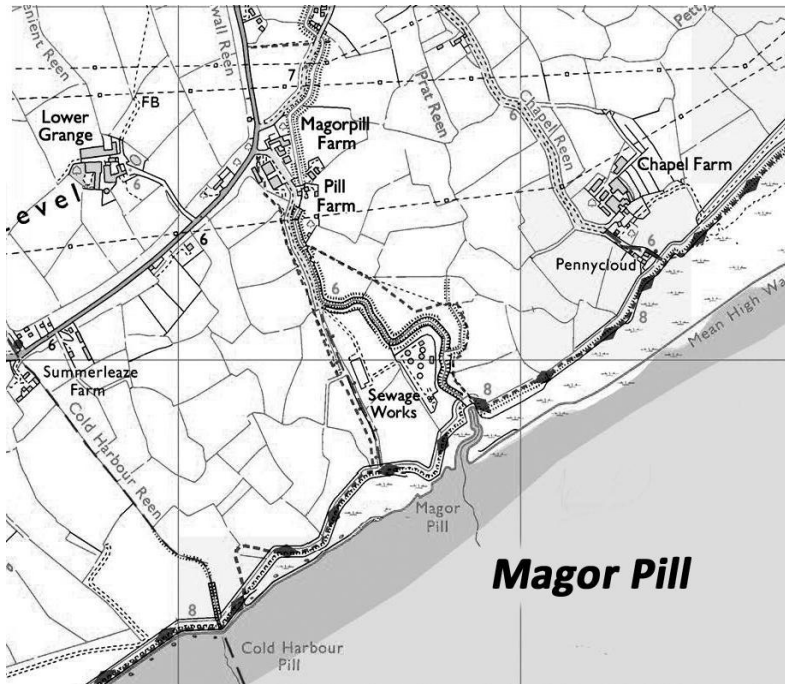


Fig 5. *Magor Pill*

The oldest surviving building in this area is dated to 1222 (at ST4330 8564), so must have survived the earlier inundations.⁵ Other buildings or foundations of buildings may yet be recorded. Building stone may have been reused in surviving farm buildings at Lower Grange Farm. There is an opportunity to undertake a detailed survey here which may prove fruitful. LiDAR images exist which may assist our understanding of this area.⁶

The importance of protecting the sea shore and land behind was recognised back in Roman times and attempts to maintain a viable sea wall have continued into the twenty-first century. The sea wall was moved back to cope with erosion in that time. The twentieth century sewerage works near the outfall of the Magor Pill do not appear to have had a detrimental effect but may be masking useful archaeology. Until about 1960, the normal tidal limit reached almost up to Magorpill Farm. Now it only reaches the sewage works.

It is believed that in the later seventeenth century, a watermill or fulling mill stood on the Magor Pill route, north of Magorpill Farm, for a short period. This has not been substantiated by me at this time. I have discussed this with local property owners with mixed results. One local landowner considers this a fact. Others do not!

Other historical Gwent tidal sites are recorded to both the east and west of Magor. Some may surprise you.

Limited professional research has been undertaken by the Glamorgan and Gwent Archaeological Trust (GGAT) and by an archaeologist based at Caerleon working for the National Museum of Wales; but little has been published or revealed to

me. Published research by Bob Trett and Stephen Rippon has proved most helpful in understanding coastal Gwent Levels history.⁷ I have further been assisted regularly by Janet Bailey, archaeologist and secretary to the Monmouthshire Antiquarian Society.



Fig. 6 Newport Area

The River Usk and its final (estuarine) tributary, the Ebbw, are sited at Newport, Monmouthshire, once a prosperous major port. Less so in 2024. The Usk is tidal up just beyond Caerleon (Isca) where the Romans had a military fortress and port. All the

mills recorded in the past 500 years at Caerleon, seem to be attributed to woollen or fulling mills. This seems strange to me as no grain mills seem to be included. I do not rule out there ever having been a tide mill here in the past 1,000 years or more.

Newport has substantial castle remains on the west bank facing the river but its separate and adjacent watermill to the north has gone as the town developed north into an urban suburb of the extensive docks. Although never recorded as a tidal mill, this mill was subject to daily tidal conditions and had a minor fresh flow from the Malpas Brook for centuries. This all changed when the docks were modernised and the Brecon Canal route took over the former Brook. So was the Newport mill and its pond subject to tidal controls? I believe it was before c.1790. As to whether this grain mill was definitely tidal or intermediate in operation is not known, we wait for more historical data to clarify.

Both a wind and a water mill were recorded at Maesglas, up the River Ebbw which was also used to provide water into a small aqueduct which fed the later Newport Docks developments.⁸ The earlier, and perhaps also a later, watermill was at the crossing of the old A48 highway and was named 'Millham' on maps.⁹ The nineteenth century tidal range here was small and soon interrupted by weirs. Late nineteenth century railway

developments, river straightening, and road upgrades further mask the former landscape. The windmill, (most likely a steel-framed wind pump) on raised ground to the north, survived a little longer than the watermills in this area. Could one of the early water mills have been tidal-assisted or restricted? More in depth research required.

