



Peanmeanach circa 1900



Lower Polish circa 1900

A POTTED HISTORY OF ARDNISH

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Foreword

I have been meaning to write a (potted) history of Ardnish for the last 30 or so years, however, like many large projects it is easy to postpone getting started!

Circumstances changed early in 2011, when I was working alternate weeks in Switzerland, had plenty of free evening's spare, and easy access to the internet. So the project that was for so long on the "backburner" moved to the "front ring".

The majority of the research was done on the internet, and books that could be easily transported in hand luggage. There are therefore considerable gaps in this potted history as certain types of material (e.g. parish records, births, marriages and deaths records etc) are at not presently available online. At some time in the future, I hope to be able to add in this additional research, as I feel sure that this would bridge some of the gaps. Despite these limitations, a reasonable broad brush picture can be painted, that sheds some light onto the history of Ardnish and its former residents.

Much of the oral history about Ardnish, has been verified by research. The one area that I have been unable to verify, was that the population decline was partly caused by an epidemic of chickenpox or smallpox that ravaged an isolated population who had less "resistance" to these viruses than other less isolated communities, although there is some evidence that there may have been an outbreak nearby. The reasons for the population decline are explored in greater detail later.

As Donald MacKenzie noted in his book "As It Was" (Sin Mar a Bha) An Ulva Boyhood, the isolation factors that we currently associate with islands, and peninsulas like Ardnamurchan and Ardnish, were actually far from the truth a few centuries ago. We now tend to see peninsulas such as Ardnish as being isolated, as they are surrounded by sea and remote due to general inaccessibility, rather than its proximity to the sea being the facilitating factor to link it to other local communities.

We tend to think of islands like Ulva (an island south of Ardnish) as remote and inaccessible, because they are sea-girt (surrounded by sea). In earlier times the sea itself was an open highway that linked, rather than separated the islands and even continents together. It was by sea that the early colonists, the Scots came who were to give the whole country its name and most of the inhabitants their language, Gaelic. Kuno Meyer's oft quoted saying is an affirmation of the Irish origins of the Scots: "no Scot put his foot on British soil save from a vessel that had put out of Ireland". By circa AD 500 these Gaelic-speaking colonists from Ireland the Scots, were well established in Dalriada (Dál Riata), so named after the territory in the north of Ireland they came from, and by the mid 17th century Dalriada included Islay, Mull, Tiree, Coll, Colonsay, Gigha, Bute and Arran and the mainland areas of Argyll, Kintyre, Cowal, Lorn and Ardnamurchan. The name Argyll is from the Irish Airir Goidel (Oirthir Ghaidheal – "the coastline of Gaels").

Ardnish pre 800AD

Ardnish and the nearby islands have probably been inhabited for the last few thousand years. Rhum (Rum), an island often visible from Ardnish has been inhabited since the 8th millennium BC, and is believed to be one of the earliest recorded human settlements in Scotland. The very earliest settlers on Ardnish left behind little evidence, (although an archeological survey may well reveal some) however Eilean nan Gobhar (Goat Island) at the end of the Ardnish peninsula contains two vitrified forts.

A vitrified fort has had its stone walls subjected to intense heat (in excess of 1,000°C, and probably up to 1,200°C) which has caused the loose rocks to melt into a flux and fuse together. In some cases only the edges of the stone are fused, in others larger parts are fused but the overall effect is to create flux like melted toffee that binds the small rocks together.

Vitrified forts are normally found on the summit of a hill, giving them good visibility, as any foe could be seen some distance away. The vitrified fort at Goat Island has sweeping views to the Muck, Egg and Rum, as well as northwards to Skye, and south to Ardnamurchan. It also commands a good defensive location, being on an island, with few available landing points, and inaccessible cliff faces on several sides.

Creating temperatures between 1000°C and 1200°C is a considerable undertaking, especially two to three thousand years ago. To smelt Iron ore, it requires a temperature of around 1200°C, and bellows are required, along with coke or coal. By controlling the supply of air, the optimal ratio between both fuel and air can be achieved to maximize the temperature. Iron ore was being smelted in Africa several thousand years ago (although the quantities would have been minute, compared to the industrial scale of fire that was required to vitrify a fort.)

No bonding materials, such as cement or lime, seem to have been used to fuse the rocks. Many theories have been put forward as to how this fusing occurred, given the extreme temperatures needed, and these are explored in more detail in Appendix 1.

Julius Caesar (100BC to 44BC) provided a description in his notes on the Gallic Wars of a fort constructed of stone walls, filled with smaller stones and had wooden stakes for strength, these were called murus gallicus. These may have been the forts that were later vitrified.

Extract from the Statistical Account of Scotland 1845 for the parish of Ardnamurchan:

“Antiquities - Of these the most curious are, the vitrified forts, of which there are several, the largest and most remarkable being situated in Eilein nan Gobhar in Lochaylort. On this islet, an abrupt and irregular mass of fine mica-slate, are two works of this description, within a few yards of each other, one an oblong figure, 140 paces in circumference, the other 90 paces and circular. The walls, which in some parts, are seven or eight feet high, are composed of stones of various sizes heaped confusedly, and cemented by vitrified matter, nowhere solid or compact. At the entrance to the largest, there are remains of a facing of common stone imbedded in cement, which probably extended, at one time, all around the fort. Within, the area is not level, but a deep hollow like an inverted cone, and strongly resembling the distinct crater of a volcano”.

Replicating the vitrification

Some initial attempts to replicate the vitrification process were conducted in the mid 1930's by an archaeologist Gordon Childe in a colliery in Stirlingshire. They created a twelve foot wall built of

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small pieces of basalt rocks (similar to most vitrified forts), surrounding this with a wall made of firebricks, then they piled in four tons of wood, and torched it. The fire was fanned by a strong wind (as a blizzard was in progress), which can only have increased the temperature. Some of the inner parts of the stone walls did partially vitrify, but the vitrification was very limited, and was confined to a handful of the smaller stones.

Another attempt to try and replicate the process of vitrification, was made in the documentary “Arthur C Clarke’s Mysterious World,” a thirteen part television series looking at unexplained phenomena from around the world. It was produced by Yorkshire Television for the ITV network and first broadcast in September 1980. The experiment was overseen by the University of Aberdeen.

The experiment followed a similar process as the Gordon Childe experiment; a small sample wall was built with large tree trunks between the stones and wood on the outside (six truckloads were used). Once again the vitrification process was minimal, with only a handful of melted stones being created.

*A separate experiment for the Mysterious World documentary was also conducted. This subjected rock samples from 11 vitrified forts to rigorous chemical analysis, and evaluated the temperatures needed to produce the vitrification. The temperatures needed were so intense (up to 1,100°C) that they concluded that a simple burning of walls with wood interlaced with stone could not have achieved the temperatures required for vitrification.*¹

It was long believed that vitrified forts were only to be found in Scotland, however this has now been disproved, and examples can be found across Europe from France, to Germany and from Hungary to Iran and Turkey. It is estimated that about 200 vitrified forts exist in total, with the vast majority being in Scotland.

Whatever or whoever caused the vitrification, this was overtly a well ordered civilisation, which had created the stone forts on a large scale, even before the vitrification took place.

The two vitrified forts on Goat Island, have a combined circumference of approximately 230 yards (140 and 90 paces as detailed in the 1845 extract of statistical accounts). The amount of combustible material (presumably wood) needed according to the work conducted by Gordon Childe would be four tons of wood per twelve feet of wall.

Given that Gordon Childe only achieved minimal vitrification, and that this was done using fire bricks as the external wall (which reflects the heat back) the amount of wood needed must be at least similar (and probably more), along with some process that increased the temperature significantly. Assuming the ratio of 4/12 ratio (4 tons of wood to twelve feet of wall) , a total of 80 tons of wood would have been required to achieve just minimal vitrification of a fort the size of Goat islands (230 yards in length).

While 80 tons of wood is hard to envisage, assuming that a large oak log weighs 2 pounds (lb), at least 90,000 logs would have been required. As a rough estimate assuming 500 lbs of dried logs from a single oak tree, a total of 360 trees would need to be felled, cut to manageable lengths, dried and shipped across the water to the island (the small rocky islands could not have sustained anything like this amount of timber), and assuming that the vitrification was completed in a single

¹ Source: <http://mysteriousworld.web.simplesnet.pt/episode3.htm>

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phase. Both experiments achieved minimal vitrification of a handful of rocks, and nowhere near the extensive vitrification of entire rock walls seen at the Goat Island fort or the other vitrified forts.

Dating the vitrified forts

Dating a vitrified fort is difficult, as the following extract from an archeological website comments.

Vitrified forts (or vitrified structures) are difficult to date, because exposure to such intense heat destroys the organic materials, although recent research at Misericordia (Portugal) seems to suggest that archaeomagnetic dating may be a workable solution. The site is important for the innovative use of archaeomagnetic dating of the vitrified elements. Vitrified forts are notoriously difficult to date, but researchers were able to establish that the wall was burned between 842-652 BC, corresponding²

The following paraphrased extracts from a variety of archeological websites, where carbon dating or similar techniques were used, highlights the wide range of dates given by tests for when vitrification occurred.

- *A period of construction...approximately between about the 8th century BC (perhaps earlier in a few cases) and the 3rd.*
- *Three radio-carbon dates were obtained - c. 390, c. 480, and c. 665 BC - indicating that the fort was in use from the 7th century BC until at least the late 5th or early 4th century before being destroyed.*
- *Samples analysed suggests that a date of between AD560 to 730*
- *Samples taken... indicate a date for the vitrification of c. 550-250 BC.*

The problem with dating the vitrified forts, seems to revolve around them being in use for almost a thousand years, and therefore pinning down exactly when the vitrification occurred in the forts lifespan is more complex. This when combined with the problem of the lack of organic material from vitrified forts to test, compounded by an issue with the vitrification impacting with the radiocarbon dating, and the fort being re-constructed at a later date, seems to create a wide range of possible dates.

Recent excavation and radiocarbon dating of an inner rampart of a vitrified fort at the hilltop of Abbey Craig in Stirlingshire (site of the National Wallace Monument) suggests a date between AD560 to 730. Stirling Council Archaeology Officer Murray Cook (who oversaw the excavation) stated "There is a second construction layer over the top of the first, which is not vitrified. This has not yet been explicitly dated but it seems very unlikely that a late hill fort like this would be refortified anything more than a generation or two later, if for no other reason than there are really no more hill forts after the 9th century."

The archeological evidence therefore suggests that Ardnish was certainly populated at least fifteen hundred years ago, and possibly up to three thousand years ago.

Summary

The following is a useful overview that once again highlights both some of the mystery surrounding vitrified forts, but also provides a succinct summary of how the vitrification may have been seen as a "desirable status" and how it may have spread to other forts.

