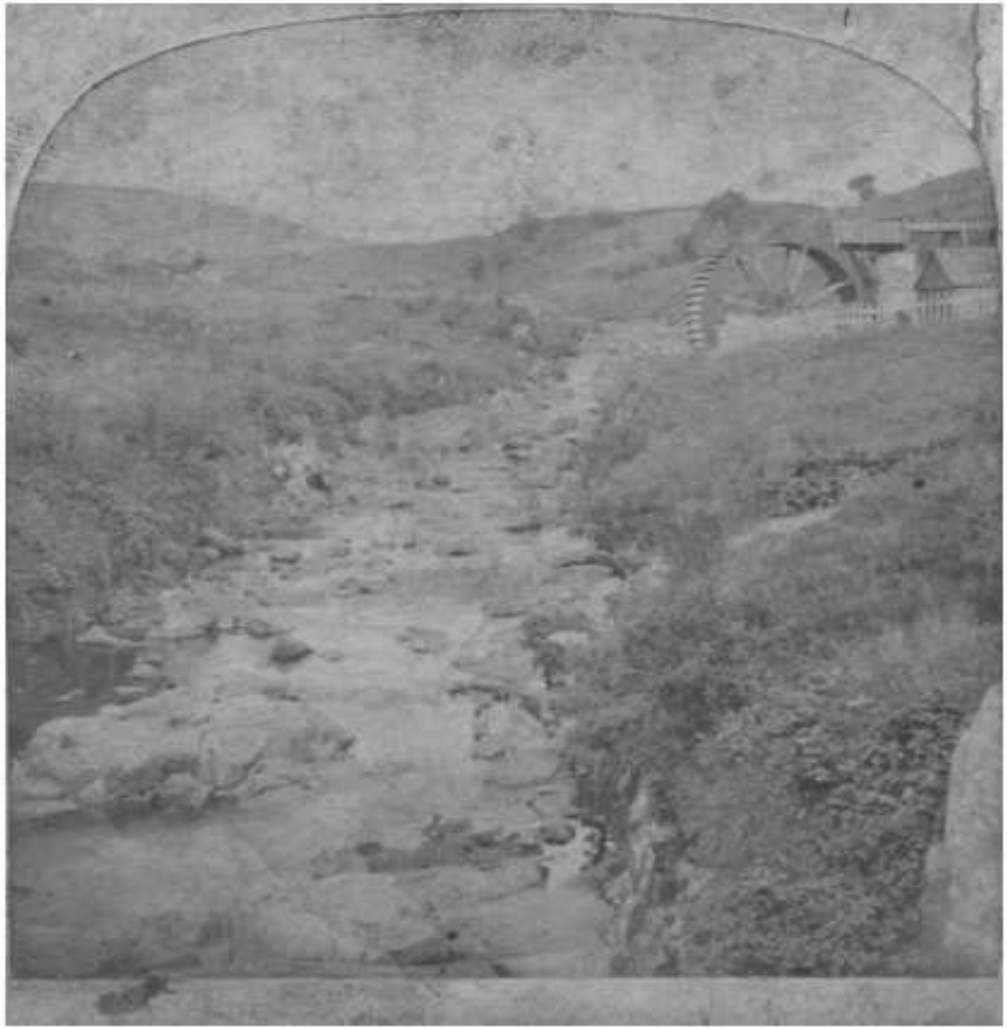
The Corn Mill at Lower Carrick

I found the above Image in Facebook! It was named <u>The Aughera Corn Mill on the Little Carrick River</u>! The orientation of the Photo is not correct. (There was a Iron Ore Smelting Furnace on William Glenn's holding to the south of the Abhainn Bhuidhe—see pp 76-77 in *The Cliff Scenery of South-Western Donegal* 2000 by Thomas Colin McGinley. But that is another story!) S.Ó.G.



You will note that on this page I have corrected the orientation of the Photo and the Corn Mill is shown on the north side of the Abhainn Bhuidhe. You will note that the shape of some of the rocks in the river are discernible and maybe that they could still be identifiable! This must be the oldest Photograph taken this area! It shows the Mill Wheel and adjacent buildings in good order? S.Ó.G.

This is a copy of the <u>1837 Ordnance Survey map of Carrick Lower</u>. It shows the location of the Mill Race and Corn Mill and some small Clachans near by. Note the Old Road from Kilcar passing through Roxborough Glebe and continuing as the Small Road on to Glencolumbkille! Until 1798 there was a narrow wooden Bridge (Droichead Maide) across the Narrow below where Francis Curran's house is today. In that *Year of the Hurry* the local Distillers burned the Bridge in order to keep the *Redcoats and Harry McDowell* out! P.S. (Anyone hear of *Oidhche Harry Mhic Dubhghaill*—the night Harry McDowell was lost.) See pp 107-9 in *Bygones* 1989 by Pat Conaghan! S.Ó.G.

This a copy of the 1857 Carrick Lower Griffith Valuation Map. Note the Corn Mill is marked on it—in Ruins. Also note that the Rundale System has now ended and the Lands have been Striped / Squared and Numbered! Holding 9 on which stands the Corn Mill is James Gillespie's? See Valuation of Tenements, p.288 *GLENCOLMCILLE: A Parish History* 2002 by Conall Mac Cuinneagáin. (Also note at the top of No. 10 Holding, there is Tuck Mill marked on the Map in the name of Tenant Francis Cunningham.) S.Ó.G.

