

CORN MILLS OF PENRHYN LLŶN

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During the summer of 2010, and in connection with the Welsh Mills Society's October meeting in that year, the author surveyed water power sites in Penrhyn Llŷn, the Llŷn peninsula. Firstly the Ordnance Survey's historic 25-inch maps of the 1880s to 1900s were systematically examined to locate the sites. Forty-one water driven corn mills were identified, as well as a number of other sites where water power was used, and these sites were investigated by fieldwork.

The Llŷn peninsula encloses Cardigan Bay on its northern and north-western margins, but its north-eastern boundary is much more difficult to define. The area defined by the medieval Hundred of Llŷn, with its three commotes of Cymydmaen, Gaflogion and Dinllaen, is now extended eastwards and northwards by usage to include Criccieth and the relatively lowland corridor leading to the Arfon plain. The peninsula's undulating landscapes, carved from a complex and ancient geology, is punctuated by the isolated sudden hills of Carn Fadryn, Mynydd Rhiw and Garn Boduan, and drained by the minor streams of the Afon Soch, Afon Rhyd-Hir and Afon Erch. To the north the precipitous slopes of Yr Eifl, Gyrn Ddu and Gyrn Goch overlook Caernarfon Bay, whilst to the east the larger Afon Dwyfach and Dwyfor drain south-west Snowdonia towards Cardigan Bay.

Existing information on the corn mills of Llŷn can be found in Melin 2, The Corn Mills of Llŷn in the Fourteenth Century, by the Society's President, Dr Eurwyn Wiliam (1986). A Mr Griff Hollinshead is said to have published a descriptive list from his own fieldwork c1980, but this author has not succeeded in tracking down a copy. Prior to this study the Royal Commission had noted fourteen corn mills, two of which were Listed Grade II. This study raises the number of corn mills in the area to forty-one, a figure which may seem surprising given the overwhelmingly pastoral nature of present-day farming. None are working at the present time.

The field investigation produced, inevitably, written and photographic records of the sites, but also provided an opportunity to summarise what has happened to the mills since they went out of use. Five categories were identified. Sixteen former mills (39%) had been converted into houses, sometimes with little surviving evidence for their former nature except for their names; but wheelpits survive at some, and two have waterwheels in their gardens. One mill, Melin Carnguwch, has been "preserved" as a pastiche, a single storey building with a small farm wheel mounted at the opposite end to the former wheelpit, and a pond below the wheel. Fifteen mills (36.5%) survive as buildings still recognisable as former mills, sometimes in ruins and beyond further use, and sometimes with parts of their machinery and fittings. At five former sites there is no remaining evidence whatsoever. Only four mills survive more or less complete: the Grade II Listed mill at Aberdaron, Melin Rhyd-Hir near Efailnewydd where the machinery has been preserved in excellent condition and where the miller's house is now being rebuilt; Melin

Llecheiddior which retains tandem vitruvian mills, and Felin Faesog near Clynnog, another vitruvian mill which was restored in the early 1980s and which was opened as a museum for a number of years.

The following Gazetteer provides National Grid references, The Royal Commission's National Primary Record Numbers (NPRN) giving access to site details through the online database Coflein (www.coflein.gov.uk) and where appropriate, Cadw's Listed Building reference number. Cadw's descriptions can be accessed through the Historic Wales web portal, historicwales.gov.

1 Aberdaron Mill SH1736426472 NPRN:411332

Listed Number: 19992

Aberdaron Mill consists of a central cross range with a wing to the east and two wings to the west. It is built of large rubblestone with slate roofs, and is richly covered in ivy. It stands close to and below the B4413 road into the village which is carried on a retaining wall, which forms one side of the wheelpit. The dry millpond walls are now reinforced by concrete and form a footpath accessible from the road directly above the mill.

Parts of the overshot waterwheel, including the axle, hubs and some wooden spokes, are still in situ, as are two supports for the launder and an iron rod, part of the control mechanism which raised a trapdoor in the launder to let water onto the wheel. Inside, the machinery which drove two pairs of stones is complete, inside an enclosed hurst frame. Fine tentering of the stones was done with a long shaped wooden arm. The sack

hoist is in situ, with a clasp-arm belt wheel and wooden guards for the belt. A horizontal shaft drove a dressing machine, the frame of which stands on a corner of the north-west wing.

2 Felin Nant, Aberdaron SH1825726811 NPRN 411333

All three editions of the 25-inch O. S. map show a long range of buildings on the east bank of the Afon Daron, with a 700 metre long leat reaching the north gable of the range. The site is now heavily overgrown, and only a small fragment of stone wall is visible.