² Source: <http://archaeology.about.com/od/mterms/g/misericordia.htm>

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It is doubtful that a full explanation of vitrified forts will be obtained, in prehistoric northern Scotland, either invented or imported from elsewhere a way of life developed which meant that the local tribes increasingly saw vitrification as the desirable status for the internal ramparts of some of their fort-like structures...The culture which began vitrification in Scotland seems to have spread southwards and it is likely that the few examples in England and Ireland belong to Scottish tribes who either invaded or 'helped out' their distant neighbors in times of conflict. ³

The dwellings on Ardnish pre 800

It is probable that the very earliest dwellings on Ardnish utilised the natural features such as the large cave at Slocht, as it would have provided protection from the elements, without the need for any construction. Although the name Loch nan Uamh was probably a later Gaelic name it translates as the Loch of the caves, which may be a hangover from these very early dwellings.

Apart from the vitrified fort, which was probably abandoned sometime around the 9th Century, little remains of any other settlements from this time. Aerial photographs do show a large round indentation in the grass between the bothy and the Naust. Whilst this seems to fit the pattern of a possible Viking settlement, only an archeological excavation would confirm if this was a settlement and if it was from the Viking era or earlier/later.

It is perhaps not surprising that little remains of any other settlements from the 9th Century till approximately the 1750's, as is likely that any stone structures were cannibalised for later housing, and as the early dwellings were often constructed from peat and wood, which would have left few obvious remains after being abandoned.

There have been few excavations of Pictish sites until recently, and there are considerable gaps in the knowledge of what each was used for. The types of dwellings that are associated with the Picts include vitrified hillforts, souterrains (possibly emergency underground dwellings or storage facilities), brochs (round stone towers) crannogs (round elevated dwellings on lochs or boggy ground) and other dwellings, probably constructed from what was available locally and local preferences. Where timber was relatively scarce on the Western Isles, stone was used, but in other areas a combination of stone, turfs, peat and timber would have been used depending on availability and local preferences and traditions.

Souterrain - A souterrain, which comes from the French "sous terrain" means below ground. It is the name for an underground structure, that was in use from about 2,000 years ago. They are sometimes referred to as earth houses, or pictish houses. A souterrain normally has a relatively narrow entrance that leads to an underground tunnel of ten foot or so, and which then may have a wider room or chamber at the end of approximately the same length. There is a great deal of uncertainty about their purpose, these include burial sites, underground larders, or possibly a sanctuary or hiding place, either from attackers, or in extreme weather conditions.

Souterrains are almost always found near to other human habitation, although archaeological excavation of souterrains has yet to reveal any evidence of storage or human habitation or burial. There has been speculation about how they were made, although the consensus is that the earth was dug out first, lined with slabs of stone and timber, and then covered with peat or earth. Creating a souterrain was therefore a considerable undertaking, and there has been much speculation why after all this work, and having created a dry and sheltered space, it was not lived in.

³ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

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The suggestion that they were made as a secret refuge from Viking raiding parties is another possible use. There is a souterrain on Canna, a nearby island, which is situated on the higher ground. The entrance is very small and well hidden by heather, and without knowing the exact location, you can pass within yards of it and be unaware of its existence (it actually took me about an hour to find it even knowing the approximate location).

Brochs – A Broch is a large circular stone dwelling, normally found in the North and West Scotland. The following description provides a brief summary.

The design of these defensive structures is remarkably efficient illustrating both ingenuity and practicality on the part of their creators. The Broch of Mousa in Shetland was probably built between the last century BC and the first century AD. The tower is 15m (50ft) in diameter and still stands to height of 13m (42ft). The broch was last occupied in the Viking period and is mentioned in both the Egils Saga and Orkneyinga Saga as late as 1153AD.⁴

Crannogs – A crannog was a round timber dwelling suspended above a loch or marshy area. They were therefore relatively secure from both prowling animals such as wolves, and human enemies.

People began living in these island homes as early as 5,000 years ago, and continued to do so up until the 17th century AD.... Prehistoric crannogs were originally timber-built roundhouses supported on piles driven into the loch bed. Today, they appear as tree-covered islands or remain hidden as submerged stony mounds. There is a reconstruction of a Loch side Crannog at the Scottish Crannog Center in Loch Tay.⁵

Pictish Houses - *Domestic architecture seems to have varied considerably both geographically and chronologically, with a variety of round and rectilinear forms utilising both timber and stone architecture, according to area and style. Some large timber hall structures are thought to have been built in Pictish times though whether their function was communal part of the social activity of an elite is impossible to say. It is notable that a number of buildings and settlements from the period have no defensive element in their construction, suggesting peaceful times.*

It seems highly unlikely that there were any brochs on Ardnish, as some remnants would probably remain. The head dyke created behind Peanmeanach bothy created probably sometime in the seventeenth or eighteenth century, both to drain and protect the arable land from livestock would have partially destroyed traces of any habitation, if it did exist. This combined with the subsequent mechanised cultivation by the tractor and plough used by the Macleods in the mid 20th century in this area would have further destroyed any evidence (if any existed).

There is a long history of reusing stones, and timber in the highlands, and it is entirely possible that any stone structure or building materials were cannibalised for subsequent buildings.

The population of Ardnish pre 800

Building the vitrified fort would have been a major undertaking, requiring a considerable workforce. I am unaware of any freshwater springs, or a well on Goat Island, although one may have existed. Presumably fresh water would therefore have been supplied from the mainland. Due to the size of the island, and the lack of fertile ground, it seems unlikely that it could have been an entirely self-supporting population. It is therefore highly likely that there were other Pictish settlements on both Ardnish, and in the Roshven House area, and these supplied the inhabitants of the vitrified fort.

⁴ Source: www.pictart.org,

⁵ Source: www.pictart.org,

Ardnish between 800AD and 1250AD

The next invaders/settlers were the Vikings, and they left behind a few strong reminders of their presence. The name Ardnish seems to come from a combination of Old Norse and Gaelic. This combination is the Gaelic *Airde* (a point as in Ardnamurchan) and the Old Norse word of *Nish* (a point). Ardnish rather like Ardtornish (south of Ardnish) becoming a fusion of the two languages, both meaning a point or headland in each language. This was the opinion of the late Sir Ian Noble from Skye (who was knighted in part for his efforts to preserve the Gaelic language) who discussed the origins of the name of Ardnish at length with me.

Whilst this seems to be the generally agreed definition of Ardnish, the naming of another Ardnish (again in Inverness shire, near Loch Ness) provides a slightly different version. The website <http://www.scottish.parliament.uk/vli/language/gaelic/pdfs/placenamesa-b.pdf> defined Ardnish (Inverness), Àird Nis. "The high point on the Ness" and this definition of high is also used by the Ordnance survey.⁶

It is interesting that these two different definitions both seem to translate the name of Ardnish to match the description and location of the place being named, and it may be that we are simply using the most convenient definition to suit the characteristics of the location being described.

We will never know for certain where the origins of the name Ardnish comes from, however, given that there is definite archeological proof of Viking settlements at Ardnish, as detailed below, I tend to favor the former definition, partly because the highest hill on Ardnish (Cruach Camas an Ruighe is under 1,000 feet) when compared to Roshven (just under 3,000 feet) and the other hills on the Ardnish peninsular can hardly be described as high hills! But again this may just be a case of trying to fit the definition to the location.

The Vikings arrived on the west coast in circa 800AD and the occupation lasted until the treaty of Perth in 1266, which transferred the sovereignty of the Islands to Scotland.

The Vikings also left some archaeological clues behind, and with the aid of the satellite pictures of Ardnish, it is possible to clearly identify a Viking Naust (a safe haven or harbour) at Peanmeanach (see Appendix 1 for location and pictures of what a Naust may have looked like). There has been some comment on the internet that there is also a Naust at Slocht, I have not yet been to investigate it, although this may be of a later date.

Websters online dictionary describes a Naust as: *In Scandinavia, the boathouse is known as a Naust, a word deriving from Old Norse naverstað. These were typically built with stone walls and timber roofs and would be either open to the sea or provided with sturdy doors. The floors would be a simple continuation of the beach sand or rock, or they might be dug down to permit a boat to sail into the boathouse. Nausts (unroofed or roofed boat-shelters), in use often to the present day, are a familiar feature of the shorelines in Orkney and Shetland.*⁷

There seems to be some disagreement if a Naust has to have a roof or not. The majority of Nausts seem to have been roofed, although it is possible that the Naust at Peanmeanach did not have a roof, only an archeological exploration could confirm this.

⁶ Source: <http://www.ordnancesurvey.co.uk/oswebsite/freefun/didyouknow/placenames/gaelicglossary>)

⁷ Source: www.scran.ac.uk/000-000-142-905-C

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A Naust was normally constructed above the high water mark, the floor of a Naust was normally sand or gravel, depending on the local landscape, and was simply hollowed out of the surrounding land, in order to create a relatively slow slope to the shingle or beach below it. This allowed the boats to be hauled up the beach or shingle and into the Naust, with as little effort as possible. The boat would probably have been hauled up the beach by using a series of small round logs, under the keel, which would have been lubricated by well rotted seaweed. This is a process still in use by mariners today, as it has the dual purpose of minimizing the damage to the hull, as well as making the hauling up the beach process easier by reducing the friction to the keel from the sand and mud. A Naust has been excavated in Iceland, and several replica Viking Nausts have been constructed in Scandinavia (see Appendix 3 for photographs).

All that is now left of the Peanmeanach Naust is the cutting in the sand that resembles the front half a boat (this shows up remarkably clearly from satellite photographs). The Vikings would probably have created this for use when they pulled their Viking longboats, or other Viking vessels out of the water, as a sort of roofed or roofless boathouse. It would nevertheless have provided shelter for the boat from the strong storms that sweep in from the west in the winter, and may have also been used when repairs were needed.

The following details of the Viking Longship, provide a good guide to the sort of boats that may have used the Naust at Peanmeanach.

The Vikings... swift wooden longships, equipped with both sails and oars, enabled them to mount piratical raids on the coastal monasteries and settlements of the British Isles, Western Europe and beyond. The shallow draught of these ships meant that they were able to reach far inland by river and stream, striking and moving on before local forces could muster.

Well preserved remains of Viking ships, like those found at Oseberg and Gokstad in Norway and Skuldelev in Denmark, show they were clinker-built of overlapping planks and measured between about 17.5m and 36m in length. They were steered not by a rudder, but by a single oar mounted on the starboard side. A few late examples are said to have had iron-clad bows and sterns. An average speed of 10 to 11 knots could have been achieved, or perhaps rather more in short bursts. Crews of 25 to 60 men would have been common, seated on benches on open decks, although the largest ships could have carried as many as 100 or more. Packhorses and provisions would also be included if needed.