This a copy of Carrick Lower Map that was added to the Facebook page. It is a smaller version of the Map on the previous page but the Holding numbers are not recorded. S.Ó.G.

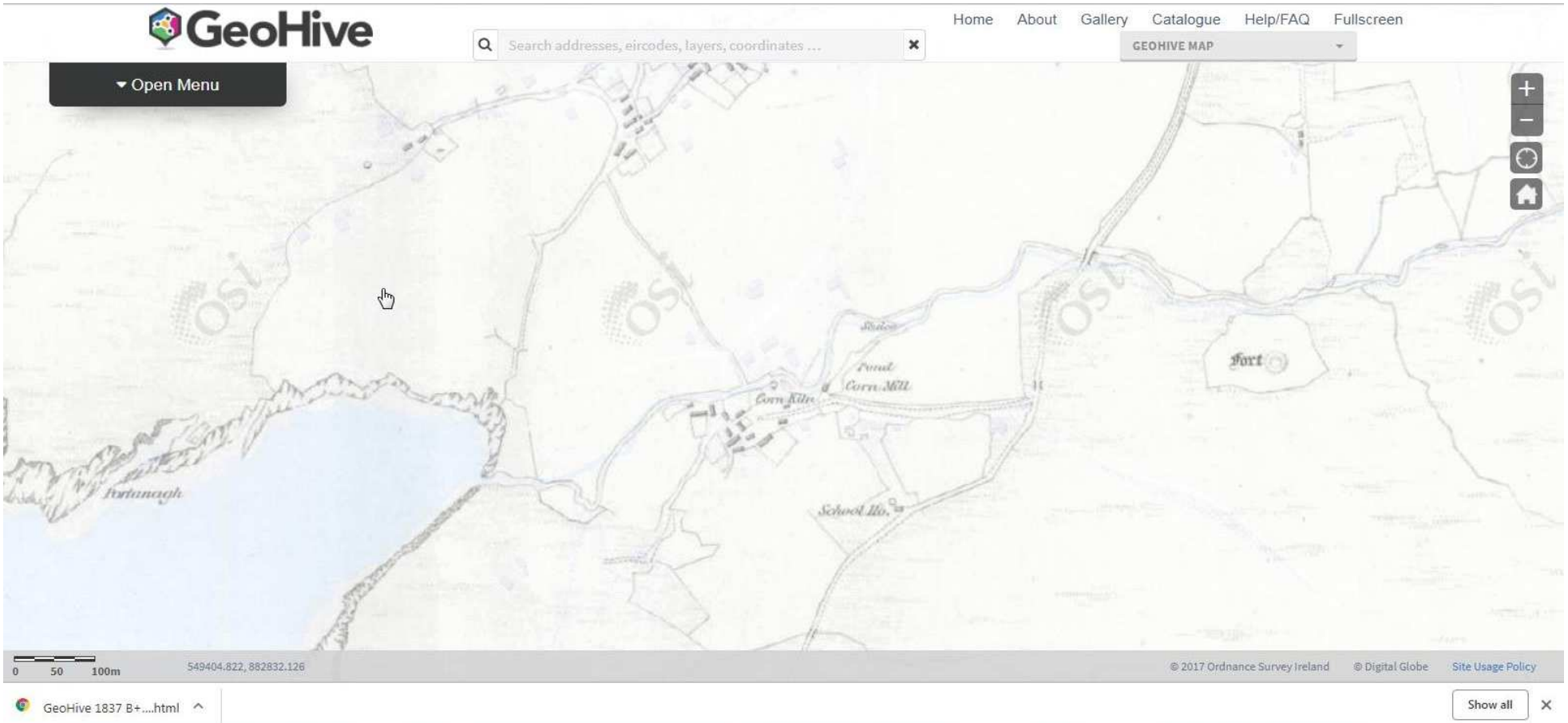
This is an 1888-1913 Map of Carrick Lower. The site of the Mill Race and Corn Mill is shown. There is a faded path shown from the Small Road to the position of the Corn Mill! Also note that the Cunningham Smithy is marked on the Small Road. It is still there—it belongs to Mickey Rua Cunningham. S.Ó.G.

This is the Site of the Old Corn Mill in Carrick Lower now. This Photograph was taken by James Byrne, Carrick. S.Ó.G.

