

The Mill at Parkmill in Gower

some historical notes

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1. Norman Gower & the early Mill

A Corn Mill was established on this site sometime during the 12th century, as part of the estate belonging to the powerful Le Breos family, who were granted sovereignty of Gower by King John in 1203. The first written references to the Mill appear in government records from about 1300 onwards. The Le Breos hold over Gower was under constant threat both from rebellion and lawsuits, in particular from the de Newburg family of Warwick, whose predecessors had controlled Gower after the Norman conquest, but lost their land and estates to King John when he asserted his power as a guardian to a minor of the family.

Incidentally, when the Norman Lords took over this part of Gower, apart from building Pennard Castle, they shipped in farmers from North Devon and Somerset to replace the Welsh inhabitants. Thus began the close links between Gower and the other side of the Bristol Channel, links that can be traced through place names (Pennard), family names and especially the old Gower dialect, which contained many words also found in Somerset and Devon dialects, with an accent not unlike that of those counties. The links continued

through the centuries, with the limestone trade in the 18th & 19th centuries (Gower/North Devon) and the copper ore ship trade in the 19th century (Devon/Swansea/Prince Edward Island/South America).

The Le Breos family established Parc Le Breos, a deer park of about 500 acres on land to the west of Parkmill, used for both deer hunting and military training. Significant parts of the park can still be found today. It is likely that the Mill was established as part of the park development serving the needs of the locality, grinding oats for animal meal and barley for daily bread.

The Mill was a "custom" or "toll" mill. Local farmers were compelled to bring their corn to the Mill for grinding and pay proper dues to the estate; failure to do so would mean being fined at the sessional court.

2. The Medieval Mill

The Le Breos family held on to Gower for nearly five generations, but by the 1330s the de Mowbray family had taken over, following a Royal Enquiry into "*terminando de diversis oppressionibus factis hominibus terre de Gower*" It was evident that the Le Breos reign had not been popular and several tenants gave evidence of oppression.

In the early years, local farmers would operate the Mill themselves and a resident Miller did not appear until the 15th century. By 1400, records suggest that individual tenants operated the Mill and in 1428 Jankey Philip Longe is mentioned as a tenant in the Estate records.

A survey of Gower undertaken in 1650 on behalf of Oliver Cromwell records that there were "two water grist mills called the Parke Mills" let to Lewis David, Edward Price and Jenkin Franklen at an annual rental of £15. The survey was carried out in order to establish the extent and effectiveness of the Lord's Manorial rights. The control of Mills was an important element of any estate and the survey emphasised that:

"All tenants owe suit of court at the Lord's Mill therein and ought to draw and carry stones and timber towards the reparation of the said Mill and to scour and cleanse the Mill Pond as often as shall be required. And...the corn or malt any tenant...doth buy out of the manor he ought to grind the same at the Lord's Mill."

These manorial customs were enforced by local or "leet" courts usually sitting twice yearly with a full time bailiff and reeve to ensure that records were kept and fines collected.

3. The Davies Family at Park Mill

The manorial system of government went into decline towards the end of the 17th century as a more centralised system took over. It was about this time that evidence suggests the establishment at the Mill of a full time tenant and miller, William Davies. He was the first of a long line of the Davies family to occupy and run the Mill right up until the present time.

A succession of fathers and sons carried on the milling tradition and the Mill itself became a more important and integral part of the local rural community, expanding into other rural trades and crafts. In order to keep the Mill equipment in working order it was not unusual for the Miller to acquire other craft skills especially metal working and wood working. The Parkmill site is a particularly good example of this as it developed its own smithy (formerly on the site of Underwood Cottage) and joinery. The Davies family in particular diversified into a number of other trades, especially those of wheelrights, saw millers and carpenters, making many items for the local community even, at one time, their coffins. The family made many of the tools, lathes and other equipment used in those trades.

By the 18th century the Mill and the Miller had a prominent part to play in the local community and economy. Many of the Davies Millers were famous Gower characters during their lifetimes, most notably John Davies during the 19th century and his sons, William and Jim Davies who were affectionately known as "Will the Mill" and "Jim the Mill". The Davies often held the office of local Mayor and were much respected. John Davies in particular is credited with expanding the practice of other rural crafts at the site, renewing much of the Mill equipment and building a new blacksmith's shop, a saw mill and wheelwright's workshop. Much of the site that can be seen today is the result of his plans and ideas: as flour milling declined, so the Mill came to rely on other activities to justify its commercial existence. Because of this, the Mill avoided the fate of abandonment and decay suffered by many grist mills in Gower.