Fearsome figureheads would be raised at stem and stern as a sign of warlike intent, underlined by rows of shields mounted along the sides for defense or show. These could be removed while at sea. Raids in single ships were quite frequent and, before around 850, fleets rarely comprised more than 100 ships. Much larger fleets of 200 and upwards were recorded later, but it is difficult to know how accurate the reports were.⁸

Besides probably giving or adding to the name of the Ardnish peninsula, the Viking system was also instrumental in the naming of two of the settlements on Ardnish, Peanmeanach and Feorlindhu. Ouncelands and Pennylands were used as the main units of land assessment in the rentals at the end of the 16th century. This was a hangover from a much earlier system of taxation, and dates back to the Viking era. An ounceland was an area of cultivatable land – that should generate the annual tax or rent of an ounce of silver. The ounceland was then subdivided into either twenty or eighteen pennylands, each paying a silver penny in rent/tax. There was as such no geographically defined

⁸ Source: BBC website, Viking Weapons and Warfare, By Barry Ager

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area, and an ounceland may have contained several townships. The ounceland was then subdivided into eighteen or twenty pennylands, which was usually roughly equal to a smallholding or croft.

An ounce of Norse silver was subdivided into eighteen or twenty (as the currency was based on the Cologne penny). Twenty or eighteen (there appears to be dissenting views, or perhaps there were currency fluctuations even then!) Cologne pennies equated to an ounce of Norse silver).

Peanmeanach is a derivation of the Norse for Pennyland (Pean). The pennylands would then have been subdivided into smaller areas, farthinglands. The Norse word for farthing is a feorlig, Feorlindhu (black farthingland) is a collection of houses (township) near Peanmeanach, and this would have been the name given to one of the subdivisions of the pennylands.

*Peanmeanach is a corruption of Peathan Meadhonach. Many west coast names have a Norse background related to land division. The Norse system defined an ounceland as being an area capable of producing enough for an ounce of silver in rent. An ounceland was divided into 20 pennylands, or farms. Meadhonach is Gaelic for intermediate or middling.*⁹

*This system of Ounce and Pennylands was active into the eighteenth century. There are numerous references to it in David Bruce's rental for Arisaig in 1748. But it was on the verge of extinction. With 'improvement' came acres - a new measure of area rather than productivity. The old system was wonderfully flexible in allowing comparisons between areas of different productivity. The new measure was not. Pennylands were swept aside and now only survive in place-names, such as at Ardnish.*¹⁰

The dwellings on Ardnish from 800 to 1250

The Viking Naust at Peanmeanach would suggest that there was some sort of Viking settlement or dwelling nearby at some stage. The following extract provides some details about the type of dwellings that could have been used by the Vikings on Ardnish.

Most dwelling houses, storehouses and workshops would be of timber and wattle-and-daub construction....Reed or straw thatch would be the usual roofing material. There would be openings high up in the gable ends to allow smoke from the hearth to escape, as there were no chimneys. Some smaller, poorer dwellings may have consisted of just one room with a hearth in the centre. Richer houses would have been larger and have several sleeping alcoves furnished with rugs, pillows and furs. There would be sleeping platforms against the side walls, made of raised earth and faced with wooden boards; these would act as benches for sitting on, keeping feet off the stamped-earth floor and out of draughts. Better houses may have had low stools, chairs, a feasting table and benches. Chests (kists), which would be lockable in the better homes, were a normal means of storing possessions.

Outbuildings and lean-tos would have provided some outside storage for a craftsman's raw materials. Interiors would be gloomy, as openings in walls and roofs were kept to a minimum to keep warmth in. Illumination would be by simple oil lamps (generally carved from stone) or tallow candles. Only the wealthy would have used expensive wax candles. In many houses, an upright weaving loom would be an important feature. Household utensils, and provisions would be kept on shelves and there would be a quern for grinding corn. There would be metal or pottery cooking pots, a frame of metal or wood for hanging cooking vessels over the hearth and - in the better homes - perhaps a spit

⁹ Source: The Scotsman: The otherworldliness of ruined settlement by Robin Howie 22 January 2005

¹⁰ Source: www.road-to-the-isles.org.uk/westword/sept2001.html

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for roasting. Baskets, buckets and pottery jars would be used for storing foodstuff. Fire would be permanent hazard with so much wood and straw about and open cooking hearths. Sometimes there would be a domed clay oven at one end of the house or perhaps outside.

From the evidence of Jorvik, town houses were likely to be closely-packed together with just a small 'garth' or yard surrounded by a wattle fence. People living close together, cooking, fish-drying, salting, smoking, pickling and other food preserving, free-ranging animals (plus manufacturing processes such as tanning leather, blacksmithing, and scouring and dyeing cloth) would have made Jorvik a very smelly place to live!¹¹

The population of Ardnish from 800 to 1250

The size of the population of Ardnish between these dates can only be roughly estimated. Viking boats tended to have a crew of between 25 and 60 with 100 not being uncommon. To move a boat from the beach at Peanmeanach to the Naust, even at high tide would require a concerted effort by many hands. It seems probable that the minimum population around Peanmeanach would be 25, although it was probably more likely to have been between over 50 when women and children were included.

¹¹ Source: http://www.viking.no/e/england/york/life_jorvik_3_houses.html

Ardnish between 1250AD and 1840AD

Until the 1840s, when the new statistical account was published, there is a lack of many official records, as the following two comments from the recent archaeological survey of Polish highlight. It is therefore impossible to get a really detailed picture of the peninsula. There are however, a number of documents, such as maps that allow a broad picture to emerge.

“There is little about the individual inhabitants of Polish in any kind of record”

“The New Statistical Account of 1834 makes only one mention of anything at all on the Ardnish Peninsula – ‘Polnish Church is a tolerable thatched house, built by subscription, which, being inadequate, a considerable share of the expense has fallen on the assistant’ (Statistical Accounts of Scotland).

Whilst the early settlers left the archaeological evidence of both the vitrified forts, and the Naust, there is as yet little definitive archaeological evidence of settlers between 1250 and 1850. Apart from a system of names on Ardnish, that refer to the rent paid, and some oral history, it is not possible to prove categorically that Ardnish was continuously inhabited during these six hundred years, it seems highly probable that it was, or was at least was inhabited for long periods between these dates. Probably the earliest reference was highlighted in the recent archaeological survey of Polish.

Oral history tells that about 1520 the pursued Dugald VI of Clanranald took to the hills from Loch Ailort and was murdered by his kinsmen in the corrie known as Coire a' Dhugaill, about 800m east of Polish.¹²

Whilst this is not direct proof that Ardnish was inhabited in 1520, it does suggest that there were at least inhabitants nearby.

There is reference to the lands of Ardnish in 1625 and 1720, and as rents are detailed, there must have been farmers and other inhabitants living and working on Ardnish to pay these rents.

The MacDonalds of Benbecula. The first of this family was RANALD, fourth son of Allan IX. of Clanranald, well known by his patronymic of Raonull Mac Ailein 'ic Iain. His father bestowed upon him the lands of ... the 20 penny lands of Uachdar, called the two Airds in Knocksorlar, together with the 3 penny lands of Machermeanach, in Skirhough, and the 3 mark 10 shilling lands of Ardnish, Lochelt, and Essan in Arisaig. In 1625, Ranald received a charter of these lands from his nephew, John, XII. of Clanranald. DONALD. In 1680, he received from Donald XIII. of Clanranald a Charter of Novodamus of all the lands granted to his grandfather in 1625. In 1720, he exchanged with Angus Macdonald of Belfinlay his lands of Ardnish, Lochelt, and Essan, in Arisaig, for the lands of Belfinlay and others in Benbecula. In 1725, Donald succeeded Ranald XV. of Clanranald as chief of that family.¹³

The next reference to Ardnish being inhabited is in 1650. The Polish area was then also known as Kinlochailort and it seems highly probable that some of the inhabitants would have lived near Polish, as well as at Lochailort.

¹² Source: Lower Polish: a Township on the Ardnish Peninsula - A report for Scotland's Rural Past by the Moidart History Group

¹³ Source: www.archive.org/stream/clandonald03macduoft/clandonald03macduoft_djvu.txt

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There has been a settlement at the end of Loch Ailort since before 1650, when an inn was recorded there. By 1750 the settlement was big enough to be included on the map as 'Kinloch Hoylort'. In the early 1800s Thomas Telford's 'Road to the Isles' was built through Lochailort on its way from Fort William to Arisaig and later Mallaig. The West Highland Railway also passes through Lochailort. At the height of its construction, Lochailort was a small town capable of housing 2,000 navvies and had hospital and schoolhouse provision¹⁴.

As may be expected, when dealing with such early history, where little written evidence is likely to have been created, and even less likely to remain with us today, there is no definite proof of Ardnish being inhabited for long periods. There is therefore a considerable gap between when the Vikings left in circa 1250 (assuming that Peanmeanach was still settled then) the first written proof of Ardnish being inhabited (or at least someone paying rent for it) in 1625 or the first map listing townships in 1791 (but with mapping being undertaken between 1747 to 1755). It seems highly probable that most of the Ardnish townships were lived in continuously.

Angus MacEachen was born in 1730 in South Uist, he came to Ardnish and took over the tack of Lagan , (English Laggan - Little hollow) where his son, Hugh was b. in 1765. Later, Hugh's son, Angus was also born in Lagan, in 1790. It would seem likely that Angus moved to Laggan in between 1750 and 1765. Alexander MacLean, born circa 1760 in Gillean (Gillon) Sleat, Skye, married Catherine MacVarish, Moidart, born circa 1780. They were tenant farmers in Alisary in 1816 before moving to Laggan, Ardnish on the opposite shore of Loch Ailort where they lived until around 1835. ¹⁵

Prior to 1750's when most maps and nautical charts were relatively inaccurate, the Ardnish peninsular simply appears not to exist at all, and is subsumed into the general topography. See Appendix 4 for maps and charts of Ardnish.

Following the 1745 Jacobite rebellion, when the Hanoverian military leaders in Scotland were 'greatly embarrassed for want of a proper Survey of the Country' (John Watson, 1770, quoted in the Royal Scottish Geographical Society's, Early Maps of Scotland to 1850, 1973, p.105).

The need for reliable maps which commanders could use to direct troops and plan campaigns was quickly identified, as the following extract from the website shows.

Soon after his victory at Culloden, Cumberland successfully petitioned King George II (his father) for the Military Survey of Scotland and in 1747 Watson was instructed to begin work. He in turn delegated the primary practical responsibility to his Assistant Quartermaster, William Roy. Finally, through Roy's efforts and his promotion of the construction of a new three-foot theodolite by Jesse Ramsden, the accurate measurement of a base line on Hounslow Heath laid the foundation of the Trigonometrical Survey of Great Britain in 1791. This was later to become the Ordnance Survey. ¹⁶

This map clearly marks in red, the houses in Polish (marked as Earn), Laggan, Peanmeanach, Glasnacardoch, Slocht, Mullochbuie (marked as Mor), there also seems to be an additional two townships marked as Theodlin. These houses are recorded as near the large stone walled field or sheep fank near Laggan, there is evidence of several dwellings there set well back from the sea, although it would seem that these must have been much abandoned earlier than the others.