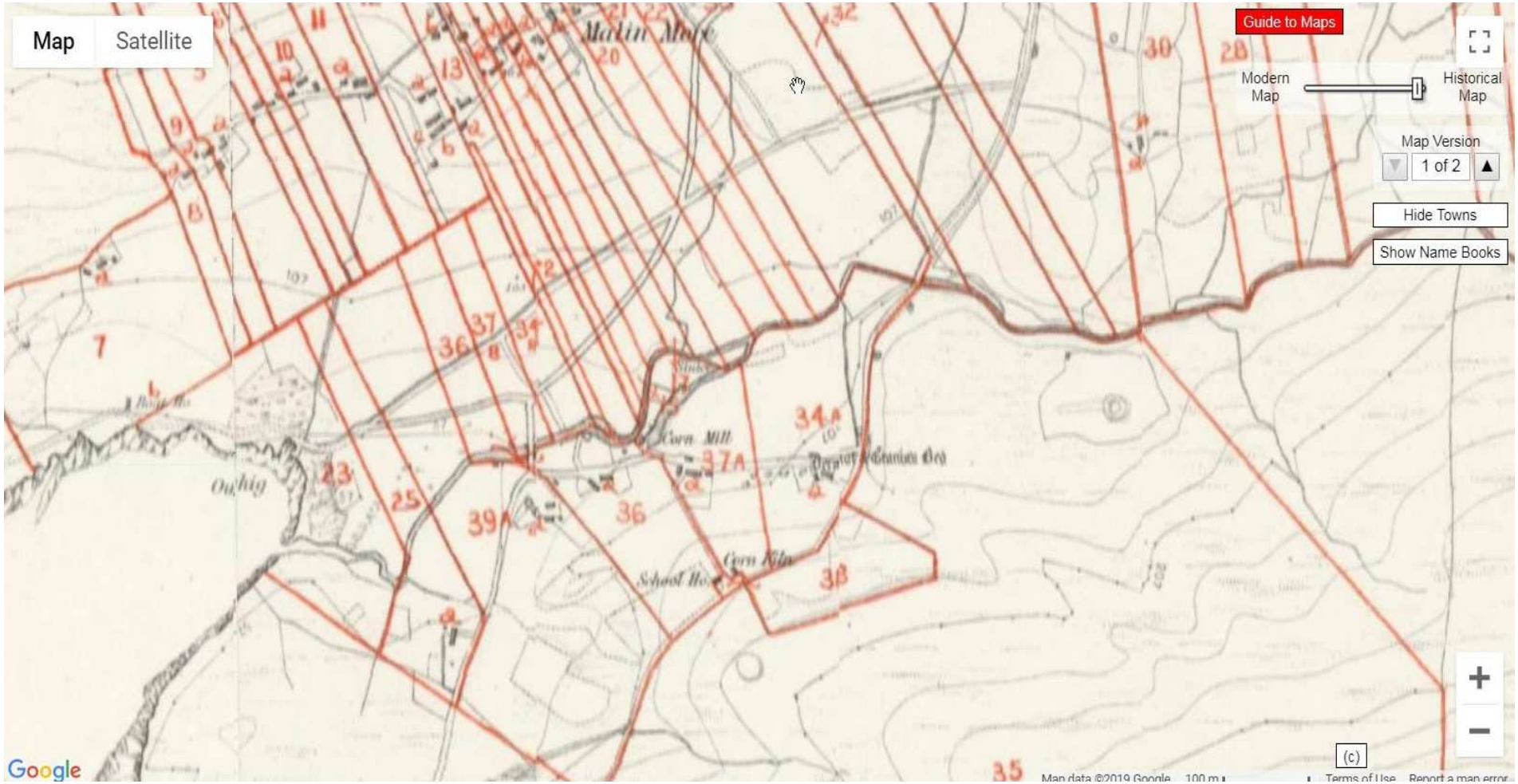
This Photograph No. 2 of the Old Carrick Corn Mill Site taken by James Byrne, Carrick. S.Ó.G.

This is the No. 3 Photograph of the Carrick Lower Corn Mill Site taken by James Byrne, Carrick. I found all three Photographs on the James Byrne Website. S.Ó.G.