"Will the Mill" continued the policy of diversification and in a Radio interview given to Wynford Vaughan Thomas in 1948, he gave a fascinating insight into the ingenuity of his family, describing how at his Mill:

"First of all in the Mill itself, the wheel drives two pairs of stones; one grinds wheat for flour, the other feeding stuffs for livestock. Then outside, the old wheel drives two circular saws and band saws. With them, we cut up the large logs for my main job of wheelwright. The same power also drives a boring and drilling machine, a lathe and an emery wheel, all handmade by my father and myself, and they do the work. I can tell you, it's quite as efficient as those that often cost hundreds of pounds. I'm 70 years of age now; I started as a lad in the sawpit with my old man as top sawyer. That was the hardest job I've ever had to do. Young people nowadays want things to come too easy. But take it from me, there's no good craft without hard graft. What I'm most proud of is this, that my son can do all these things just as good as I can myself, even to the dressing of the Millstones and gearing of the wooden cogwheels: lost arts nowadays and I can say without boasting there are very few Millers who can do these jobs for themselves."

4. Modern Day

After the wheelwright work went into decline, the saw mill and timber cutting became the most productive part of the Parkmill site and indeed many of the local people will today associate the Mill more with timber cutting than with the grinding of corn. Commercial activity at the Mill virtually ceased by 1983, when its size meant that it could no longer provide any sound economic return to the continuing members of the family. Reluctantly they were forced to put the whole site up for sale. Fortunately, the Corn Mill had been kept preserved in the old Mill buildings by the Davies family and had continued to grind corn well into the 1960's. The site is now owned by a charitable trust that has overseen its restoration and conversion into a museum and crafts centre that welcomes over 30,000 visitors a year. Daily demonstrations in the corn mill, smithy and wheelwrights now make it possible to imagine the thriving and bustling activity that was carried on here in the Mill's heyday. The extensive educational programme means that today's children can witness at first hand the crafts and skills that forged their community in the past.

5. The Water System at Parkmill

The Mill site is bounded on two sides by the Pennard Pill and the Mill Leat. The leat is over 300 yards long and has been restored to its original construction with stone walls and a pebble and clay bottom. A walk along the leat will take you to the point where the river and leat meet. The water is diverted into the leat by virtue of a stone weir constructed in the river. Additionally some underground streams feed directly into the leat. The flow of water is controlled by a series of sluice gates, allowing the Miller to increase or decrease the flow to suit milling requirements. The leat has three bypass channels to take water back out of the system if necessary, for instance at times of heavy rain or flood.

Pennard Pill emerges from the ground only ½ mile away from the site and has been calculated to produce a water flow of nearly 2 million gallons a day, although most of this no longer flows down the river as a water treatment works and pumping station has been built at the well head. Needless to say this had a serious impact on the Mill and the water authority had to compensate the Miller by a monetary settlement and the installation of electric power to assist his milling and other activities. Further upstream from the leat entrance is the Mill reservoir or pond which was used to provide a back-up water supply when the river flow was low.

The main water bypass channel is next to the water wheel room and flows underneath the adjoining buildings, re-entering the river next to the smithy. It was here that a tiring plate was set up for use by the wheelwright. Cartwheels would be "tyred" with iron bands forged in the smithy and placed red hot around the wheel. Water was drawn from the river and used to cool the wheel and tighten the "tyre" in place. This action caused a sensational splash of steam and smoke, fascinating earlier visitors to the Mill.

This historic Mill complex is a particularly fine example of many rural trades grouped together. To understand why so many crafts developed here, we need to look at the historical background.