¹⁴ Source: Ambaile Website

¹⁵ Source: Westworld

¹⁶ Source: library of Scotland

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Andrews' travelling map¹⁷ of the roads of Scotland printed in 1783 marks both Polish and Ardnish as villages, although the peninsular is not clearly defined. It also seems probable that some of those working on the creation of the West Highland Railway would have lived on the Ardnish peninsular in the early 1880's.

Arrowsmith's map of 1807, seems to show similar details to Roys military survey, although some of the spellings of the townships have changed. Slocht is marked as Ardnoich (not Ardnish), Panmeanach is not marked, the township of Theodlin is again marked (near Laggan) Polish is marked as Poulnich (not Earn) and Mullochbuie is marked as Moir (not Mor).

In the late eighteenth century, there is another link between Ardnish, and in particular Laggan and Bonnie Prince Charlie.

In 1822, Hugh MacEachen was born in 'The Glen' in Arisaig; his father was Angus, and his grandfather was also Angus and was tenant farmer in Laggan, Ardnish in 1798. The grandfather Angus (Tenant Farmer from Laggan), was the grandson of Angus MacEachen, younger brother of Neil MacEachen, who features in history as the boatman who helped Prince Charles Edward Stuart, along with Flora MacDonald, to escape from the Uists to Skye in 1746.

Hugh emigrated in 1826, aged 4, with his parents and family, to Cape Breton Island. After emigration, very little is ever heard of the fortunes of the people, except notables like MacEachen, the first Prime Minister of Canada who was closely related to Hugh.¹⁸

Other evidence of Ardnish being inhabited at the turn of the 18th Century comes from the Inverness Sheriff Court records.

1789 Mary Macheachan of Ardnish came before the Inverness Sheriff's Court accused of child murder. She was referred to the High Court and subsequently banished for 14 years. Public Record Office Inverness ref 42/4/29 and ref 11/4/29¹⁹

The following year, there is evidence that emigration from Ardnish was already underway, with three emigrants leaving the peninsular.

List of an Emigration from Clanranald's Estate, bound for the Island of St. John in the Gulph of St. Laurence N.A. Sail'd from the Harbour of Drimindarach the 12th July 1790 on Board the Jane Captain Fisher. NB All above twelve years of age pay full passage, and those under that age pay in proportion as stated. The Ardnish residents are recorded as Lagan Ardnish, Allan MacDonald (tenant), Lagan Ardnish – James MacDonald (tenant) and Fiorlindugh – Donald MacDonald (tenant)²⁰

The next chronological evidence comes from 1829. This is direct evidence that the highland clearances bolstered the population of Ardnish, as the other areas of the Highlands were cleared for sheep, and the peninsular of Ardnish was a convenient "dumping ground".

The following reference also matches the oral history that my parents were given when they bought Ardnish in the 1970's that the Ardnish peninsular was a convenient isolated area, with some access

¹⁷ Full title Andrews' new and accurate travelling map of the roads of Scotland - London 1782 and 1783

¹⁸ Source: www.road-to-the-isles.org.uk/westword/june2001.html

¹⁹ Source: <http://www.moidart.org.uk/timewarp/mtw11.htm>

²⁰ Source: http://www.islandarchives.ca/fedora/repository/vre:islemag-batch2-12/Obj/10_PEI_passenger_lists-a_genealogical_p_34-39.pdf

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to grazing etc, that was used to settle those evicted by force from the more productive (sheep rearing) areas, that they also owned.

Gaoithe Dail (Windy Field) - In 1731, the farm of Gaoithe Dail was part of the seven merklands of Arisaig then still possessed by the MacDonalds of Morar, a Clanranald sept, descended from Dugald V1 of Clanranald who was murdered by Ailean nan Coirc ca.1520 at Coire Dhugaill, Polnish. There are 6 ruins to be seen in Gaoithe Dail. One of them is the remains of the Catholic Seminary - 1738 - 1746, in the time of Bishop Hugh MacDonald, (1699- 1773) a younger son of Alexander MacDonald of Morar. This seminary housed eight young boys training for the priesthood. Bishop Hugh became the first Catholic bishop of the Highland Vicariate in 1731. The seminary was destroyed by the redcoats after the '45 and after some time had elapsed, was moved to Glenfinnan then, Bourblach in Morar before moving again to Samalaman, in Moidart and later, Lismore. Gaoithe Dail was cleared of 10 families in 1829 by Lady Ashburton and this farm was also added to the tack, or tenancy, of Mains Farm. Some of the evicted people emigrated and some sought shelter in Ardnish.²¹

As a relatively isolated area, the Ardnish peninsular would have been seen by the owner as an ideal out of the way area, with little productive land, where multiple families and villages could be evicted to (from other more productive land), and be literally “out of mind and out of sight”.

²¹ Source: <http://www.road-to-the-isles.org.uk/westword/march2010.html>

The dwellings on Ardnish between 1250 and 1840

As detailed earlier, there is little detailed evidence of the dwellings on Ardnish until the 1750s. The map and census date from the mid 1750's for Ardnish provide details of the population and housing, and in addition there are detailed descriptions from the travelers who recorded what they saw such as Dr Samuel Johnson in his Journey to the Western Isles in 1773, and subsequent travelers.

The townships on Ardnish

The definition of a township according to the website highland.gov.uk is, *"A group of dwellings, associated farm buildings and land, held by two or more joint tenants usually working the land communally."*²²

Whilst a township is probably more commonly associated with townships such as the South West Township (SOWETO) in South Africa, I have used it as it seems to be the correct (even if slightly unfamiliar) term.

For most of the Ardnish townships it is impossible to identify exactly how long each was "active" or when it was abandoned. However, there is direct evidence that Peanmeanach and Feorlindhue were settled in the Viking era. I think it is probably unlikely that these townships were simply abandoned, or abandoned for long periods. There is evidence that Ardnish was rented in 1625, and in and around the 1750's that Ardnish was farmed by one tenant, although there would have been farm laborers and probably servants, who would probably need to live near the productive areas of land. It is possible that some townships before they became permanently inhabited were used as shielings. These were temporary houses or shelters that were used during the summer months, when the livestock, and women and children moved to the more remote (and often higher ground).

There are several shielings on Ardnish (see Appendix 5 for an example), these tend to be on the higher ground or some distance away from the main townships, examples are visible from satellite photographs and can clearly be seen as single, often remote building. Slocht and Mullochbuie, may have been shielings before they came to be permanently settled as townships, as both are relatively isolated.

Wikipedia defines a shieling as: A shieling is a small house or hut once common in the hills and mountains of Scotland and northern England. Farmers and their families lived there during the summer, when their livestock were grazing common land in the hills. Shielings were therefore associated with the transhumance system of agriculture and generally fell out of use by the end of the 17th century, although in remote areas this system continued into the 18th. Ruins of shielings are abundant in high or marginal land in Scotland and N. England, along with "shield" place-names or their Gaelic equivalents. Some were constructed of turf and tend to gradually erode and disappear but traces of stone-built structures persist.

The few archaeological investigations of shielings which have been published reveal very few finds to enable accurate dating, but shielings can sometimes be shown to be mediaeval in origin and were occasionally occupied permanently. The construction of associated structures such as stack-stands and enclosures indicate that they may have become farmsteads, some of which evolved into modern farms or townships; in other cases it is thought that they were occupied by gypsies. The well-known

²² Source: <http://her.highland.gov.uk/SingleResult.aspx?uid=THG110>

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folksong Mairi's Wedding contains the phrase "past the shieling, through the town" which helps protect this word from obscurity.

There were many different spellings of the townships on Ardnish, and the demarcation lines between one and another appear to be blurred between one census or map and another.

The dwellings from 1750 onwards

The people who lived on Ardnish, would probably have lived from around the 1750's onwards in black houses or tigh dubh. As with many of the definitions there is some debate about the meaning of black houses (rather like the traditional dagger worn with the kilt the sghian dubh). Some have suggested that the word black house is no more than 150 years old, others that it goes back for several hundreds of years. The debate seems to centre around two similarly pronounced words dubh (black) and tugadh (thatch). Whilst there is much debate about the age and source of the words, there is little doubt about what a black house was, and examples can be seen in the various abandoned villages of Slocht, Peanmeanach, Laggan, Glasnacardoch and Polnish.

The houses were designed to offer the minimal resistance to the prevailing wind possible, they were relatively low, and tended to be relatively sheltered from the prevailing wind, even if on Peanmeanach this meant that they look relatively exposed. The corners of the houses were sometimes rounded to deflect the wind, and the heather or rush roof was held down with large rocks, which were usually held suspended in netting from just below the eaves, this would provide an additional weight to stop the roof from being blown off.

The black houses on Ardnish are one storey high and built with a "double" stone wall. In between these walls were filled with smaller stones, and then they would probably have been "packed" with peat. The floor was either packed earth, or if available flagstones, and in the centre of the room would have been a hearth for a peat fire. A central fire would have dispersed heat to all the inhabitants of the house. There was no chimney stack as such, and the smoke would have "drawn" up through a hole in the roof. Sometimes a discarded herring barrel would have been used, as a form of chimney. The house would have been thatched with heather, reeds or straw, depending on availability. There are several reed beds near Peanmeanach, and in the nearby lochs and these may have been used.

The following two descriptions of highland dwellings, the first by Dr Samuel Johnson from Journey to the Western Isles in 1773, and the second by John Leyden in 1800 in his book Tour in the Highlands and Islands, provide a first-hand account of the type of dwellings that would probably have existed on Ardnish.

By a house, I mean a building with one storey over another; by a hut, a dwelling with only one floor. The laird, the tacks man and the minister have commonly houses. Wherever there is a house, the stranger finds a welcome. The wall of a common hut is always built without mortar by a skilful adaptation of loose stones. Sometimes a double wall of stones is raised and the intermediate space is filled with earth. The air is thus completely excluded. Some walls are, I think, formed of turf. Of the meanest huts, the first room is lighted by the entrance, and the second by the smoke hole. The fire is usually made in the middle.

The houses of the peasants in Mull are most deplorable. Some of the doors are hardly four feet high and the houses themselves, composed of earthen sods, in many instances are scarcely twelve. There is often no other outlet of smoke but at the door, the consequence of which is that the women are more squalid and dirty than the men and their features more disagreeable.

The population of Ardnish between 1250 and 1840

The population of the Highlands experienced a dramatic increase from the mid 1750's to the 1800's with the population doubling in some areas in the space of 50 years or so, the area of Moidart saw a significant population rise over this period, which has been estimated at approximately 40%.