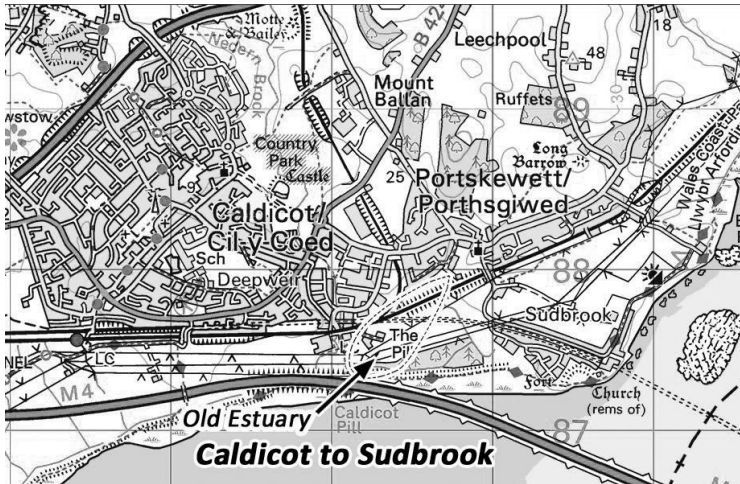


Fig 7. *Caldicot to Sudbrook*

Next, we will look east of Magor, to Caldicot and the former tidal estuary to Portskewett (*fig. 7*). Instead of shoreline erosion, there was silting of the tidal short estuary up to this former port and fishing village of Portskewett, from about the early

seventeenth century. Direct water access to Caldicot Castle and a watermill lower down on the River Nedern became difficult, since the tide no longer reached the port or the mill. I have not recorded any building remains from the former mill buildings, or exact route of the earlier brook or river, at this stage.

In 1280, watermills in Sudbrook and Caldicot are recorded.¹⁰ A new route for the Nedern Brook was engineered to the south to allow boat building and other industry to flourish. Before the Nedern or 'Troggy' were redirected, there was also a tidal creek to the southeast, reaching Sudbrook, which oddly was supporting a watermill until lack of water made it close before 1720. Before then, they had tried to engineer more water and even dug a new leat up to the waterwheel. It was not a success but it had earlier been recorded as a grain mill with a miller.

Later, the expansion of the railway system led to major changes at Sudbrook and Portskewett. The Cardiff to Gloucester railway came first. Then the Severn Rail Tunnel had its Welsh landing at Sudbrook which necessitated a deep cutting and building a very large pumping station to keep the tunnel dry. Local communities and industries had been withering before this but were invigorated by a new paper mill and later other employers on a new industrial estate. Major landscaping was necessitated by the

large amounts of spoil from the years of tunnel excavation nearby. Sudbrook has a twentieth century housing estate in the area of a former watermill. This is just north of the landing ground for the newer M4, Severn Bridge.

Next and to the east, before Chepstow, is a former shallow enclosed estuary which has slowly silted over the past five or six centuries. This contains the St Pierre Pill and landed estate of the former Lewis family to the west arm, and the Bishop of Llandaff's estate and Mathern village to the east. It was once tidal up to the holy well, north of Mathern parish church. No mill survives within the old village settlement but one may have existed on the Bishop's estate at an earlier date, in my view.

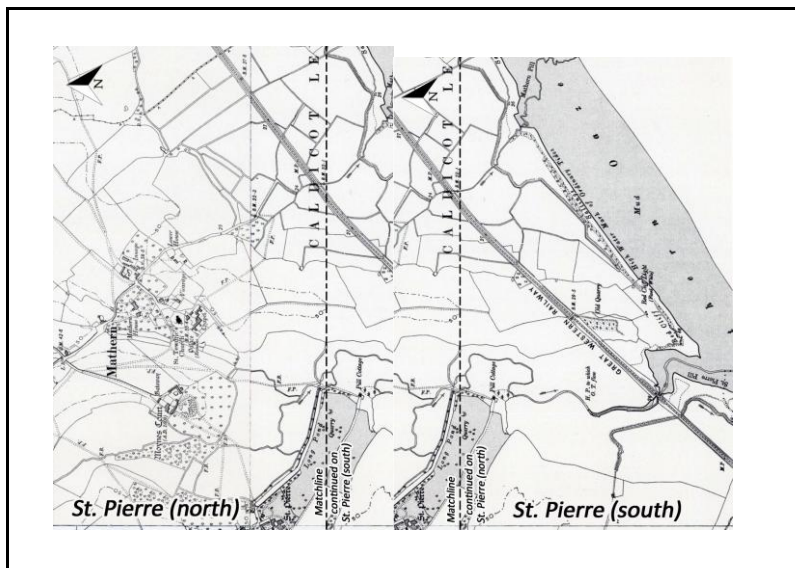


Fig 8. St. Pierre North and South

The last former working watermill north of Mathern lies just north of the M48 motorway and was never tidal, I believe. One cannot be sure and in the future this may be proved wrong!

Perhaps deeper research into local historical studies, libraries and local archives will allow more details to be discovered?

Perhaps local historians and WMS members may be interested in continuing this research into the lost mills of coastal Gwent

with me? In the meantime I am off to the coast, west of Swansea, to continue my research.

With thanks to **John Brandrick** for preparing the illustrations for this article.

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References

¹ Jones, David H., 1984, *The Hydraulics of Tide Mills*, Mills Research Group (September issue). Online access <https://new.millsarchive.org/plus2/uploads/libraryattachments/2910.pdf>

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⁶ Cf. LiDAR for Whitewall Common and Magor Pill Farm, showing former orchards, early foundations and former buildings.

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