3 Melin Bodwrdda SH1894327368 NPRN 411334

The site of this mill was c90 metres to the north-east of the dwelling (NPRN 16518), probably the mill cottage, to which the name Melin Bodwrdda is attached. The 1st edition of the 25-inch O. S. map, 1889, shows a single building at this location, with a short leat and sluice on the north bank of the Afon Daron. By 1900 a second building had been added to the west.

This later building still stands and is maintained in good condition as a store. The two-storey rubblestone mill building has lost its roof and floor and its interior is inaccessible. In the wheelpit at the east end are the remains of the waterwheel, 14ft (4.27 metres) x 33 inches (0.84 metres) wide, with eight pairs of wooden spokes set in cast iron hubs on a square cast iron axle, and wooden shrouds grooved to hold the bucket boards. Next to the wheelpit is a brick-built foundation for a turbine. Inside the mill, the badly-worn cast pitwheel, in situ under the collapsing hurstframe, can be seen through a small ventilation opening in the south wall.



PLATE 1 Wooden Shrouds from the Wheel at Melin Bodwrdda

4 Felin Uchaf, Rhoshirwaun

SH2045928747

NPRN 411338

Felin Uchaf is shown on all three editions of the 25-inch O. S. map as a working corn mill. There was a large pond to the east, fed by two small tributaries of the Afon Daron, and the waterwheel was on the south gable of the mill. The building, of rubblestone with a slated roof, is in process of being converted into a dwelling. The wheelpit has been retained at the south end of the range, and at the north end a monolithic runner millstone, cut for an irregular rhynd and with spade-

shaped grooves for distributing the grain, has been set into the structure of an outside stair.

5 Llangwnadl Old Mill SH210403283 NPRN 411342

The outline of a building on the west bank of the Afon Fawr, presumably disused, is shown on the 1st edition of the 25-inch O. S. map (1889) and named 'Old Mill'. The outline is unnamed on the 2nd edition (1900), but had disappeared by the date of the 3rd edition, 1918. The site is now completely overgrown, and the gateways to two tracks which led to the mill have been blocked.

6 Melin Trygarn SH2351731764 NPRN 411401

Melin Trygarn is named as a working corn mill on all three editions of the 25-inch O. S. map. The south east side of the two-storey building was built into the valley side. The north-east gable of the rectangular building has collapsed and the roof has fallen whilst retaining its structure; most of the upper floor has collapsed.

Above and to the south of the mill there is a carefully walled millpond, dry but in good condition. A carefully constructed leat led to a wooden launder, which has disappeared, over the overshot wheel on the south west gable. The wheel is 17ft (5.2 metres) in diameter and 34 inches (0.86 metres) wide; there are no buckets but the shrouds are intact though leaning over as many of the wooden spokes have rotted away. The 7-inch (0.18 metres) square cast iron axle carried a cast iron pitwheel which originally drove only one pair of stones, but a horizontal drive and second, smaller pair of bevel gears has been added to drive a second pair. The stone nuts have wooden teeth. The two

pairs of monolithic stones are still in situ on the hurst frame, the only part of the upper floor remaining. A separate building to the east housed a drying kiln, with ceramic kiln tiles carried on slate beams over a hopper structure formed of heavy stone slabs.



PLATE 2 Machinery in the collapsed Melin Trygarn

7 Felin Ganol, Sarn Meyllteyrn

SH2376732017

NPRN 411340

Felin Ganol is now the name of a cottage which was probably the mill house. The former mill was the end unit of a row of buildings adjacent to the cottage, the south-eastern end of which is now a garage and the middle unit a low-walled enclosure. The mill itself has lost its roof and upper storey, the roughly-coursed rubblestone partly collapsed into the building, and the former doorway is blocked. A worn but complete runner millstone protrudes from the rubble, probably close to its original position when working. In the empty wheelpit on the rear (south west) side are two cast iron 8-spoked wheel hubs, and the c14ft (4.25 metres) waterwheel has left grooves in the wall.

8 Felin Meyllteyrn, Sarn Meyllteyrn

SH2388132592

NPRN 411339

Felin Meyllteyrn is shown as a working corn mill on all three editions of the 25-inch O. S. map. An 850 metre long leat brought water from a dam on the Afon Soch along the west side of the valley to a pond above the mill. The waterwheel was on the north side of the L-plan building.

The mill has been converted to a dwelling, retaining part of the wheelpit, above which there is a ceramic pipe leading from the pond, blocked by a wooden bung. A decayed, square wooden axle with a cast iron cross-gudgeon secured by three wrought iron rings lies at the south side of the mill. In the garden to the south of the former mill is a small shed, against which stands a large overshot waterwheel which probably incorporates the

cast iron shrouds of the mill wheel reassembled on tubular iron spokes; it is much narrower than would have been accommodated by the original wheelpit and has part-curved iron buckets. Inside the shed the former pitwheel is mounted on the cylindrical steel axle, with extra steel plates and weights added as if to form a flywheel. The installation was built by a former owner of the site, and is supplied with water by an underground pipe and siphon to a launder above the wheel; there is no indication of what it was intended to drive. It is said that at one time a belt or wire drive was taken to a farm on the hillside to drive a gorse mill.

