

Inland Waterways News



Bog train

Nicki Griffin

Anyone cruising down the Shannon from Athlone towards Lough Derg will have seen the huge power station at Shannonbridge. You may even have tied up in the cut across the field from the tall chimney. But were you aware of the bog that lies behind the power station, providing a constant supply of peat?

The Blackwater bog

The Blackwater Bog is part of the vast Bog of Allen that stretches across the Midlands. Covering 20,000 acres, it crosses into four counties: Offaly, Roscommon, Westmeath and Galway. All the peat from this bog goes to feed the Shannonbridge Power Station. To find out more about this process, I dragged my parents along for a trip on the Clonmacnoise and West Offaly Railway.

We were the only ones climbing aboard for the trip across the black landscape. But then it was midweek in October. The trip takes an hour and is well worth it. The narrow gauge railway trundles around the bog, taking in sights such as acres and acres of black bog, more black bog and more bog. To be fair, there is also a wetland area created as a wildlife sanctuary from cutaway bog, and in the middle an island of good land creatively named Island Farm.

So there's a lot of bog. In fact only Finland, Canada and Indonesia have a higher percentage of bog than Ireland: here 16.2% of the land mass is made up of peatlands. We have blanket bog, fen (a kind of pre-bog) and raised bog. The Blackwater is a raised bog; this is the typical Midland bog that you travel through when cruising the Grand Canal.

Bog formation

For a bog of any type to form, there must be high rainfall, a continuous growth of vegetation, poor drainage and a low level or absence of oxygen in the waterlogged soil. About 13,000 years ago the land in the Midlands had all these qualities. After the last Ice Age the glaciers retreated, leaving behind hills and bumps (eskers, moraines and drumlins) and the hollows in between. These badly-drained hollows filled with water and plants began to grow, each year partially decaying to leave a deposit of peat at the bottom. As the climate warmed, a greater range of plants grew, each year partially decaying. Eventually the lakes filled with peat, becoming fens. The surface plants now had only rainwater to sustain them. Sphagnum mosses and bog cotton thrived; other plant life did not.

Sphagnum moss is curious stuff. It can hold up to 20 times its own weight of water in its pores and cells. In the bog it draws up and holds water as it grows, forming layer upon layer of peat as it decays and accumulates over thousands of years. It is this process that forms the very deep bogs we have in Ireland.

Working bogs

The raised bog gets its name from the fact that it is raised several metres above the surrounding landscape. It has a dome-shaped surface, and in some areas can be as deep as 13 metres. The Blackwater Bog has a depth of 7.5 to 8 metres. 80% of this bog is water. This explains the machinery designed by Bord na Móna to work the bog. Very wide double tyres are needed to keep it afloat.

At the Clonmacnoise and West Offaly Railway, you can see examples of the old machinery just beyond the small station. Machines for digging drains, cutting the turf and harrowing. All painted bright yellow: no chance of losing them in the middle of the bog. The train bumps along, first taking in the old machinery then heading off into the peatland.

Fifty years is the average life of a working bog, and this one has about twenty years left. It produces about a million tons a year, all of which goes to Shannonbridge. The present power station produces 4% of Ireland's electricity. The new one, due to start work in late 2004/early 2005, will meet 6% of Ireland's power requirements. To feed a power station like this, the peat has to be milled to produce a very fine, dry powder. If you look across a working bog, you can see it is divided into strips or fields with open drains between them. All the machinery is designed to fit these 15 metre wide fields.

Milling

There are four operations in the milling of peat:

- milling: a very thin layer of peat (about 15mm) is scraped from the surface of the bog and left to air-dry for a few days
- harrowing: the peat is turned to help in the drying process
- ridging: the peat is collected into ridges in the middle of each field
- harvesting: all the peat is picked up and passed along a chute to the centre field of each 11-field unit. This is left in a huge ridge and covered with plastic to protect it from the rain until it can be transported.

The milled peat is transported by train to the power station: the narrow gauge railway is not just for the tourists. At the Blackwater bog the small locomotives pull fifteen wagons, each carrying five tons of peat. Approximately 2,500 tons of peat is consumed by the Shannonbridge Power Station every day. Typically 150mm-225mm of peat is removed from the bog surface each year.

