

BUILDINGS AT RISK

Harnessing the power of the wind through the ages

In a recent *Buildings at Risk* article, we looked at some uses of water power. This week Dave Martin of the Alliance for Building Conservation looks at some of the ways in which wind power has been used on the island, and the associated buildings and structures – a few sustainably re-used but most now completely lost – and the cyclical nature of our use of renewable resources

Beside a deep-hedged lane where no storms come
An old farmhouse stands up from the marshy ground
Close to a tall old mill, long empty and dumb
And shorn of the great sails that once creaked round.

In this verse, the late Mona Douglas captures the state of a Manx windmill in the 1950s – a fate and plight which affected all windmills on the island, although the remnants of a lucky few have found sustainable new lives in the hands of sympathetic owners.

When talking of wind power, the immediate association is with windmills used to grind corn – and there were indeed a number of such windmills on the island.

On the 'other' Mona – Anglesey – which has flatter terrain and hence less power in its rivers for water mills, there were reportedly more than 50 windmills; we never had that that number of corn-grinding windmills on 'our' Mona, but there was also a wide range of other uses of wind power, sometimes referred to as 'wind engines'.

DIVERSE USES

The history of wind power on the island reflects technical evolution, commercial pressures, and the challenges associated with using renewable but uncontrollable natural resources.

Wind was a key component, even in the hand preparation of corn for grinding.

Prior to grinding corn, the first process is threshing – shaking the grain free from the heads and straw.

Since the time of the pharaohs, bundles of corn were laid on the ground and struck with flails; when done, the straw would be lifted off but the grain left on the ground would be dirty with husks, broken straw etc.

Where possible, threshing would be carried out with a through-draught to carry away some of the lighter debris, hence we see threshing barns with opposing doors.

The second process is winnowing to separate grain from the surrounding husks.



Kelly's sawmill in Kirk Michael with fantail, and inset the previous five-winged mill which burned down in 1865 (both iMuseum photographs)



This was initially done by hand, analogous to panning for gold, using what the Manx called a 'dollan' a hoop with skin or hide drawn over it like a drum-head.

The dirty grain was placed on the dollan and thrown gently into the air, the draught will blow the chaff away and the pure golden grain will drop back into the dollan – tedious work by hand, unless, like at Gordon, you had the help of a Fynoderee!

Just like with water wheels, wind power was in due course harnessed to mechanically power the threshing, winnowing, and subsequent grinding of the corn. Wind also powered gorse chopping/scutch mills, water pumps, industrial equipment, electricity generation, straw-cutters and other processes.

Possibly the earliest recorded windmill on the island was when Silvester Radcliffe and Phillip Sayle paid Lord's rent for a 'wynde milne' at the 'Mullen' in Andreas in 1608.

The island had its share of wind-power innovators.

In 1826 Mr B Smythe, of 12 Shaw's Brow, advertised his plans for 'a horizontal windmill invented by myself in 1813'.

And in 1837, the Mona's Herald reported: 'A farmer in the parish of Andreas has invented and erected a windmill calculated to thrash corn at the rate of 20 stooks an hour, bruise gorse, and churn milk.'

Key components were also made on the island – in 1844 an emigration sale advertised a set of patterns and moulds to cast windmill components.

WINDMILL STRUCTURE AND OPERATION

Waterpower was preferred for machinery as – seasonal variations aside – it was generally more reliable than wind.

However, in areas where there were no rivers, either because the land was too low or flat, or the rivers too distant, wind power could be used.

Wind power is reliable in the long term, but unpredictable in the short term.

Whereas the water flow around a waterwheel is always from the same direction, the wind can come from any point of the compass.

And the face of the blades must always be into-wind to get the maximum power, so the head of the windmill needs the ability to rotate horizontally so that the sails could face

the wind. This movement of the head was often performed by hand on the smaller Manx mills, but could also be performed automatically by means of a fantail at the back that operated rather like a weather vane.

Basic windmills – whatever they powered – had a wooden frame for each 'sail' or 'wing' (usually four of them).

These frames then carried canvas sails made by the local sailmaker.

If the wind was too strong, fewer/smaller sails were set, or the sails were reefed like a sailing vessel.

The design of sails improved over the years, with manual or spring-loaded panels to spill excess wind, or vanes whose pitch could be varied like a modern aeroplane's propeller.

To get the most out of wind power, wind 'mills' and other wind-powered machinery when possible were situated in exposed locations, and then elevated above the ground as much as possible.

With a water-wheel, assuming sufficient water was available, 'all' that the miller had to do was to adjust a sluice to vary the speed and power of the wheel and hence the milling machinery.

With wind-power, if there's not enough then the only answer was to wait – that was frustrating and costly, but was the easy part.