9 Felin Isaf SH 2731830507 NPRN24667

The mill is shown as being in use on the 1889 and 1900 editions of the Ordnance Survey 25in map, but marked as disused on the 1918 map. The building is L-shaped in plan, constructed of rubblestone under a pitched slate roof. Inside most of the timber floors are in good condition, but some new partitions have been inserted to form discrete stores. The waterwheel and all internal machinery have been removed, but enough of the floor timbers remain to show that there were two pairs of stones which would have been driven through a standard train of pitwheel, wallower and great spur gears. The mill still belongs to the Nanhoron Estate.

10 Melin Horon SH2834031899 NPRN :409207
Listed number: 19629

This is a three storey water-powered corn mill of coursed squared rubblestone construction with pinnings (small

fragments of stone) between the blocks, and with a pitched slated roof. There are cambered arched window and door openings. The water wheel was on the north wall and was fed by a substantial pond some 230m long supplied by the Afon Horon. The south west corner of the mill is chamfered at 45 degrees; in the angled wall is the main doorway above which is set a slate plaque inscribed: "E / R A / 1823. / Na ladratta." (in English, "do not steal").

Built in a similar style, a corn drying kiln adjoins the mill to the south and the two storey miller's cottage lies to the north east, although the latter has large straight stone-slab lintels to the openings.

11 Melin Soch SH3114028574 NPRN 411676

Melin Soch is named on all three editions of the 25-inch O. S. maps as a working corn mill. A 450 metre-long leat brought water from the Afon Soch to a mill pond, the walls of which survive in the garden. The mill was a two storey building of rubblestone under a pitched slate roof, built into the steep valley side, and with the water wheel on the west gable. A one-and-a-half storey extension on the south side may have been a kiln. The whole building has been converted to a dwelling.

12 Tudweiliog Corn Mill SH2336936670 NPRN 402171

The mill is marked as "Corn Mill" on the 1889 25in Ordnance Survey map, "Tydweiliog Mill (Corn)" on the 1900 and 1918 25in maps, and "Tydweiliog Mill (Disused)" on the 1953 6in map. The main part of the mill has been demolished, leaving only the north-west wing which contains no machinery. The whitewashed rubblestone walls support a pitched roof with

slates mortared together. The ground level on the stream (north-east) side has been raised, obscuring the tailrace and partially blocking access to the lower floor. The attic was accessed through a door on the south-west side under its own gable roof; inside the floor is in situ but very decayed.

13 Melin Madryn SH2778536392 NPRN 411680

Melin Madryn is named as a working corn mill on all three editions of the 25-inch O. S. maps, but the buildings now present little evidence of their former use. An impressive stone-built causeway carries the road some 20ft (6 metres) above the floor of a dry valley where the buildings stand. The present farmhouse is a three storey rubblestone building under a pitched slated roof, the ground floor below road level and with a large elliptical arched cart entrance supporting two domestic floors above. A lower two-storey range which may have been the mill is attached on the north side, converted to farm use but now little used. Further north are two disused pigsties.

The map evidence suggests that water supplies were very limited at this site. There were two very large ponds, one of which still exists, to the south of the mill, and water was stored from three sources, including the tail-water from Felin Eithin (NPRN 411681) 400 metres south-east of Melin Madryn.

14 Felin Eithin SH2815036221 NPRN 411681

Felin Eithin is not named as a corn mill on the historic 25-inch O. S. maps, and may have been only a private farm mill. A watercourse drains a pond in the grounds of Madryn Castle (NPRN 16335) some 300 metres to the east, and pursues a

clearly artificial course to Felin Eithin and thence to the millponds at Melin Madryn (NPRN 411680). At Felin Eithin there is a long range of farm buildings, the north end two storeys adjacent to the road and single storey at the south end. There is no external evidence for water power.

15 Melin Cefn-Llanfair SH3268933492 NPRN 411682

Melin Cefn-Llanfair is named as a working corn mill on all three editions of the historic 25-inch O. S. maps. The mill was at the south-east end of a linear range of buildings, all now converted to a single dwelling. The overshot waterwheel was on the south-east gable fed by a 1350 metres-long leat and a wooden launder supported by a timber gantry; it was probably about 12ft (3.66 metres) in diameter. The original door and window openings have been kept, with new frames; an inverted millstone forms the threshold of the wide door, and two others lie close by in the garden. Inside some constructional timbers have been reused, but probably not in their original positions. The section of building next to the mill was the drying kiln, and kiln tiles have been recovered. The functions of the rest of the range have been obscured during its conversion.



