The Sliabh Aughty iron industry in the 17th and 18th centuries

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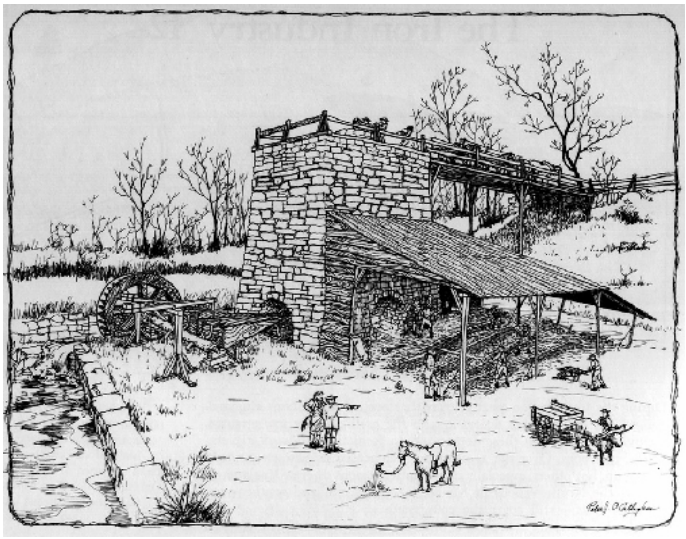
Early iron production in Ireland

A bloomery furnace

Iron ores have been made into iron in Ireland since about 500 Before Christ or 2500 years ago. In these early times the technology was rather simple: the iron ore, together with charcoal as fuel, was put in a 1.5m-high clay shaft, the furnace. The fuel was lit and all the material in the ore that was not iron was smelted away. The iron that remained, called a bloom of iron, was ready to be forged into any object that was needed.

These early furnaces remained essentially the same for the next 2000 years, only in some cases did they become larger to produce bigger blooms. Around 1300 AD, in Scandinavia and central Europe, a revolution in iron technology took place. Here, for the first time, water-power was applied to the bellows which allowed much bigger furnaces to be built. Not only that, but the iron produced in these new furnaces, because of the higher temperatures, was not solid but liquid. It was soon discovered that this liquid iron could be poured into many and especially large shapes. The objects made, called cast iron, included cannon, fire backs and even grave slabs. Cast iron, however, cannot be forged and to make it forgeable a two-step process was developed. First a long block of iron, known as a sow or a pig of iron, was cast at the furnace. This sow was then brought to a second installation, the finery, where it was re-melted. The result was iron that could be shaped by the blacksmith.