*Large population increases had been taking place in the Highlands. Skye had risen from 13,000 in 1755 to 24,500 in 1811; Mull and southern Inner Hebrides from 10,000 to 18,000. This meant that what had been small farms, now became tiny farms.*²³

The census and parish records for Ardnamurchan/Arisaig and Moidart, which includes Ardnish show the population from 1801 to 1831, which was relatively stable, although these records do not show the increase from 1750 to 1800, as no records appear to have been kept.

| Year | Population |
|------|------------|
| 1801 | 2,165 |
| 1811 | 2,324 |
| 1821 | 2,333 |
| 1831 | 2,358 |

Prior to the clearances, and probably in around 1650, the western end of Ardnish was farmed by a single farmer, although he was probably assisted by some agricultural labourers, shepherds etc.

The enforced clearances dramatically increased the population, to an unsustainable peak sometime in the mid 18th century. The relatively unproductive land on Ardnish could not support the increased population, and life was a constant struggle. It was possible to generate a meager income from kelp burning, fishing, and collecting shellfish etc, although this was barely enough to cover the high rents charged by the landlords. A combination of this and other issues led the ongoing decline in the Ardnish population, with many emigrating, seeking a better life. The de-population of Ardnish was a scene was repeated across many other similar isolated townships in the Highlands and West Coast.

*If one figures to himself a man, and one or more of his children, engaged from morning to night in cutting, drying, and otherwise preparing the sea weeds, at a distance of many miles from his home, or in a remote island; often for hours together wet to his knees and elbows; living upon oatmeal and water with occasionally fish, limpets and crabs; sleeping on the damp floor of a wretched hut; and with no other fuel than twigs or heath: he will perceive that this manufacture is none of the most agreeable.*²⁴

The following quotes highlight that the ongoing population decline was due to a combination of events rather than a single trigger, although the lack of food in the winter months was a major consideration. The combined impact of these triggered a series of mass emigrations from the 1730's to the 1930's.

*The population of Polish declined for reasons common everywhere in the Highlands: poverty, hunger, lack of work, sheep and deer grazing destroying crops*²⁵

²³ Source: TC Smout, *A History of the Scottish People 1560-1830* p 349

²⁴ Source: Second Report to the Commissioners and Trustees for Improving Fisheries and Manufactures in Scotland, 1755

²⁵ Source: Lower Polish: a Township on the Ardnish Peninsula - A report for Scotland's Rural Past by the Moidart History Group

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The increased population as discussed in the previous chapter, led to increased pressure to produce more food from what was at best marginal land. Whilst fishing went some way to bridge the gap, as the following quote shows, the winter months brought extreme hardship, and families were sometimes forced to live off food such as limpets for months on end in the winter.

Tenants in Glenmoidart (near Ardnish – Ed) were reported to have said that whilst for six months a year they could live comfortably, they had to endure for the other six months in downright starvation.²⁶

The majority of the Ardnish townships had small rock shelters as harbors nearby. These can be seen along the coastline of Ardnish, especially near the townships. There is also some evidence of stone fish traps on the island in front of Laggan and on the coast between Laggan and Peanmeanach. It can be hard to distinguish between the two, as they were abandoned a hundred years or so ago, and many of the stones have been shifted by the tides and storms. The harbors usually have larger stones, with a relatively straight “wall” and were more permanent structures than the fish traps.

Oral history recalls that the boats were pulled up on the rocky beach on the right hand side of the Slocht entrance. This must have been a fraught task if the seas were high, as it required a 90 degree turn to be executed in limited space, and the entrance to Slocht can be extremely rough even in Summer.

A decade or so after the first Jacobite rising of 1715, saw the first emigrations to the Americas, and these continued for over a hundred and fifty years. Whilst there is clear evidence that the population of Ardnish actually increased (unlike the vast majority of the Highlands) following the Highland Clearances (1760s onwards). Whilst the population of Ardnish initially increased, it was probably seen as a temporary residence for many of the families forcibly moved to Ardnish, and one that was a “stepping stone” between eviction, and a new life abroad in Canada, America or Australia.

These emigrations appear not to be as a direct result of persecution following the 1715 uprising, as the following extract from Wikipedia explains.

In the aftermath of the 'Fifteen', the Disarming Act and the Clan Act made some attempts to subdue the Scottish Highlands. Government garrisons were built or extended in the Great Glen at Fort William, Kiliwhimin (later renamed Fort Augustus) and Fort George, Inverness, as well as barracks at Ruthven, Bernera (Glenelg) and Inversnaid, linked to the south by the Wade roads constructed for Major-General George Wade. On the whole, the government adopted a gentle approach and attempted to 'win hearts and minds' by allowing the bulk of the defeated rebels to slip away back to their homes and committing the first £20,000 of revenue from forfeited estates to the establishment of Presbyterian-run, Scots-speaking schools in the highlands (the latest in a series of measures intended to promote Scots at the expense of Scottish Gaelic).

Wikipedia identifies that the Clearances started in the early 1760's and also provides a brief description of the Highland Clearances.

What became known as the Clearances were considered by the landlords as necessary "improvements". They are thought to have been begun by Admiral John Ross of Balnagowan Castle in Scotland in 1762. MacLeod of MacLeod (i.e. the chief of MacLeod) began experimental work on

²⁶ Source: <http://www.moidart.org.uk/datasets/reflectionsonagriculture.htm>

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Skye in 1732. Chiefs engaged Lowland, or sometimes English, factors with expertise in more profitable sheep farming, and they "encouraged", sometimes forcibly, the population to move off suitable land.

Using coastal locations and isolated areas such as Ardnish as a “dumping ground” for families cleared from the land by landlords seems to have been a common thread after the Highland Clearances, as the following quote illustrates.

The people were accommodated in poor crofts or small farms in coastal areas where farming could not sustain the communities and they were expected to take up fishing. ²⁷

The impact of the Jacobite rebellion in 1745 on the Highlands was far more marked than the earlier 1715 rebellion, as the following extracts from Wikipedia highlight.

The Hanoverian forces' assault on the Jacobite sympathizers continued in the coming months—destroying the clan system with the Act of Proscription disarming them, banning the kilt and the tartan, the Tenures Abolition Act ending the feudal bond of military service and the Heritable Jurisdictions Act removing the virtually sovereign power the chiefs had over their clan. Statute provisions were aimed at proscribing the perceived religion of the Jacobites, Episcopalian (Catholicism was already banned). Government troops were stationed in the Highlands and built more roads and barracks to better control the region, adding to the Wade roads constructed for Major-General George Wade after the Fifteen rising, as well a new fortress at Fort George, to the east of Inverness. ... Anyone suspected of Jacobite loyalty had to take an oath that they possessed no weapons, or tartan or any type of highland dress. The ban was not lifted until thirty-five years after the battle.

The ongoing emigration from the highlands of Scotland continued, sometimes in waves.

Another wave of mass emigration came in 1792, known as the "Year of the Sheep" to Scottish Highlanders ²⁸

There is documented evidence that residents of Ardnish emigrated in 1790 bound for Saint Laurence. Calculating the total number of emigrants, would be an almost impossible task, due to the incomplete passenger lists and records and having to trawl through hundreds of departing ships over many years.

*List of an Emigration from Clanranald's Estate, bound for the Island of St. John in the Gulph of St. Laurence N.A.Sail'd from the Harbour of Drimindarach the 12th July 1790 on Board the Jane Captain Fisher. NB All above twelve years of age pay full passage, and those under that age pay in proportion as stated. The Ardnish residents are recorded as Lagan Ardnish, Allan MacDonald (tenant), Lagan Ardnish –James MacDonald (tenant) and Fiorlindugh – Donald MacDonald (tenant)*²⁹

The following quote provides additional details about the causes of the emigrations, including the post war recession after 1815.

Before 1800, highland emigrants were simultaneously driven away by economic, social and demographic dislocation resulting from rising rents and agricultural restructuring, and enticed by the

²⁷ Source: http://en.wikipedia.org/wiki/Highland_Clearances

²⁸ Source: http://en.wikipedia.org/wiki/Highland_Clearances

²⁹ Source: http://www.islandarchives.ca/fedora/repository/vre:islemag-batch2-12/OBJ/10_PEI_passenger_lists-a_genealogical_p_34-39.pdf

*offer of generous freehold land grants to former soldiers, many of whom came from the now-redundant tacksman class. After 1815, when the highland economy crumbled in the face of post-war recession and repeated subsistence crises, the mercantilist antagonism of landlords and government to the hemorrhaging of the population was transformed into an active Malthusian approbation of emigration as the only alternative to tenant congestion and starvation, as well as proprietorial bankruptcy.*³⁰

The collapse of the kelp industry in the 1820's, would have added to the emigration pressures. Kelp gathering and drying was a labour intensive industry, with many families being paid to collect the kelp. Whilst this was a lucrative industry for the landowners, for the residents of Ardnish it was not, although it would have been one of the few ways to earn money towards paying the rent.

How the Ardnish population may have lived between 1250 and 1840

One source of employment available would have been cattle droving, and it is likely that at its peak from the 1650's to the 1850's there would have been many Ardnish drovers. In the 1841 census there is a drover living at Polish, although by then droving was well on the decline.

The drovers were local men. In May, they would start to visit farms, bargaining for cattle often only one or two at a time, since many of the highland farming tenants were very poor. Gradually, they would have a herd they could gather as summer advanced and drive south. The herds would be at least 100 strong, often larger and up to 2,000 strong. Ahead of them lay a long and dangerous journey. Rivers in flood might have to be crossed; journeys must be made over trackless mountains, sometimes in thick mist where a drover might easily lose his way; or well armed "rievers" might try to steal cattle.

A drover's day was a long one. At about 8.00 am they would rise and make a simple breakfast of oats, either boiled to make porridge or cold and uncooked mixed with a little water. The whole might be washed down with whisky. Oats, whisky, and perhaps some onions were their basic diet. Occasionally, they might draw blood from some cattle and mix it with oatmeal to make "black pudding."

*The drovers might strike the people of the lowlands they entered as strange and perhaps threatening. "Great stalwart hirsute men, shaggy and uncultured and wild, who look like bears as they lounge heavily along." as one person described them at the time...For nearly two hundred years, through the second half of the seventeenth century, throughout the eighteenth century, and into the early nineteenth century, droving flourished aided by a growing human population and hence demand and other factors. Between 1727 and 1815, for example, there was a long series of wars with Spain, Austria, America, France and, finally, the Napoleonic wars. This meant a large navy had to be maintained. Salted beef was a major foodstuff for the navy, which was thus a major market. In 1794 for example, the London meat market of Smithfield recorded 108,000 cattle arriving for slaughter and at least 80% of these came from Scotland. But times were changing and droving would go into decline.*³¹

³⁰ Source: <http://www.history.ac.uk/ihr/Focus/Migration/articles/harper.html> Crossing borders: Scottish emigration to Canada by Marjory Harper, University of Aberdeen

³¹ Source: <http://www.scotshistoryonline.co.uk/bridges/html/drovers.htm>

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It is likely that the residents of Ardnish harvested kelp to help pay the rents. The kelp was collected at low tides, dried and eventually burnt. The resulting soda ash was used as a bleaching agent, and also in the production of both glass and soap. The production of soda ash was very lucrative for the landowners, and pools of very cheap labour were required, as the gathering and drying process was labour intensive. By the 1820's the price fell dramatically, as cheaper processes were developed to produce soda ash, and the kelp industry collapsed, leading to further emigration pressure.