The main hazards though were too much wind; or 'tail winding' when the wind was allowed to get 'behind' the blades; both of which could result in great damage. Their height also made them vulner-



Ballacorai, Ballaugh, around the time Mona Douglas wrote the verse used to introduce the article (picture: iMuseum photograph), and right, the saved tower, undergoing conservation work (picture: A. Cole)



Ballahane Mill, Andreas - 1841 estate plan (Manx Museum Library)



The skeleton windmill at Mullen Guiye with Andreas Church in the background (picture: Coleman collection, www.manxnotebook.com)

able to lightning strikes.

A TYPICAL MANX THRESHING WINDMILL

The following extract - from the Folk Life Survey in the Manx Museum Library - was recorded by the man who operated the wind threshing mill at Ballacorey in Andreas.

It describes first-hand both the mill's operation, and its demise!

'The corn was put into the mill from the haggart, ready to thrash, and then they waited for a suitable day.

'The mill tower was about 30 feet high, built of brick, and the Mill inside was the same as those in barns at that time, driven by horse or water power.

'It was driven from the top - a shaft going down to the mill from the wings above the tower.

'To put the wings on, you climbed on a ladder to the wooden sticks which were the

frame-work of the wings, and hooked the canvas sails on.

'When one canvas was on, the windmill had to be set going to bring another wing down so that the canvas could be hooked on.

'They set the sails according to the weather; if a slight breeze four wings, if a moderate wind, two canvasses were put on, and if it was very windy, they ran it with the sticks only.

'The whole top of the mill was moveable, and there was a pulley and chain attached to pull it round into the wind.

'The last day it worked, I was told to put some loose corn through - the mill-rakings and gatherings, the last of the harvest. I put canvas on two sails and pulled the mill round into the wind.

'There were two women forking the corn into the mill from the loft inside.

'Suddenly the wind which had been moderate, became

gusty and the sails started going faster and faster.

'I pulled it out of the wind, but before I got it round, the wings were torn off and blown across the yard and onto the roof of one of the buildings.

'The mill was never used again.'

LESSONS FROM HERITAGE

Our use of wind power on the island illustrates how things both evolve and come around in cycles.

The wind turbines which power the weather stations on the Mountain Road may be descendants of Smythe's 1813 invention.

At Billown wind-power replaced fossil fuel in 1892; and the pumped-storage hydro-electric scheme at Dinorwig in Snowdonia has echoes of the way they combined several techniques at Ellerslie to buffer the inherent unreliability of renewable power.

Sustainability is key!



Baldromma, Maughold where the tower survives. The ring of projecting posts at barn-eaves level were used when rotating the head into-wind, and could also be used for support when the sails were rigged or reefed (Pic: iMuseum)

Wind power sites

This is a list of some of the locations where, and how, wind power was used; unless otherwise noted, all of these are now lost to nature, accidents or by the hand of man.

THRESHING / CORN MILLS

Ballakermeen, Onchan - during 1780s Phillip Moore paid Lord's rent for a windmill.

Baldromma, Maughold, and Ballacorai, Ballaugh - both small farm threshing windmills. Whilst still 'shorn of sails', in both these cases the empty tower was saved and sustainably re-used as part of a dwelling.

Ballahane, Andreas - derelict tower still standing. Registration in process for the last ten years.

Lezayre (Beaconsfield, Ramsey, also known as 'Monk's mill' after its builder, Lt Monk RN). The largest windmill built on the island, originally six stories high, diameter of the sails 70 feet; augmented by steam 1862. Converted into a dwelling in

the 1870s, decapitated 1960s, two-storey stump of the mill now registered.

Castletown (a.k.a. 'Witches Mill') - Sails 'blown off' on several occasions - one being found two fields away the next morning. The sails broke loose in a storm in 1850 and ran so fast the friction started a fire and mill burnt-out. The remnants of the mill are registered and have been converted to houses.

Ballaquane, Peel - corn mill, built 1841, lightning fire 1844, burned out 1847 following run-away in a storm.

The Rhyne, West Baldwin - a farm threshing mill, allegedly built using material robbed from a keeill.

WIND PUMPS

Examples at: Maughold church, also later supplied the lighthouse; at Ardonan Andreas; Skinscoe in Lonan; and at Knock-e-Dhooney, Andreas, to drain fields, then re-deployed to supply water for the Port Mooar Café in Maughold. At West Craig brickworks, the

first day the windpump's sails were fitted it ran away and the sails were shattered, and it was never rebuilt.

Ellerslie - wind power used to pump water to top-up reservoir used to drive turbine for electrical generator.

Billown Quarry - Simplex wind engine installed in 1892 to replace steam-powered pump.

OTHER WIND-POWERED MACHINERY

Booill-y-velt (Ballavelt), Maughold - gorse bruising/chopping mill, improvised using a tree trunk to get extra height for the vanes/blades.

Lambfell Beg (Creg Willy's hill) for churning milk.

Kelly Brothers' Kirk Michael - wind-powered wood-working complex (described in Mike Clague's recent book 'Reapers, Clogs and Pulpits').

South Barrule slate quarry - wind-power for incline and slate saw-bench. Stone tower remains.

Calf of Man - wind-dynamo for farmhouse (1920s).