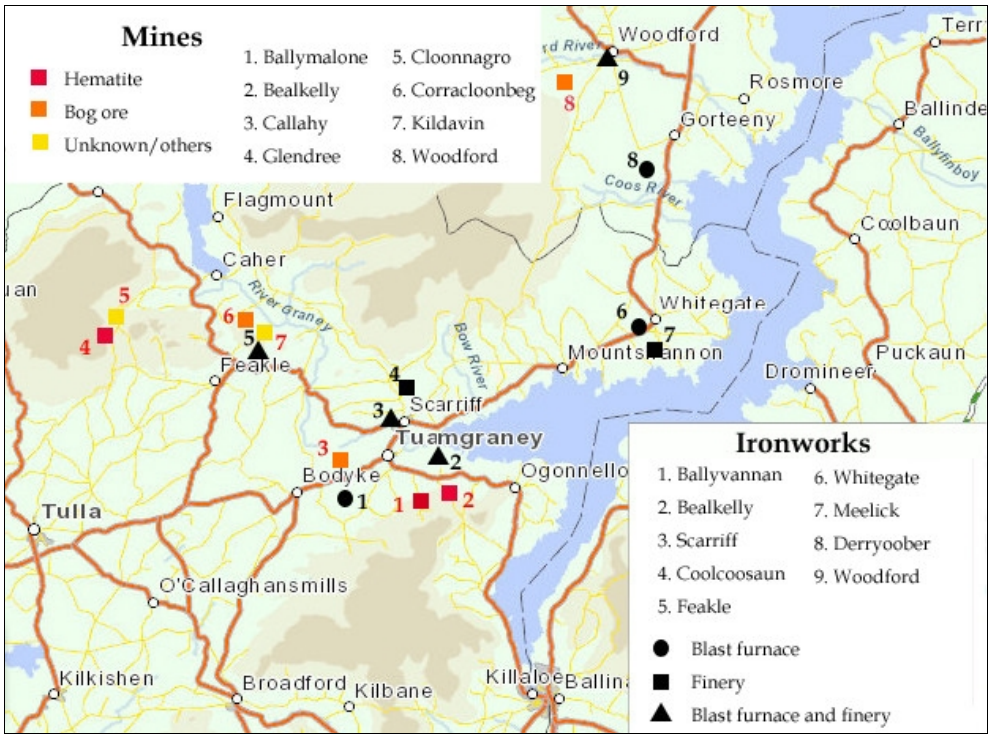


A 17th-century blast furnace

For over a century, this new type of furnace, known as a blast furnace, did not spread far from its area of origin. It was of the utmost strategic value and its working were kept a secret. Only in the 1490s was the first blast furnace built in England in the County of Sussex. The south-east of England became an important industrial area for about a century or so, but the fuel-guzzling furnaces quickly diminished the woods. As early as the 1550s, blast furnaces were being built in the English Midlands. As this was the beginning of the Plantation Period, when many English settler were granted Irish lands confiscated by the Crown, and because Ireland had many untouched

woods, several blast furnaces were planned in Ireland in the late 1500s. The earliest of these furnaces known for sure to have worked in Ireland was built in the 1590s in Mallow, Co. Cork.

After 1600, when the Plantation of Ireland gets going in earnest, it is Richard Boyle, the first Earl of Cork who will be most successful in operating blast furnaces. Over a 40 year period, the Earl will build four furnaces, more fineries and the only ever steel-making plant in Ireland around Lismore in east Co. Waterford. But the large profits the Earl made with his ironworks led to jealousy. This is where the history of the Sliabh Aughty iron industry begins.



The ironworks and mines of the Sliabh Aughty area

Scariff: the first Sliabh Aughty blast furnace (1630 – 1710s?)

The first record we have about iron production in east Clare dates from 1630 and is part of a proposition by Henry Wright and Richard Blacknell to the King of England to produce iron in Ireland. Wright and Blacknell had been the Earl of Cork's managers of his ironworks and for several years they had been hoping to obtain a royal monopoly on iron production in Ireland. This would have ruined their former boss and made them rich men. In January 1630, among other iron mines they had secured, a letter by Blacknell mentions that they had an agreement for iron ore and charcoal with Luke Brady who had rich iron mines and over 2000 acres of heavily wooded lands.

These were the lands of Tuamgraney, Co. Clare. But by then the tides were turning fast against Wright and Blacknell: their secret was out, the Earl of Cork was mobilizing his allies and perhaps most importantly, the Earl lent 14.000£ to the King. There is no record of the money being repaid...

Luke Brady was clearly also aware of the changing times and already by April 1630 he had a contract with a group of London merchants, headed by Joshua Foote and William Beeke, for his iron ore and woods. The first blast furnace in the Sliabh Aughty area was built in the same year at Scariff. Nearly everything we know about this furnace comes from the numerous court cases between Luke Brady and the London merchants and it sounds like Brady was systematically trying to get more money out of the merchants once the furnace was built. Interestingly, the Earl of Cork buys half of Luke Brady's Tuamgraney lands, together with the ironworks, in 1634, perhaps to avoid a repeat of the earlier attempt to undermine his business. The ironworks appear to have been stopped when the Rebellion of 1641 kicks off. Foote and Beeke shortly after, in 1643, became heavily involved in setting up the first functioning blast furnace in America, at Saugus just outside of Boston.

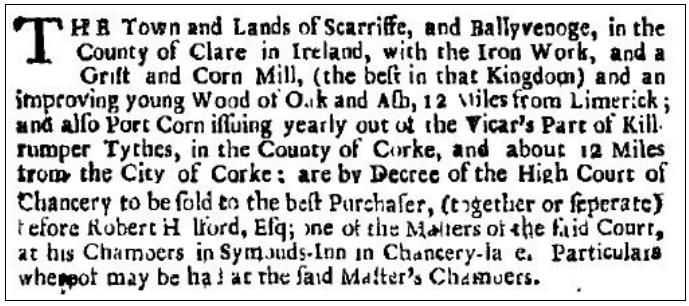
The reconstructed furnace at Saugus

Since the 1640s, the first Earl of Cork's Tuamgraney lands had been granted to his son, Robert Boyle, who became one of the 17th century's greatest scientist, famous for Boyle's Law in chemistry. From Robert Boyle's correspondence we learn that in 1683 a Mr Arthur was building ironworks on the lands without permission. Two years later, the ironworks, now run by Sir Henry Waddington who we will meet later, were badly damaged by floods. In 1690, we hear that the Scariff works were supplying the Jacobite army with arms in the 'War of the two Kings'. In 1692, John Emmerton of Thrumpton Hall, Nottingham takes over the works and has left us with a large collection of letters containing fascinating detail on life in the area in the late 17th century.