Collecting shellfish would have been another key source of money. Whelks, winkles, cockles etc would have been collected at low tide, and put into mesh bags, and stacked in rock pools ready to be taken to the mainland for collection. These bags were sealed with coloured tags that identified the merchant they were being collected by, and the owner.

The nearby area of Moidart was described in 1755 and given the very close proximity of Ardnish and Moidart, it is highly likely that life on Ardnish very closely mirrored the description given below.

*At the head of the Loch is the Ruins of the House of McDonald of Kinlochmoydart situated upon a small plain upwards of a mile long, and three quarters of a mile Broad divided by a River and surrounded with high hills.... The whole Country is very mountaineous, and only fitt for breeding and Grassing of Cattle....The oats are sown betwixt the midle of March and the midle of April, and a little Barley about the beginning of May. The Harvest begins about the middle of September. The oats which are of a Small grey kind produce about Three fold and for these two or three years bypast there have been planted a few potatoes.*³²

*Some of the Cottars are allowed a little Cottage with Grassing for two or three Cows. They are obliged to manure the Arable Ground of the farm on their own Charge, being further allowed the fourth part of the Corn produced. Others of them are allowed a Small piece of Ground (which they labour on their own account) and the Grassing of two or three Cows, for which they are obliged to labour the Landlords arable Ground on their proper Charge, but when otherwise employed in his Service, he is obliged to maintain them.*³³

The following account published in the Transactions of the Highland and Agricultural Society of Scotland On the Agriculture of the Counties of Ross and Cromarty (North of Ardnish, and with probably slightly more productive land) gives a first- hand account into how life may have been for the inhabitants in the late eighteenth century.

My father, John Wallace, had the farms of Culrane and Gushack for thirteen years, from 1779 to 1792, at a rent of 140 bolls, part barley and part meal; and duties of money, peats, and hens. At that time he had no 'coup' (box) carts, and neither mattock nor spade. For driving the manure to the land he had a kind of cart and a basket of wicker-work.

For carrying home peats, and leading corn, he made a very simple cart of two long shafts, with cross sticks in the bottom, and standing rungs with top rails.

As soon as the crop was put in, these carts were taken off the 'tum'lers' and put into some shed until the peats should be ready for carrying home, when they were used again. All the carriage of corn, meal, and potatoes was done in bags on horseback.

³² Source: *Second Report to the Commissioners and Trustees for Improving Fisheries and Manufactures in Scotland.* by Richard Neilson. 1755 (excerpts)

³³ Source: *Ibid*

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The ploughs were made by himself almost entirely of wood, all the iron used being a strong culter, a sock, and a large hook fixed at the point of the beam, with a 'stepple' and a few-nails, which were required to fix the clading (or mould-board) of deals. When the oxen were strong, the ploughs would work as well as any made for many years after, and would turn over a deeper furrow.

For a spade, he had a large wooden shovel, mounted with iron at the point and up both sides. The dung was allowed to lie in the byres for a week, and then it was carried to the 'midden' on a wheelbarrow, or sometimes on a two-handed barrow, such as used by masons.

Women took part in all the farm work, except ploughing, thrashing, and carrying bags. Neither clover nor turnips were grown, but there would be about sixteen bolls of potatoes.

The work in summer, after sowing the barley, about the 20th of May, was first to cut peats, and then to make 'middens' for next year's barley. These 'middens' were made of soil cut from the outlying land, mixed with the manure of horses and cattle. Horses or cattle got very little corn; but when any of the cattle were weak about end of spring or beginning of summer, they got sheaves of oats in the morning.

The traces (the draught chains) -were made of deerskin, and were very tough and strong. The collars used on horses at that time were made of ropes of straw twined threefold. These would last about a year; but when made of loch rushes, four feet in length, they would last two years. The farmers made the harness themselves. In short, they made everything. There was no need for saddlers, but weavers were numerous, and they got plenty of work to do.

Servants' Wages.

"Married men for the twelve months got six bolls of meal, two days to cut peats, straw for a stirk, land for potatoes for their own manure, land for sowing two pints of linseed, and a small garden. Women in the half-year got ten shillings, a pair of shoes, and land for linseed. Shearers got eighteen pecks of oatmeal by measure."

Diets of Servants.

"At breakfast, 'brochan' and peasemeal bread; at dinner in summer, whey and bread; and in winter, potatoes and bread; at supper, sowens or 'brochan.' There was cabbage for dinner once a-week; and next day porridge, made of what remained of the cabbage, was taken with butter at breakfast. My father always fed a cow, to be killed in winter; and as long as it lasted, the servants got broth, and sometimes beef.

During winter and spring there was always plenty of home-made ale; and the servants occasionally got ale, butter, and curds; but porridge was seldom seen. The servants got three feasts in the year, the one on Old New Year's-day, another when the barley was sown, and another when the shearing was finished."

Clothing and Social Customs.

"The clothing was very simple and plain. The men wore black knee-breeches and bright blue coats, made by their wives. The young men generally wore similar attire, but some had kilts. Even the larger farmers wore broad blue bonnets, and no hats were to be seen.

About 1792 some favorite sons began to get trousers, and by 1850 breeches had almost disappeared. In my father's time no farmers' wives had prints or cotton gowns, their gowns were of their own

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making, chiefly wincey. The wives wore a small tartan shoulder-plaid, and it was considered to be decent and matron-like for a farmer's wife to have a clean white towel tied on her head above the 'mutch' or cap.

No young ladies covered their head until married. Their hair was their pride. It was all combed down their shoulders, and when at work was tied at their back with tape. At the marriage ceremony the bride was always covered with a scarlet plaid; and if she had not one of her own, she got the loan of one. The gatherings at marriages were usually very large, and there was music and dancing on four nights; on Thursday night, at the feet washing; on Friday night, after the marriage; on Saturday evening and part of the day; and again on Tuesday, at what was called the 'home wedding.' "

Memorable Years.

Under this heading Mr Wallace has a number of very interesting notes on great events of national as well as local importance. Referring to the remarkably wet year of 1782, which was called the "Black Year," he says, "there was scarcely a dry day during the whole spring, while summer and autumn were also very wet. The crop was late and miserably poor, in fact the greater portion of it never ripened at all....

The following year was as singularly dry as 1782 was exceptionally wet. The crop was very early, some of it having been stored by the end of August; but, owing to the inferior quality of much of the seed of the crop of 1782, the general yield was very poor. Many farmers fell in arrears, and some of them never got over it."

The year 1792 was quite as remarkable in Ross-shire, though from a different cause. A few years before this sheep-farming was begun in the county of Ross, and the natives believing that this innovation would compromise their comforts and privileges, began about this year to display formidable opposition to the movement.

Mr Wallace's notes give a pretty good idea of how farming was carried on, and how people lived throughout the counties generally.³⁴

Whilst the descriptions of servants, may seem to be rather out of place on Ardnish, the census of 1841 shows that there were servants in the townships of Polish, Peanmeanach, Laggan and Mullochbuie. Given that the occupations are not always recorded, it is likely that there were probably many more servants than recorded, and servants in every Ardnish township.

³⁴ Source: extracts from Transactions of the Highland and Agricultural Society of Scotland On the Agriculture of the Counties of Ross and Cromarty

Ardnish and its residents from 1841AD onwards

By the mid nineteenth century there are several official documents that confirm Ardnish was inhabited by a population of approximately 200, these come from both census data and maps.

The census of 1841 provides both the names and occupations where given, for the Ardnish population as:

| Township | Population | Surnames | Occupations where given |
|-------------|-----------------------|---|---|
| Laggan | 15 people in 2 houses | Chisolm, Gillies and MacDonald | 2 Farmers and two female servants |
| Peanmeanach | 48 people in 7 houses | Smith, MacLellan, MacGillivray, MacDonald and | 7 Farmers and two female servants |
| Feorlindue | 38 people in 6 houses | MacDonald, Smith, MacGillivray, MacDonald and Gillies | 5 Farmers and one Cottar |
| Sloch | 20 people in 3 houses | MacGillivray, MacEachan and MacDugald or MacDougald | 2 Farmers and one Cottar |
| Mullochbuie | 15 people in 2 houses | MacDonald, MacEachan MacIsaac and MacVarish | 2 Farmers and one female servant |
| Polnish | 62 people in 9 houses | MacDonald, MacDougall, Gillies, MacInnis, Rankin, Morrison, MacPherson, Macleod | 2 Tenants, 2 Cottars, 4 Agricultural laborers, 1 cattle drover, 1 shoe maker 1 weaver of hand wool and 1 fox-hunter |

Ardnish was then in the Ardnamurchan parish, and by looking at both the records for Ardnish and Ardnamurchan, a picture emerges of both the main types of occupations and the number of non working inhabitants.

The main occupations given from 1330 inhabitants and 233 households in the Ardnamurchan parish were:

Shepherds 33, Wood cutters 16, shoemakers 6, Cowherds 6, Spinners 4, Bark strippers 4, Weavers, Drivers and boat builders 3 each, Stonemasons, Priests, Schoolmasters and Wood draggers 2 apiece, plus 1 fish curer, merchant, cooper and carder.

The occupations were not always given or recorded, and many people would probably have been “multi skilled” and able to turn their hand to many jobs, so this should be used as an indication only. Spellings were variable as was the data quality (some records were hard to decipher) so these must be taken as indicative rather than “hard and fast numbers.

The census of 1851 details that there were 33 households and 178 inhabitants living on Ardnish, and provides a further insight into the population of Ardnish, the families living there and their occupations.

Lower Polish (3 households. 15 inhabitants). The spelling was Polness.

The 3 householders were Donald MacDonald (58), John MacDougall (94) and Ewan MacDougall (45). John is described as a tenant of 12 acres and the others as agricultural laborers. There was a visiting boat builder, John MacPhee from Argyll staying with Ewan MacDougall. There were 8 children.

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Upper Polish (4 households, 18 inhabitants) The householders were Angus MacDonald (64), Allan Morrison (58), Mary MacDougal (42) and Simon MacDonald (38). They are described as laborers and shepherds.

Camas Ruighe, Ardnish (1 household, 9 inhabitants). The spelling was Camusruy.

Donald (57) & Betty MacDonald (50) + 7 children.

Mullochbuidhe, Ardnish (4 households, 24 inhabitants). The spelling was Mullochbuy.

Two MacEachans, one MacDonald and one MacVarish were the householders and they are all described as farmers of 2-4 acres.

Sloch, Ardnish (3 households, 18 inhabitants).

MacDonald, MacGilvery, MacDougal are described as farmers of 4-5 acres.

Ardnish (21 households, 94 inhabitants).