The Malinmore Corn Mill

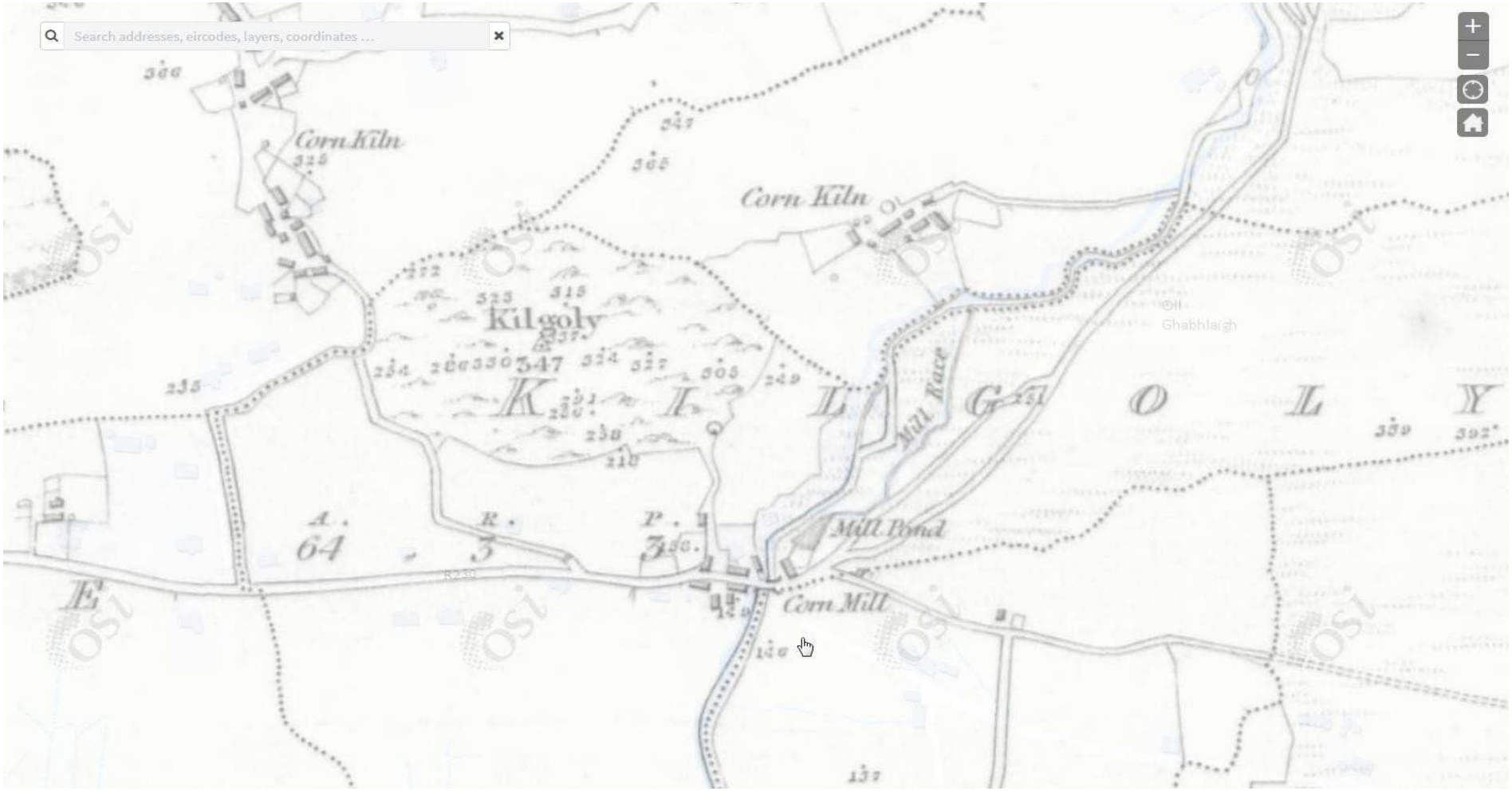


This the Waterside Section of the 1837 Ordnance Survey Malinmore Map. It shows the Old Road from Malinbeg to Glencolumbkille. Note the Bridge to the west of the Fort—this bridge collapsed into the Malinmore River about 100 years ago? Note the Sluice, Pond, Corn Mill and Corn Kiln marked in the centre of the Map. Note the School House marked on the Old Road to Malinbeg. (There were 4 School Houses in Malinmore at one time or another. That is a story for another day) Note that all Malinmore was still in the Rundale System. S.Ó.G.