These Emmerton Papers consist of the correspondence between two of Emmertons agents in Ireland, one in charge of Scariff ironworks, the other involved in lead and silver mining further afield. These contain much details of the goings-on at the ironworks. They show the importance of the horses for carrying supplies to the furnace and the constant buying of woods to keep the works going. They mention the iron objects made: plough shares, spade blades and iron bars for selling on,

but also the difficulties at times to sell the iron. Towards the end, the letters detail the sale of the ironworks and record the interest of ironworkers from Co. Laois. We will meet them again.

The Scariff lands and ironworks next end up being owned by Charles Boyle who tried to sell his Clare estate before he died in 1704 to settle his debts. The works are last mentioned in 1715, but they might have stopped working by that time.


THE Town and Lands of Scarriffe, and Ballyvenoge, in the County of Clare in Ireland, with the Iron Work, and a Grist and Corn Mill, (the best in that Kingdom) and an improving young Wood of Oak and Ash, 12 Miles from Limerick; and also Port Corn issuing yearly out of the Vicar's Part of Killrumper Tythes, in the County of Corke, and about 12 Miles from the City of Corke: are by Decree of the High Court of Chancery to be sold to the best Purchaser, (together or seperate) before Robert Hilford, Esq; one of the Masters of the said Court, at his Chambers in Symonds-Inn in Chancery-lane. Particulars whereof may be had at the said Master's Chambers.

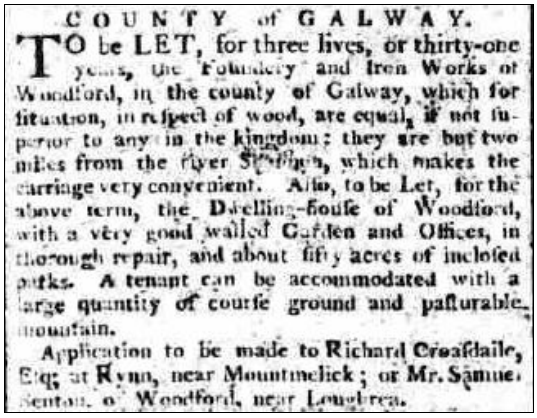
London Gazette, 27 December 1715

Woodford: the last Sliabh Aughty blast furnace (1681 – 1780?)

The beginning of the ironworks at Woodford, Co. Galway are only know through a rather unusual source. Many blast furnaces had iron re-enforcement bars above their casting arches and remarkably the one of Woodford furnace has survived. This bar has the date 1861 stamped into it, the date of the start of production, and it is the only record we have of this event. This bar has recently been put on public display outside Woodford Heritage Centre.

The Woodford bar outside the Heritage Centre

As Sir Henry Waddington received market rights for Woodford in 1683 it is likely that he was the owner of the ironworks and he certainly was just before 1692, when John Emmerton takes over the works together with the ones at Scariff. From early on Emmerton had many problems with Thomas Croasdaile, co-owner and manager of the Woodford works. At one point Croasdaile was selling his Woodford iron cheaper than that made at Scariff... After Emmerton sold his stake in the Woodford ironworks, Croasdaile took full control. He, and later his son Henry and other family members, would develop the Woodford works into a very successful business.



COUNTY of GALWAY.

TO be LET, for three lives, or thirty-one years, the Foundery and Iron Works of Woodford, in the county of Galway, which for situation, in respect of wood, are equal, if not superior to any in the kingdom: they are but two miles from the river Shannon, which makes the carriage very convenient. Also, to be Let, for the above term, the Dwelling-house of Woodford, with a very good walled Garden and Offices, in thorough repair, and about fifty acres of inclosed parks. A tenant can be accommodated with a large quantity of course ground and pasturable mountain.

Application to be made to Richard Croasdaile, Esq; at Rynn, near Mountmelick; or Mr. Samuel Denton, of Woodford, near Loughrea.