The data seem to lump together Peanmeanach, Glasnacardoch, Feorlindubh, and Laggan.

Householders are 12 MacDonalds, 3 MacEacherns, 2 Gillies, 1 MacDougall, 1 MacVarish, 1 Smith and 1 MacLean. They are described as farmers or tenants of 3-4 acres.³⁵

This gives a total population for Ardnish in 1851 of approximately 33 households and 178 inhabitants. This compares with 29 households and 198 inhabitants in 1841. The Ordnance survey map published in 1855 clearly marks out all the townships, and the spellings and names of the townships now seem to be more defined and standardised, although Feorlindhue or Firlindhu is no longer identified separately (the houses west of the burn seem to have been included in Peanmeanach).

Ordnance Survey Map of Scotland – Sheet 61 – Arisaig Publication Date 1855



Source National Library of Scotland

³⁵ Source: Moidart history website

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The Napier Commission which took evidence from crofters towards the end of the nineteenth century identified the issues faced by the inhabitants of Ardnish.

Napier Commission on 6th August 1883. Donald MacVarish, Ardnish, 64, gathered whelks, which were their best source of income now that all other occupations had failed. Earned 5sh in a 5-6 day spring tide. Droving of cattle and sheep to Falkirk gone. Used to make £15-£16 in a season. Canals and trains stopped droving. Donald MacDonald, one of 3 at Polish, nearly 80 afraid of old age. Rents - one paid £2 the other two paid 30sh each. Pay £3 apiece for a cow each (to tacksman). 17 Commandments. Sons and daughters had to leave when they reached 21.³⁶

The census in 1891 for the first time included a robust language question. The following analysis based on the 1891 census provides an interesting insight into the percentage of Gaelic speakers. Whilst this data excludes children under 3, the population appears to have declined slightly from 1841 when there were 33 households and 178 inhabitants living on Ardnish.

This may be caused by the way that townships were classified, as Kinlochailort was grouped with Inverailort in the 1891 census (7 households and 21 adults over 3), assuming that some of these households were part of Polish, the decline in population and households is probably less pronounced than is initially apparent. The decline is most apparent in Polish which had 62 people in 9 houses in the 1841 census, so it seems that the number of people per house declined to 4 per household in 1891 from a high total of 6.8 per household in 1841.

| Location | Households | Adults over 3 | % speaking Gaidhlig only | % speaking Gaidhlig and English |
|--|------------|---------------|--------------------------|---------------------------------|
| Ceann Loch nan Uamh and Poll Nis (Kinlochannanuagh and Polish) | 7 | 28 | 68% | 32% |
| Lagan Lagan | 2 | 18 | 33% | 67% |
| Peighinn Meadhonach (Peanmeanach) | 7 | 44 | 50% | 50% |
| Glas na Ceardaich (Glasnacardoch) | 3 | 15 | 67% | 33% |
| An Sloc (Sloch or Slock) | 3 | 13 | 62% | 38% |
| Mullach Buidhe (Mullachbuie) | 3 | 13 | 100% | 0% |
| Total | 24 | 131 | | |

Whilst the split by occupations in 1891 covers a wider area than just Ardnish (Inverailort, Meoble, Loch Eilt etc) the breakdown of the occupations are: Crofter, farmer, fisherman or shepherd etc (62%), Shepherd, Gamekeeper or similar (16%), Manager, Coachman, Cook etc was (11%) and Worker, Farm/Domestic servant etc was (7%), Mason, Carpenter, Merchant etc was (3%) whilst Clergyman, Teacher, Physician etc was (2%).³⁷

³⁶ Go Listen to the Crofters pp59- Source <http://www.moidart.org.uk/archives/landscapearchive.htm>

³⁷ Source: Alba 1891Gaidhlig (Scottish Gaelic) Local Profile by Kurt C Duwe http://www.linguae-celticae.org/GLP_english.htm

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In around 1900 the name of the village was changed from Kinlochailort to Lochailort. This was welcomed by some but opposed by others who argued that Kinlochailort was a settlement while Loch Ailort was a body of water³⁸

Oral history details that the path to Peanmeanach (from the lay-by) was maintained by two “road builders.” Much of this path is still in remarkably good condition, given that it was probably made over a hundred years ago. There was considerable aggravation that the crofters of Ardnish had to contribute towards maintaining the track.

The school children originally had to walk the entire length of the path from Peanmeanach and the surrounding area to the school (called the old school house. The new school house was used for the school at Glasnacardoch) near the lay-by (at Upper Polish or the The Old School House), the idea that the children (probably without shoes) would have to walk several miles both to and from school along the path every day seems in today’s world of school buses scarcely believable.

*Polnish School... now a modernised dwelling... was recorded by the OS surveyors in 1873. It was created by Mrs Astley, the estate owner in the 1870s (Roberton) and funded by the SSPCK (Roberts). It would have served Polish, Kinlochnanuamh and Ardnish: the average attendance was only fifteen children.*³⁹

The oral history recalls that when a house was abandoned, they took what possessions they could carry, left a Gaelic bible in the house, shut the door and left without looking backwards. If the family were “relocating” to a new house nearby, it was common for the timber joists of the roof to be dismantled from the old house and be re-used and re-assembled on top of the stone framework of the new house.

A new school was built at Glasnacardoch, the construction date is unknown, although it was being used as a school before the first war and it finally closed its doors in 1932. It is a much larger building than all the other dwellings with two large rooms, and very large windows (and what appears to be a more recent addition of a sheep dip on one side!) The school mistress and her daughter lived in the house at Peanmeanach that is now the bothy. Oral history records that as the number of pupils declined at the school, children from Glasgow were “imported” to make up the numbers, and postpone the closure. Quite how this worked, and if children moved permanently to Ardnish either with or without their parents seems to have been lost over the years.

The catholic church at Polish (our lady of the braes), which must be one of the most photographed churches in Scotland, was made famous by its role in the film Local Hero, and was the only church on the peninsular. There is a chapel marked on map from 1855, so the current building must have either replaced or remodeled, as the current building dates from 1872, and was consecrated in 1874. It fell into disuse from 1964, when mass was held at the nearby chapel in Inverailort Castle. Oral history recalls that the inhabitants of Ardnish were buried on an island at the lower stretches of the river Ailort, although there is also a burial site on an island (at high tide) near Roshven, and this may also have been used.

In the 20th century onwards, there is an increasing amount of oral history, although as the following extract highlights how even a visit by a celebrity of his day to Ardnish, can leave behind little oral history. Oral history, whilst invaluable, therefore ideally needs to be verified where possible to ensure its validity.

³⁸ Source: www.ambaile.org.uk/en/item/item_photograph.jsp?item_id=22723

³⁹ Source: Survey of Polish

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The memory, in genealogy, is very fickle, and in an earlier article I mentioned that there was no oral history in Arisaig of a visit in 1900 by Dr. R. J. MacDonald to his grand-aunt in Peanmeanach. Dr. R. J. MacDonald, who besides being a doctor was also a world class runner of international repute, specialising in the 800 yards Sprint, the Mile and Seven Mile and Ten Mile Cross Country racing, was invited to the Paris Exposition to compete against the International line up including Ireland's Champion.

After the events, he came to Arisaig and visited his Great aunt , Mrs. Simon MacDonald...There was no oral tradition of R. J.'s visit which is surprising given his status. Two weeks ago I got another letter from Rick, enclosing a copy of a letter from his sister, who was a nun, working in Europe during WW1, and in 1917 she also visited and described the path and the house in Peanmeanach where her relatives stayed. I then got a copy of a letter from Canada from a nun, sister of Dr. R. J., who visited in 1917... the nun is remembered in the oral tradition for her visit, but not the Doctor.⁴⁰

The Macleods became the tenants of Ardnish sometime in the late 1930s (presumably after the majority of the townships were abandoned) and lived there until the late 1960s. Although both the Macleods were born in Harris, Donald MacLeod had lived in Patagonia, as a gaucho (sheep rancher) and he built the house that is now called Laggan (Note that Laggan was also a settlement in the census data in the previous century).

Laggan was modeled on one that he had taken measurements and designs from whilst in Patagonia, but the design for the houses in Patagonia had originally come from the Welsh and Scottish emigrants, so Laggan whilst being based on a model of a "Patagonian house" can trace its roots back to the designs used by the emigrants (shepherds and farmers) from Wales and Scotland, and therefore does not look out of place, in its location. Laggan incidentally is the Gaelic name for a green hollow, and as Laggan is relatively sheltered from the westerly winds seems a very apt description.

Donald MacLeod, was alleged to have a whisky still somewhere on Ardnish, although this may just be a tall tale. Certainly in the 1970's there were several bottle dumps, one near the shed, and one near the dog kennel in front of Ardnish. He was well known for liking a dram or two, and his boat apparently "knew its own way back" from the Lochailort Inn.

Oral history recalls that Mrs MacLeod apparently only left the Ardnish peninsular twice, during the thirty odd years that she lived there, once for a wedding of a Cousin, and once for a funeral. When she did leave, they moved nearby to Lochailort. Mrs MacLeod had "a way with the birds" and had trained the birds near Laggan (presumably sparrows, robins etc) to eat out of her hand. When she moved to Lochailort, she was determined that she would continue to have birds eating out of her hands, and apparently persevered all day standing and lying on the ground, with food in her open hand, that it only took her three days to achieve this.

The last house to be inhabited at Peanmeanach was the former school mistresses house (now the bothy). This was abandoned in 1942. Ian Mitchell in his book Mountain Footfalls recalls talking to Nellie, who was born on Ardnish, and who lived there until 1942 about living on Ardnish. What is clear is that very little had changed between the late 1890's and 1942, and life continued in much the same way as it had. Even in the 1940's there was no radio (even a battery operated one), and the life revolved around the traditional activities such as cutting and drying peat, growing potatoes

⁴⁰ Source: www.road-to-the-isles.org.uk/westword/june2001.html and <http://www.road-to-the-isles.org.uk/westword/march2001.html>

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and vegetables, and producing their own eggs and milk, much as it had done for the last few hundred years.

Nellie MacQueen's mother came from Ardnish to Barra, to marry the owner of the Post Office, in what is now the bothy. Her mother was the school teacher at the school just around the bay, from just before the first war to when it closed in or around 1932. The roll call had once apparently been as high as 28 children.

The following extract, from a nearby island, details the pressures that led to the closure of the school and the eventual depopulation.

*Fishing and crofting as their forefathers knew was reduced to a shadow of what it used to be. As the years went by the island was becoming more and more depopulated. The little school was closed, except for the usual Sunday prayer meeting which was held there up to the last. There were no more children to shout and play around the happy little school. Finally, at the beginning of 1938, it became clear that the 12 inhabitants left would have to evacuate the island.*⁴¹

In her book *Moidart and Morar*, Wendy Wood wrote about the Post Office at Peanmeanach. *The low cottage on the shore still had, when I last visited it, a wooden sign hanging by one nail, saying, Post Office. Just prior to the war (Second War – Ed) looking for a place to set up a kiosk, a telephone official was setting out for Ardnish, when it was pointed out to him, that there was now only one house, and three people on the whole place.*

I can recall Mrs Cameron-Head mentioning that they used to oversee the herring bartering between the fish merchants and the Ardnish residents, to ensure that the Ardnish residents were not "diddled." Payment was normally split, part being in salt (for next year's salting of herring), plus part in money.