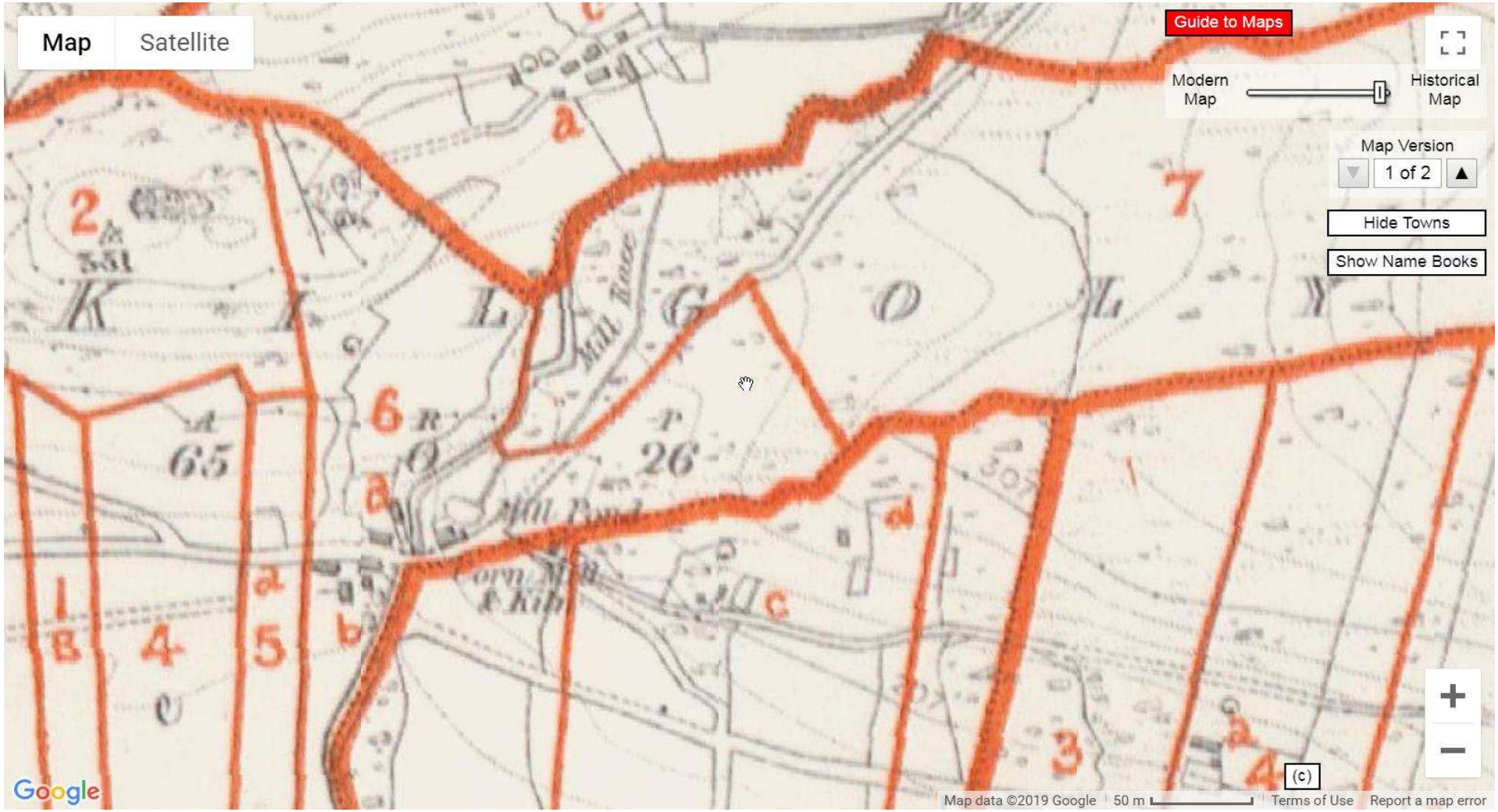


This is the 1857 Griffith Valuation Map of Malinmore. Note the great changes that have taken place. The Rundale System has come to an end and the Holdings have been Striped or Squared, and Numbered and new houses built on the holdings. A New Road has been built from Glencolumbkille to Malinmore—down through An Léine Mór and on to Malinbeg. The Sluice, Corn Mill and Corn Kiln are marked on Holding 37A. This Holding is in the name of Thomas McKee, p. 302 of GLENCOLMCILLE: A Parish History 2002 by Conall Mac Cuinneagáin. Note that this Holding is now owned by the Heekin Family! Note that the School House is still marked there. S.Ó.G.

The Kilgoly Corn Mill, Glencolmkille



This is the 1837 Ordnance Survey Map of the Site of the Kilgoly Corn Mill. (The Mill Brae on the Meeacross Road is named after it). Note the Mill Race, Mill Pond and Corn Mill are marked. There are 2 Corn Kilns marked on the Map. They may not belong to the Mill—they could be part of the Distilling Industry? S.Ó.G.



This is part of the Kilgoly 1857 Griffith Valuation Map. It shows the Mill Race, Mill Pond, Corn Mill and Kiln at Kilgoly. The Corn Mill and Kiln are attached to Holding No. 4 in the name of Denis Rowan. See Kilgoly Valuation of Tenements List in *Glencolmcille: A Parish History* 2002 by Conall Mac Cuinneagáin. Is there History of this Mill available? S.Ó.G.

Leitir Corn Mill

Important plans have been drawn up to re-develop the 200 year-old Leitir Corn Mill on the Glenaddragh River in Kilcar and thus, the recent launch of the 'Leitir Corn Mill Conservation and Restoration Project' took place at the Kilcar Fleadh Heritage day in the Áislann Chill Chartha. Members of the Kilcar Heritage Committee have put in a lot of hard work and produced a Conservation and Development Plan with a view to establishing a working heritage mill.

Building owner Michael Ward has generously donated the mill and miller's house on a long-term lease to the community along with a field to develop into a car park. The primary aim of the

Conservation and Development Plan is to conserve the mill with a view towards re-developing it as a working heritage mill in the future.

This site is brimming with local history. The two-storey mill is built of stone from southwest Donegal. Taken as a building on its own merits, the corn-drying kiln and corn mill at Leitir is undoubtedly of regional significance. However when one considers (a) the rich assembly and excellent state of preservation of authentic artefacts/machinery, (b) the associated miller's house (little changed from its nineteenth-century state) and (c) the still functional condition of the millrace and millpond, it does not seem unreasonable to argue the entire complex is of national importance.

Few of Ireland's traditional corn mills have survived to the present day with this level of preservation and intactness. This site is an important part of the 19th century industrial heritage of not alone Kilcar but of the county and entire northwest region. The grain milled was grown throughout this locality and served to provide for some of the food needs of Kilcar, Carrick and Killybegs. It also catered for the corn corps of small farmers in Glencolmcille, Killybegs and Teelin. Self-sufficient farmers brought their cut corn to the mill. They also supplied turf for the kilns used to dry the corn. This is really an outstanding reminder of the industrial/agricultural heritage of the area.

Patrick McBrearty from the Heritage Committee said the old stone building had stood the test of time very well. He said this demonstrated the care and maintenance the mill had been given over the years. Although the last milling took place in 1954, Mr McBrearty said it looked as if that last miller Peter McMullan had literally just closed the door behind him.

The committee are now welcoming donations ftom groups, companies and individuals in order to undertake urgent remedial work. Cheques can be made payable to 'Coiste Oidhreachta Chill Chartha'. The committee also welcome offers of voluntary help with this worthwhile community project.

It would not be right to finish this project without referring to the Leitir Corn Mill Restoration in Cill Chathrach. This is a large Corn Mill that was in use into the 1950's. I remember my McNelis cousins bringing the corn out to it to be milled. It would be wonderful to see it fully restored and working! I am looking forward to having some Leiter Oatcakes. They would be great in a Hill Walking Pack! I found the Mill Photograph and article on the Leitir Corn Mill Website. S.Ó.G.