6. How the Mill works

All the milling equipment is powered by the waterwheel which is a **high breastshot wheel**, in which wooden buckets are held between cast-iron rims. The current waterwheel is an unusually complex design and dates from the early 19th century. The cast-iron rims are supported off the two hubs by wooden spokes. The hubs are a very unusual form as they consist of three concentric rings of cast iron. The spokes are socketed between the two outer rings and the inner rings connect directly with the water wheel shaft. The whole of the wheel and buckets are protected by flooding tar over them. The outer end of the shaft and its bearings are hidden under a cover. The inside end of the shaft carries the **pit wheel** on an inner bearing. The pit wheel is an iron wheel with wooden teeth morticed into its rim. The flow of water is controlled by a **launder** mechanism where the water leaves the leat.

The wooden upright shaft is supported at its bottom end on a beam which bridges across the end of the waterwheel shaft. The first gear on the upright shaft is the **wallower**, which is an iron wheel with iron teeth. The wallower transmits the drive from the waterwheel, via the pit wheel, to the upright shaft and all the machinery of the mill. The **great spur wheel** above the wallower is an iron wheel with wooden teeth morticed into its rim. The great spur wheel engages with the two **stone nuts** by which the **runner millstones** are turned. These stone nuts are iron wheels with iron teeth. To increase the speed of rotation of the millstones from the waterwheel, the stone nuts are quite small in diameter. The stone nuts can be drawn off the **stone spindle** to disengage the millstones by means of the small **windlasses** over the top of each of the stone nuts. These each work on two chains and draw the stone nuts upwards and away from their engagement with the teeth of the great spur wheel.

This is a typical Welsh arrangement of the millwork, which is limited to a fairly small area. The great spur wheel also drives a third stone nut on the outer side. This drives a shaft, which runs down to floor level, where its power is turned at right angles by means of a 1:1 **bevel gear**. This is the drive to the saw bench. The stone nuts drive the upper millstones of each pair. On

the upstream side of the mill, there is a pair of French millstones, and on the downstream side, there is a pair of Welsh conglomerate millstones.

The upright shaft goes on up between the stones to end in a bearing just below the ceiling of the first floor. Here the wooden shaft stops below a **crown wheel**, and a short square shaft is set like a **gudgeon** in the head of the upright shaft. The crown wheel is an iron mortice wheel carried on four 'T' section arms: there are 56 wooden teeth socketed into the rim. Two lay shafts are driven off this crown wheel. The **upstream lay shaft** has three pulleys on its length: the furthest being a solid wheel some 3ft in diameter. On the downstream side of the first wheel is the pulley for the chain which, when it is tightened, drives the **sack hoist windlass** in the roof space.

7. Grinding the Corn

On the first floor of the Mill the two pairs of stones are encased in their wooden "**hursts**". The French stones are used for fine grinding. The top stones or **runners** revolve supported on **iron rynds** attached to the stone spindles. The Miller can raise or lower the runner stone according to the amount of grain he is putting through and how finely he wants it ground. The grain would be fed from **hoppers** on the top floor into a hole in the centre of the runner stones. A **clapper** on the stone spindle would control the flow of grain, shaking the wooden shoe feeding the grain to prevent it from clogging up.

The Miller would usually stand by the **meal spout** because this is the only place he can see and feel the quality of the ground meal. In addition, the Miller would know from the heat of the meal whether the mill machinery was overheating - a common problem and the cause of many mill fires. To overcome this, the Miller can quickly raise the runner stone and then operate the launder on the leat to stop the wheel from turning.

8. Dressing the Stones

This was one of the continual tasks of the Miller. The grooves in the Mill stones needed to be sharpened constantly to ensure a good grinding action.

Dressing the stones involves cutting a series of grooves or furrows on the grinding surface. These grooves help to distribute the grain and also to ventilate the stones, although the actual grinding is done on the flat surface known as the "**land**". The furrows on the upper and lower stones are arranged to cross each other at an angle with a scissor-type action.

The process of dressing a stone involves, first of all, removing the surrounding timber stone cover. Using a hoist or a stone crane, the runner stone is raised, reversed and laid flat. In order to produce the necessary grinding surface, the stone is chipped away gradually with a "**mill bill**", which is a double-ended, wedge-shaped, tempered steel cutting tool, held in a handle known as a "**thrift**". The cutting edge of the bill requires re-sharpening every twenty minutes or so. This is done on a circular grindstone (sandstone), often powered from the adjacent machinery.

9. Where to find out more

For general history of the area, see the website pages of the Archives Department of Swansea Council at www.swansea.gov.uk
For information about old Mills, see the British Mills Society