Pue's occurrences 28 March 1780

Little is know about the Woodford ironworks in the 18th century, except that in 1753 they were owned by another Thomas Croasdail, from Rynn and George Despard, from Crannagh, both in Co. Laois. In 1760 the works were let to John Burke of Grallagh, Co. Galway. The last we hear of ironworks in Woodford, and in the Sliabh Aughty area, is in 1780 when they are put up for rent again. When in 1797, the same lands are let again only flour mills are mentioned...

The other Sliabh Aughty ironworks

Neither Scariff nor Woodford have upstanding remains of the blast furnaces, but several of the other Sliabh Aughty furnaces do. These furnaces, however are poorly or not documented.

One of the most impressive ruins is visible at Whitegate, Co. Clare. The furnace itself is badly damaged, but a tunnel built at its back is still standing. No other blast furnace like it is known. The furnace was owned by the same two people who owned Woodford ironworks in 1756. The sources are vague, but is possible that at this time only further processing was carried out at Woodford and that the iron itself was made in Whitegate.

Another ironworks was run by the Maghlin brothers at Feakle from before 1694 untill after 1711. No remains of the works survive but recently one of the mines supplying the ore was recently re-discovered by the Furnace Project in the townland of Glendree.

The best preserved furnace of the Sliabh Aughties, and possibly of Ireland, lies in the townland of Bealkelly, just outside of Tuamgraney. It has beam slots which would have held a wooden platform around its top and a buttress was added when one of the wall started to crack. Current research suggests it might have been operated by John Brady of Raheen, shortly after 1735.

The impressive remains at Ballyvannan are what is left of the mystery furnace of the area. Although the huge heap of waste suggest a long period of production, there is no record of when it operated. Also its location is odd as it lies far from any rivers or roads. Nearby the dam of the water reservoir and lots of charcoal can be seen.

Another well preserved furnace can be seen at Derryoober, Co. Galway. It is claimed that this furnace was never worked and even that the building was left unfinished. We also have no records about this furnace.

On a map of 1830 another ironworks is marked at Coolcoosaun in the townland of Tobernagat, just outside of Scariff. A single piece of slag suggests that this was likely a place for the further processing of the iron but it is unclear which furnace could have supplied the metal. These ironworks were likely part of the ones owned by John Ringrose of Moynoe House in the early 1700s.

The Sliabh Aughty blast furnace remains: Whitegate, Bealkelly, Ballyvannan and Derryoober

The Sliabh Aughty Furnace Project

The four upstanding blast furnace remains are the best preserved group of its kind of that period anywhere in the world. Their importance for the local area cannot be overestimated. These ironworks would have dominated the life of the people living in the area for well over a century. Even today a lot of the localities where people live, Scariff, Feakle, Woodstown and Whitegate, would most likely not be there if it wasn't for these ironworks. Further afield, the industry was of importance nationally and in some cases internationally.

That is why a few years ago the Sliabh Aughty Furnace Project was created. This now includes Gerard Madden, historian of the area, Paul Rondelez, an archaeologist with an interest in mining and metal production, his wife Ewelina, an archaeologist with artistic and digital skills, and William Prentice who's interests in 17th and 18th-century law and economy. The aims of the Project are to study, conserve and spread awareness of the Sliabh Aughty iron industry.

Researching the ironworks includes tracking down documents related to the ironworks in archives, in Ireland and abroad. We have been rather successful in this respect and have uncovered some real gems, but more documents often lead to more clues about other documents, so there is still a lot to uncover. Next to this, the remains are being looked for, recorded and kept free of vegetation. This includes the furnaces themselves, but also mines, water ponds and charcoal making areas.

As part of raising awareness, we aim to organize a Furnace Festival every two years. These have both an information and an entertainment part. In 2014, the first festival was held in Mountshannon and had a successful conference and 17th-century games, forging and weapons demonstrations. In the years in between, we will concentrate on conservation work and last year got a generous Heritage Council grant to put together Conservation Management Plans for the four furnace remains. These form the basis for the actual conservation, which we plan to start with next year.

So, we hope every body enjoys this years Furnace Festival
in cooperation with Scariff Harbour Festival!

This booklet was produced for the second Furnace Festival held in Scariff, Co. Clare on 30 and 31 July 2016.

You can find more information on our Project website (www.furnaceproject.org) and on our Facebook page (Furnace Project).

For any other enquiries, please contact Paul at prondelez@yahoo.com or 085 1239550.

We are always looking for volunteers to help us with fieldwork, research and events support.

If you are interested, we would be very happy to hear from you!