Conclusion

This is as far as I can go with this project and it leaves me asking questions:

1. **Were there any Corn Mills in the Abhainn t-Seisne—Abhainn Chróibh—Abhainn Ghlinne Shraith Laoighill—Abhainn na Carraige River System?**
2. **Was there a Corn Mill on the Abhainn an Bhaile Dhuibh River System?**
3. **I had a look at *History and Antiquities of Killybegs* 1975 by Charles Conaghan and on p.4 I found the following:**

The other waterways in the parish are the Fintragh River and the stream anciently known as Owen-Mallard at the Commons. Both streams had at one time been harnessed to drive corn mills, and another corn mill was situated on a stream which divides the townlands of Tullid and Largysillagh. None of the three mills has been in operation in living memory. In the processing of corn (oats) there was apart from the mills, corn drying kilns at Largynagreena and Gortnamuck3. Local people dried there oats at these places grinding the meal by hand quern in their homes.

On p.7 I found Note 3 to the above:

> ***There was also a large drying Kiln in the Corn Store in Killybegs, owned by the Blain family, where oats were dried before being exported to Britain in the days when rackrents were paid by grain mainly oats. <u>The Corn Store was situated on the river bank, where at high tide lighters or smacks could draw along side to load the grain, in the days before the present bridge was built</u>.***

P.S. 1. I remember my father telling me that boats could sail up the river to the Corn Store in Killybegs at high tide. The Corn Store is now Fawlty's Pub! S.Ó.G.

P.S. 2. <u>Lighter: A boat, usually flat-bottomed, for transferring goods from ship to wharf or another ship.</u> ***The Concise Oxford English Dictionary.*** **S.Ó.G.**

P.S. 3. *In Inver Parish in History* 2005 by Helen Meehan, Chapter 52, *Mills and Milling* deals with the subject and discusses the Mills that operated in the Parish of Inver. Helen also mentions that there was a <u>Millstone Quarry in Binbawn</u>! S.Ó.G.

Appendix

Water Power in Ireland.

http://www.irishevents4u.com/Ireland/about/waterpower-type.htm

Irish Water Power Home Page.

Types of Water Mills.

Tuck Mill.

The tuck mill was used in the woolen industry to improve the quality of the woven fabric by repeatedly combing it, producing a warm worsted fabric.

Grist Mill.

The name grist mill is a term which came to be used to describe a mill to which people brought their grain to be ground, the name was prevalent in the Cork area.

Beetling Mill.

The purpose of the beetling mill was to consolidate the woven linen cloth and to give it a sheen. You will find the beetling process described on our page about Wellbrook Beetling Mill.

Spinning Mill.

The spinning mill spun the fibres, be they wool, linen, or cotton into thread, ready to be woven into cloth. Before the industrial age this was done on the spinning wheel, in the past there must have been thousand of these across the land, we are currently working towards posting a video of a spinning wheel in operation on the site.

Threshing Mills.

These mills threshed the barley, oats or wheat removing the grain from the stalks, in some cases corn mills had a thresher installed as well as the grinding stones. One such was at Mill Farm near Newcastle County Down owned by the Holmes family.

Corn Mills.

Corn mills were used to grind whole grain of whatever type into flour, they were a development of the hand operated rotary quern, which prior to the development of water power in Ireland, was the only means of producing flour. Monks at Nendrum in County Down built a tide mill in about 619 AD

Scutch or Flax Mills.

The scutch mill was used in the linen industry to to remove the fibres from the flax stalks. You will find the process described on our page about the scutch mill at the Ulster folk and Transport Museum at Cultra County Down.

Types of Water Wheels.

The Overshot type wheel: there are three basic types of waterwheel, the overshot type is where the water is fed over the top and the wheel. This is the most efficient type and can deliver up to 75% of the potential power of the flow.

The breast fed wheel has the water fed to it from the front and the wheel turns with the flow of the water, the power output of this is somewhat

lower at about 65%

The paddle type or undershot wheel utilizes a flow of water where there is no or little available head, it is like a steamboat paddle wheel and derives its power simply from the flow of water pushing the paddles around. This type of instillation would probably only deliver about 33% of the streams potential.

Click to see a video of Florence Court Waterwheel in operation, this is a breast fed wheel.

To calculate the potential power of a river or stream you must find the volume of the flow and using this together with the available head, which is the distance the water can fall. Using the formula below you can deduce the maximum theoretical power output of the stream. The flow rate is the rate at which water travels along a flume measured in liters per second. One way to obtain an approximation of the flow rate is to throw a buoyant object into the middle of the flume, and time its travel in seconds over a known distance in meters. Then multiply by the estimated cross-sectional area of the stream, in square meters, and divide by 1000 to obtain the flow rate in liters per second.

Water Power Calculations.

It is probably safe to say that 12 Cub Ft (75 imperial gallons) of water falling one foot in one second would produce one horse power.

Power = Head (meters) x Flow (liters per second) x 9.81

Example:

If the head = 60 Meters and the flow = 10 Liters second then:

Power = 60 x 10 x 9.81 = 5886 watts or 5.9 kW

We have a data spread sheet available with this and other formulas on it. You will need Microsoft Excel installed on your computer for it to work. Click to open or save it.

Water Turbines.