Planning

When Bord na Móna decides to begin work on a new bog, it has to think ahead. There's five years of preparation before any peat can be harvested. A bog like the Blackwater is called a raised bog because in its virgin state it humps up above the surrounding countryside, but in order to produce peat, Bord na Móna has to drain it. This allows Bord na Móna to use bigger and more economical machinery, and to reduce the amount of drying time for the peat.

There is, of course, an environmental consequence to all this. A bog is a huge sponge, holding on to millions of gallons of water. If you remove large parts of this sponge, the water has to go somewhere else. And there are other environmental issues, apart from the fact that huge and irreplaceable areas of bog are being removed. What happens to the cutaway areas once the peat supply is exhausted?



Bord na Móna appears to be very aware of its responsibilities to the environment. They have three uses for cutaways: wetland, forestry and reclaimed grassland. On the Blackwater Bog an area of wetland has been made into a wildlife sanctuary. There is also an area where you can study the natural flora of the bog. And some of these are well worth seeing. Alongside common plants such as furze (gorse) and heather, you can find the sundew, a plant that has adapted to its poor nutritional environment by taking up eating insects. It traps them in its sticky leaves, then gradually digests them. Yum.

Old-style turf-cutting



Old-style turf-cutting (Nicki Griffin)

Back to the bog train, where Darren Finnerty and Ciaran Guinan (tour guide and train driver respectively) demonstrate the old method of turf cutting. In the past the men worked in pairs, one cutting and one catching the turf. In our demonstration, Ciaran cut the turf while Darren caught (mostly).

In the first stage of the process the men removed the top layer of bog with all its vegetation, then the layer underneath. After that came the really back-breaking bit. The deeper you go in a bog like this, the better the quality of the turf. This meant cutting down, spit by spit, into the wetter, harder-to-cut layer. Finally the turf was footed to dry. Not a job for the unfit.

Archaeological finds

To be in the middle of a bog like this is an extraordinary experience. Black flatness into the distance with the occasional yellow insect-like machine crawling along in the distance. Silence. Huge mounds of milled peat. Great hunks of bog deal and oak. For the bog has secrets too. Every so often headlines are made when a human body or old bit of road is discovered preserved in the acidic, oxygen-deficient peat.

So far around 1600 artefacts have been discovered in Ireland's bogs, many of them giving valuable information about early communities. One settlement was uncovered at Clonfinlough in County Offaly. The two broken paddles discovered there show a level of sophistication in the transportation of water not previously recognised. Another discovery was a single plank walkway from Curraghmore townland, Blackwater. This dates from around 1550 BC and was originally over 1km long. Even well-preserved butter has been unearthed. Not from 1550 BC though.

Climate change

It's an interesting place, the bog, but it's fast disappearing. And it's not only the removal of peat for heating and horticulture that endangers its existence. The changing climate is a threat too. Less rainfall means the bog dries out. Anyone cruising along the Grand Canal earlier this year will have seen the result of weeks of dry weather. As we went along at Easter the bog was on fire. At one point the flames even leapt the canal. Fire brigades were unable to contain the blaze for at least 24 hours. Huge areas of peatland were blackened.

Not only is the warming climate a threat to the bogs. It also means that bogs will contribute to climate change. A peat bog is a vast store of unreleased carbon. There are three things that ensure the carbon remains in the bog instead of being released into the atmosphere. The first is the very low oxygen content, the second is the wetness and the third is the low activity of a recently-discovered enzyme called phenol oxidase. If a bog dries out, there is an influx of oxygen, which boosts the level of this enzyme. The enzyme then acts to promote decomposition of huge quantities of organic carbon which escape into the air as CO₂.

If peat bogs dry out, there could be a catastrophic release of CO₂, so increasing global warming. This is supported by the research of Melvin Cammell, Director of the Centre for Ecology and Hydrology in Edinburgh. He found that after Scottish Highland peat bogs are drained, they release up to 3.5 tonnes of carbon per hectare each year. So already the Irish bogs are almost certainly contributing to global warming just by the fact of being drained.

So maybe you should visit the bog while you can. The Clonmacnoise and West Offaly Railway is a good place to start. They do a variety of tours, including tea on the bog and tours designed for school groups. There's also a very nice tea shop. Contact details: email bograil@bnm.ie, tel: +353 (0)90 96 74450. You can also find information on the Bord na Móna website: www.bnm.ie.



Shannonbridge old and new