PLATE 3 Melin Cefn-Llanfair from an old photograph

16 Pont Edeyrn Mill SH2776039855 NPRN 409239

A former corn mill, with its corn drying kiln and outbuildings to the north, 'Hen Felin' is currently a dwelling. The former L-plan mill is two storeys high with an attic and the walls are of rubble construction under a pitched slate roof. The overshot waterwheel was on the south gable; there is little evidence of any machinery. The kiln, adjacent to the north, has a part of the tiled floor and a supporting pierced brick-wall still surviving.

17 Y Felin, Nefyn SH3087540796 NPRN 411684

The name 'Y Felin' now attaches to a cottage, L-shaped in plan and built of stone with a pitched slate roof. It is not named as

a mill on any of the editions of the 25-inch O. S. maps from 1889 onwards, and there is no physical evidence on site to show that the building was a mill. However, from the proximity of Mill Street it is likely that the town mill was on this site.

18 Melin Bodfian (Boduan) SH3304037690 NPRN 409126

Felin Boduan is a derelict two-storey water corn mill, built of rubblestone with a pitched slated roof which is beginning to collapse. Most of the machinery has been removed. Water from a right-bank tributary of the Afon Rhyd-Hir was stored in a mill pond, now silted up, 50 metres north-west of the mill. From there it was carried on a wooden trough supported on stone pillars (one of which remains) to an overshot wheel in an enclosed, but not roofed, wheelpit on the west gable of the mill. The wheel has been removed, but would have been about 16 feet in diameter and 3ft 6 inches wide (4.9 metres by 1.07 metres). A ring gear on the rim drove a layshaft under a heavy timber hurst frame along the north side of the mill, which would have carried bevel gears driving three pairs of stones set out in line. The layshaft and gears have been removed, but two pairs of stones remain (one french pair with the runner raised, one Anglesey? pair) with their spindles and stone nuts suspended below. At the west end the hurst frame has collapsed under the third pair, worn very thin, of Anglesey stones, revealing a square-cut thickening under the bedstone. The means of disengaging the stone nuts is unusually sophisticated, using a hand-driven geared shaft and two toothed racks to raise them from the tapered square sections of the stone spindles.

The west end of the building contains a drying kiln, the hopper section of the furnace formed from heavy slate slabs. It was not possible to see whether the perforated floor survives.

Despite the removal of most of the machinery, the surviving evidence and the layout suggest that this was an unusually sophisticated milling installation for this area of Wales, probably dating from the second half of the nineteenth century.

19 Melin Llannor SH3505336882 NPRN 411677

Melin Llannor is named on all three editions of the 25-inch O. S. maps as a working corn mill. It was built into a steep bank on the north-west side of a minor road, and on the other side were a cottage, probably the mill house, and a large millpond. The tailrace did not discharge back into the Afon Rhyd-Hir, but into the headrace of Melin Rhyd-Hir 1,750 metres downstream. No trace remains of the mill building, and the site is now occupied by the large asbestos-clad sheds and ramped access to the very large dairy business which has adopted the name of Llannor Mill.

20 Melin Rhyd-Hir SH3459635773 NPRN 409208

Melin Rhyd-hir is a two-storey stone built water-powered corn mill under a pitched slated roof. The composite overshot waterwheel, with cast iron shrouds and hubs, and wooden axle, spokes and buckets, remains in situ on the north west gable wall. It was supplied by a pond to the north of the mill, fed from the Afon Rhyd-hir via a 1.7 km long leat which also captured the tailrace water from Melin Llannor (NPRN 411677). The corn drying kiln was integral with the mill, at the

south eastern end. When the building was converted for use as a dwelling in the 1970s, the structure of the kiln was removed but the slatted wooden cupola roof vent was retained. Inside, the mill machinery remains in situ behind the boarded hurst frame, with the cast iron pit wheel and wallower, and great spur wheel on a wooden upright main shaft which drove two pairs of stones. Outside the hurst frame there are iron shafts carrying wooden pulleys to drive the sack hoist and flour dressing machines. On the floor above the stones and their wooden tuns and hoppers remain in position, and the sack hoist spindle is still in situ in the roof space.

The mill building was originally built into the bank which retained the millpond, but the bank was dug out at the time of conversion to a dwelling. Adjacent to the north-west is the former mill house, now partially collapsed, which is thought to be earlier than the existing mill, possibly late eighteenth century. Although the construction of the mill house from large, rounded boulders follows the local vernacular style, the arrangement of the two buildings in alignment suggests a tendency from local style to an imported, industrial style.

After a long battle with the County Planning Authorities, planning permission was granted in May 2013 for the reconstruction of the mill house and the reinstatement of the launder and a recirculating water system. At the time of writing, structural work on the mill house is complete and the mill gable has been pointed with lime mortar after removal of the inappropriate render.