Water turbines came into use in Ireland in the Plaster mock up of turbine case.1800's when the power hungry linen mills sought to drive more and larger looms and spinning machines. The turbine is particularly suited to sites where the available fall is high, although they can be designed to utilize low head, high volume flows using the Francis Runner which is similar to a ships propeller set in a steel pipe.

For high heads the Pelton Wheel is often used it is sometimes fabricated but most often cast, it consists of a wheel with shaped buckets around the rim, one although sometimes several high pressure jets of water are directed into the buckets causing the wheel to rotate at high speed.

The illustration above shows an impulse type turbine which originally drove Patterson's Spade Mill, in it the water fills the case and is admitted to the the turbine through the guide vanes which are opened and closed by the green operating rods, this in effect is a throttle. The water passes through the rotor via angled guide vanes and exits from it tangentially forcing it to rotate, the water then exits from the bottom of the case.

With the ever spiraling price of fossil fuels it would seen eminently sensible to utilize as much as possible of Ireland hydro potential, admittedly it would be small in comparison to our consumption but every little helps. If you are the owner of a derelict water mill site you might like to check out our Alternative Technology contractors page, it is likely you could make a very good long term investment, that would not only save you money, but help to save the planet also.

Footnote: I found the above article on Website: **http://www.irishevents4u.com/Ireland/about/waterpower-type.htm**

I removed the formatting and the images and kept the text. S.Ó.G.

Harnessing water and wind

Sat, Feb 7, 2004, 00:00

IRISH TIMES

Many ancient mills have been restored to their former glory and now function as working mills, writes **Mary Mulvihill.**

Mills were the power generating stations of old, harnessing rivers, wind and even tides to drive millstones and heavy equipment. Mills were also the factories and industrial plants of their day since, in those pre-electric times, power could not be transmitted far and had to be used on-site.

Time was when every parish had at least a small flour mill, which out of season might have been turned to other purposes, such as grinding bones to make bonemeal fertiliser. The only trace of most of these is a place name - witness the hundreds of Milltowns scattered across Ireland, and place names incorporating the element Mullin (a mill). Several old mills do survive as ruins, however, and happily some others have been renovated, a few even to working order.

Milling, strictly speaking, means grinding or crushing, but over time the word came to be used for any process carried out in a mill-like building. For Irish mills, that amounts to an almost endless list: everything from milling flour and crushing bones, to polishing marble, scutching flax, fulling wool, sawing wood, grinding mustard, beetling damask, hammering metal, churning butter, spinning cotton, weaving wool, making starch, extracting oil from rape seed . . . And that's not counting the many other industrial uses for windmills and waterwheels, such as draining mine shafts, pumping water supplies and powering breweries and distilleries.

The first Irish mill, according to legend, was built on a river at Tara around AD 250 by the high king Cormac mac Airt, and designed by a Scottish millwright (possibly the first, and certainly not the last time that a Scottish engineer played a role in Ireland's industrial development).

Amazingly, Ireland today boasts two historically important 7th-century mills: the world's oldest recorded tidal mill, built in AD 617 on Mahee Island in Strangford Lough; and the oldest recorded twin-flume mill (also tidal), built at Little Island, County Cork in AD 630. Both have been dated by tree-ring dating of timbers from the sites. For industrial archaeologist Colin Rynne in UCC, the finds show that Ireland, though located on the edge of Europe, was no technological backwater.

The mill at Mahee Island was the first of three built on the site over a period of 200 years by monks from nearby Nendrum monastery. The main feature is a wall on the shore, behind which is a pond that filled at high tide; water stored there was later released down a small narrow channel or flume to turn a horizontal waterwheel, and hence a pair of millstones. The Little Island site had two flumes and two horizontal waterwheels driving two pairs of millstones.

Medieval monks and royals had it easy, however: most other households had to grind their grain the hard, backbreaking quern-stone way. Traditionally, this was women's work, reserved for wives, bonds women and female slaves - Brian Boru/, for instance, made "quern maids" of his Norse women captives.

Building even a small mill was costly: mill races (canals), sluices, waterwheels, gearing and millstones, not to mention the mill building, all cost money, and then there was the problem of frequent flooding. The mill owners' club was therefore a select one: high kings, monasteries, wealthy landlords and, with the Industrial Revolution, wealthy businessmen and eventually large corporations.

To offset the costs, tenants were often forced to grind their grain at the landlord's mill. This feudal arrangement, sometimes called the milling soke, or "suit to the mill", meant both miller and landlord had a guaranteed source of income, and the practice continued on some Irish estates into the 1700s.

Most Irish mills were water powered, not least because waterwheels are more efficient than windmills: a large waterwheel could generate up to 50horsepower, for instance, compared with at most 5horsepower for a large windmill. Both wind and water mills are at the mercy of the weather, of course, and waterwheels can't work in a drought or freezing conditions. But at least water can be stored in a pond, and the flow controlled by sluices, not something that's easily done with wind. Nevertheless, windmills were a useful adjunct to watermills, especially along Ireland's east coast, where they were less likely to be damaged by Atlantic gales. Ireland's first recorded windmill was built in 1281 by the Anglo-Normans, near Old Ross in County Wexford. This post mill was a wooden building that had to be turned into the wind; the stone "tower mill", with a revolving cap, came later (the first Irish one was built in the 1630s at Warren in County Roscommon).

The golden era of Irish milling began, as elsewhere, in the late 1700s. There was more raw material then (improved cereal and flax yields, for instance, and greater sheep numbers) thanks to the Agricultural and Industrial Revolutions; demand for products also grew as the population expanded, and especially when the Napoleonic wars began; while greater mechanisation and improved designs meant bigger, better mills could be built.

This new generation of enormous, industrial-scale mill was initially water- and later steam-powered (windmills being limited by the size of their sails, which are limited by the height of the tower). They were also increasingly located in ports and cities, replacing the small rural mills of old. Large flour mill complexes developed, with kilns to dry the grain (damp grain is difficult to grind), hoists to lift the grain to the top storey, winnowing fans and sieves to clean the grain and grade the flour, grain stores and flour warehouses, coal bunkers, and docking for the fleet of boats needed to transport the grain in and the flour out.

Numerous dedicated mill towns were built around this time, most associated with the cotton and linen industries, and several established by entrepreneurial Quaker families. They include Sion Mills (Tyrone), Bessbrook (Armagh), Emyvale (Monaghan), Prosperous (Kildare) and Portlaw (Waterford).

The 1851 census recorded 5,700 millers in Ireland, and amazingly 240,000 "mill folk" (8 per cent of the population), mostly weavers and spinners. There were some 6,000 recorded mill sites in Ireland then, but many were probably already derelict.

Today, nearly all of Ireland's flour is milled at just three mills, run by Odlums.

Some small mills gained a new lease of life in the late 1800s, generating electricity for their neighbourhood from water-powered turbines until the arrival of the ESB. Their modern equivalent is the new generation of hydroelectricity scheme and wind turbines, harnessing water and wind power to generate electricity . . . to do work that might once have been done at a mill.

Irish Flour Milling: a History 600-2000, edited by Andy Bielenberg, and published this week by the Lilliput Press

Milling around: the various means of manufacturing power

Visit: Skerries Mills, a wonderful milling complex in this north Co Dublin town, with a watermill and two windmills. Restored to working order in the 1990s by the council, and now grinding local grain which is baked on-site (Tel: 01-849 5208).

Ballycopeland windmill, Co Down: one of over 100 windmills in this county; and Ireland's last working windmill. Production ceased in 1915, now restored to working order (Tel: 048-9054 3033).

Ballincollig Gunpowder Mill, Cork: opened in 1794 for the Napoleonic Wars, this massive industrial complex was one of the biggest gunpowder plants in 19th-century Europe, with 7 kilometres of canals and 30 water-powered processes. Production ceased in 1903. Renovated in the 1980s and opened to the public, but sadly not last year, on account of increased insurance costs (Tel: 021-4874430).
Patterson's Spade Mill, Co Antrim: this metalworking mill, powered by a water turbine, is Ireland's last working spade mill. A real gem, it is the only place in the world where you can now buy a handcrafted spade. Run by the National Trust (Tel: 048-94433619).
Wellbrook Beetling Mill, Co Tyrone: heavy wooden hammers or "beetles" pound damask to give the fabric its characteristic sheen. This mill, with seven beetling engines powered by a large waterwheel, closed only in 1961. Recently restored by the National Trust (Tel: 04886751735).
Nendrum tidal mill, Mahee Island, Co Down: there is open access to this historic tidal mill and monastic site.
Blennerville Windmill, Tralee: restored to working order in the 1990s (Tel: 066-7121064).
Craanford Mill, Co Wexford: a small 17th-century domestic waterwheel in a farm (Tel: 055-28125).
Skerries is open all year, but most others are seasonal. For a more comprehensive list of mills open to the public, see the Industrial Heritage Association of Ireland website (www.steam-museum.ie/ihai), or enquire about mills in an area from the local tourist information centre. The Irish Linen Centre (Lisburn, Tel: 048-92663377) can provide details of linen mills open to the public.
Read: The Millers & the Mills of Ireland of about 1850, compiled and published by William Hogg.
Join: The Mills & Millers of Ireland Association, c/o Mentrim Mills, Drumcondra, County Meath.
The Industrial Heritage Association of Ireland, c/o An Taisce, Tailors Hall, Back Lane, Dublin 8.

When doing research for this project, I came across the above article on the Irish Times Website. The article is full of Information on Mills and Milling. It was written by Mary Mulvihill, Scientist. She also wrote regularly in the Irish Times. She died 11th June 2015. In this article she mentions Spade Mills and Handmade Spades. When I started work in the 1960's, the most popular spade in this area was the "Ballybofey" Spade. It was a Mill made Spade. It was later replaced by the the Land Commission Spade—a machine made Spade!

This is as far as I can bring this project. I think a survey should be made of all the old Mills in each Parish and Barony. Lots of information can be found in the Ordnance Survey Maps of the 1800's. The Maps are available on the GeoHive Website and the Griffiths Valuation Tenements Lists and Maps, on http://www.askaboutireland.ie/griffith-valuation/ . Another source of information is the *Donegal National School Collection 1936-38* to be found on www.duchas.ie . I think that many of the Corn Mills were built by the Landlords. (I think that the Lower Carrick Corn Mill may have been built by Thomas Conolly, Landlord, Clogher, Carrick? The Conollys sold the Estate to the Musgraves in 1860's).

Seosamh Ua Gallchobhair / Joseph Gallagher,

Rann na Cille, Teileann, Tír Chonaill.

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