In her pamphlet about returning to Peanmeanach, after over 40 years, Nellie MacQueen gives a moving account, of looking for the well at Peanmeanach marked by white stones, and hitting the corner of each house with a stick and calling out the names of the former inhabitants. She had no regrets on leaving at all, but just wanted to return one last time. The family kept a cow for milk, and every day the Macleods would travel from Laggan to Peanmeanach to collect the fresh milk.

Whilst we had always believed that Donald and his son Kenneth Macleod built the track from Laggan to Peanmeanach so that he could drive his tractor to Peanmeanach, and use it to cultivate the large flats behind the bothy, collect peats etc, the ordnance survey map published in 1855, clearly shows that a track or path existed much earlier. It now seems likely that they probably improved the track, so that it could take a tractor, rather than the foot or possibly horse and cart, that may have used it originally.

The track winds its way along the coast, and must have taken months to make. It has been build up with large flat stone slabs over all the boggy or rough terrain, and remains in remarkably good order, considering it has not been used for over forty years. The remains of a plough used to be visible near the bothy, but I seem to recall that it was a horse drawn plough. There is clear evidence of drainage ditches surrounding these flats, these were probably originally created as part of the "head dyke" and had a dual purpose, of draining the area and ensuring that the sheep or other livestock could not enter the area set aside for crops. The drainage ditches would probably have been re-dug enlarged over the years by the Macleods using a tractor.

⁴¹ Source: <http://www.scottishweb.net/articles/40/11/The-Story-Of-Island-Roan>

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The remains of the old tractor that must have made the trip between Laggan and Peanmeanach thousands of times (a grey petrol paraffin Fergie), can still be seen, although it is partially hidden by bracken in the summer, by the sheep fank behind Laggan.

Laggan in the mid 1970s was in a sorry state, the sheep were living in the porch, as the front door had fallen off its hinges, the windows upstairs had been removed, the replacements had not been installed, and were propped up to roughly fit the holes left, when the old windows were removed. In the 1970s there were numerous reminders of the Macleods, some of which still remain. The ruins of his boat was to be seen until the mid 1980s in front of Laggan, and I can remember extracting copper nails from it. There was also the remains of a Model T Fords back axle in the bay behind Ardnish (quite why the remains of a model T Ford was there remains a mystery – possibly they had been used as an anchor?).

The track that Mr Macleod used to collect the post from the tip of the large island in front of Laggan. The path is still clearly visible at a low tide, and runs from the mainland across the sand and gravel to the island. The fact that the path has remained so clearly visible despite not being used regularly by humans for approximately fifty years, suggests that the deer now use the same path. The post boat went from Lochailort to Glenuig (and then onto Eigg) and he used to walk to the end of the peninsular (island at high tide) in front of Laggan, to meet the post boat, and collect or send letters and parcels.

The post boat was run by 'Post Ardnish', (John MacEachen), he grew up at Mullochbuie on Ardnish, and then moved to Cuildarroch on the shore of Loch nan Uamh. The inhabitants of Laggan were probably less cut off 50 years ago, with a daily post collection and delivery, and ability to chat to the postman than they are now 50 or more years on.

There was no road from Lochailort to Glenuig until the mid 1960s, there was a track from Inverailort along the loch side to Roshven and onto Glenuig. I can recall people talking about walking from Inverailort to Glenuig and then back again (carrying a fiddle) in an evening to attend a Ceiligh in Glenuig. The road building was supposedly assisted by the Army due to the amount of explosives that were needed to blast through the hills.

Up until the late 1980s there was no mains electricity on the mainland opposite Laggan (electricity went only as far as Inverailort Castle), and the noise from the generator at Roshven could clearly be heard from Laggan in the evenings, until it was switched off at 10pm for the evening.

Along with mains electricity came television, and the instillation of a large TV aerial/mast on the hills near Inverailort, the surrounding area could now receive television. I remember that prior to the instillation of the TV mast, there were regular talks (with slides) and lectures given at Inverailort Castle, where guest speakers were invited, and that the turnouts in the winter to these were considerable.

The townships from 1841 onwards

There is direct evidence that from the 1840's to the 1940's at least some of the townships were inhabited continuously, and Laggan was inhabited until the 1960's.

The dates that three townships were abandoned is known. The last permanent occupant of Laggan left in the late 1960's, Peanmeanach was abandoned in 1942 and Polish in the early 1970's (although one house is now permanently inhabited). It seems likely that Slocht and Mullochbuie were abandoned sometime in the late 1920's or early 1930's. The school at Glasnacardoch closed in 1932, and there is written evidence that just before the second war there were three inhabitants on the "end" of Ardnish (i.e. excludes the roadside and Polish area), presumably this was Nellie MacQueen and the Macleods.

The census data frequently grouped townships together, so the results need to be treated with some caution, and it is likely that the marks of houses in map from 1855 are approximate, as the population was declining between 1841 and 1891. The number of houses seems to have remained relatively constant for this period, but the number of occupants per house declined (from just under 7 per house in the 1840s). The following table shows the different townships and the number of houses over the years.

| Main Names of Township | 1891 survey | 1855 map | 1851 survey | 1841 survey | Notes |
|--------------------------|-------------|----------|-------------|-------------|--|
| Sloch or slochd | | 3 | 3 | 3 | The English translation is a pit or a gulley from the Gaelic Sloe |
| Mullochbuie | 3 | 4 | 4 | 2 | The English translation is the yellow top or yellow summit |
| Peanmeanach | 7 | 8 | 8 (est) | 7 | The English translation is the Pennyland |
| Feorlindhue / Firlindhu/ | | 2 | 3 (est) | 6 | The English translation is the Farthingland Shown in map (1931) The township consists of the houses west of the burn from Peanmeanach |
| Glasnacardoch | 3 | 8 | 8 (est) | | The English translation is the grey stony ground Not recorded in 1841 (included elsewhere presumably) |
| Laggan | 2 | 5 | 2 (est) | 2 | The English translation is "the hollow" |
| Polnish / Polness | 7** | 5* | 8* | 9* | *Upper and lower included ** includes Kinlochannanuagh and Polish |
| Camusruy / Camas Ruighe | | | | | A handful of houses can be seen from satellite pictures. The only reference to the village (not the present single house which is located further north) is in the map from 1832. It was either abandoned shortly afterwards, or was included as Upper Polish. English translation Red bay or channel |
| Theodlin | | | | | Shown in Military map in 1747-55. Possibly it is an annotation. East of Laggan, near the sheep fank -3 houses are visible via satellite pictures (probably included in Laggan figures) |

The figure for 1851 is 21 houses overall in (Polnish, Glasnacardoch, Peanmeanach, Feorlindhue and Laggan) and the split per township has therefore been estimated.

The dwellings on Ardnish from 1841 onwards

The following description of building a black house probably around the 1900's, in a nearby and similarly remote location, details both the amount of work required to build a house, but also the sheer difficulty in transporting the stones to the new house.

There was no form of transportation on the island, and every item, large or small, heavy or light, had to be carried on the back or in the hand, and one can imagine the enormous amount of human labour that went into the building of a modern house. On the north side of the island and a good distance away from where the houses were being built there was another large cave, called the quarry cave. In it there was a thick seam of brown granite, and from here most of the stones for the buildings had to be taken. The rock first had to be blasted into small pieces, then the stones dressed in the quarry before being carried to the house. Everyone on the island usually turned out to lend a hand. Heavy jambs and lintels had to be carried on a hand barrow by six men.⁴²

The following description of the inside of a house near Glenuig, would have been an apt description of the majority of the houses on Ardnish between 1900 and 1940.

Sometimes I would spend the evening at...I had a bundle of stockings to darn, while Annie knitted, and Angus turned over the old papers or talked, for he had no indoor hobby. The kitchen always spotlessly clean and tidy, was arranged on the traditional plan. The long wall facing the window was occupied by two box beds with gathered curtains, which turned them into cubicles so that people of different sex could have privacy and yet enjoy the only fire. There were no easy chairs, and the beds could be used to rest upon during the day. Each had a crucifix and a holy picture at its head. There was also a table, a dresser full of dishes, two or three wooden chairs, and a long bench under the window. Such benches and dressers would often be made by the joiner in the room they were made to occupy, as the doors were too narrow to admit the finished article.⁴³

Several of the black houses, particularly in Slocht, have rounded corners instead of the more normal square corners, this may have been due to them being more exposed to the westerly gales. Some of the walls of the houses on Ardnish have been rendered externally, although this presumably was done at a much later date, possibly when the houses were used just as cow byres.

The original black houses were not just for people, they were also shared with livestock. The black house would have had a low internal wall to divide the people from the animals. The black houses were relatively simple affairs, which gave protection from the wind and rain, as the inhabitants (both humans and livestock) would have been outside for most of the year, apart from the winter. It is thought that the origins of the black house, where both animals and humans co-habited the same dwelling goes back thousands of years. As we will see in the next heading, whilst the black houses were basic and functional, their occupants were famed for "highland hospitality" for both strangers and neighbors. Doors always "open" and there was an obligation to welcome (and feed where food permitted) strangers. Having a key to a door was akin to being both mean and inhospitable.

Apart from the three inhabited houses on Ardnish, the only houses that are not black houses on Ardnish (i.e. have a chimney stack, or a pointed gable end) are Laggan, one house in the bay near Laggan (possibly a storage shed), the old schoolhouse near Peanmeanach, and the former house of the schoolmistress (now the bothy at Peanmeanach), all the other dwellings seem to conform to the

⁴² Source: <http://www.scottishweb.net/articles/40/11/The-Story-Of-Island-Roan/Page11.html>

⁴³ Source: A spade in the rushes by Margaret Leigh

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traditional black house. Photographs seem to show that the bothy at Peanmeanach did not have gable ends in the late 1960s (see Appendix 5 for photograph) , it is possible that these had collapsed, in the 30 years that the building was unoccupied, or that they were added by the Mountain Bothy Association (MBA) when the bothy was created in the mid 1970s.

There are many dry stone dykes on Ardnish, especially around Laggan and Peanmeanach. There is a large dry stone sheep enclosure near Laggan, as well as several small circular pens scatted over the peninsular. There is a stone “funnel” with one side being the edge of a cliff, and a dry stone wall on the other side to enable the sheep to be filtered into the end of the funnel on the higher ground at the edge of the trees behind the flats of Laggan. It was believed that sheep would be less likely to try and jump stone dykes if they were not solid walls, but had some “gaps” in them. The theory was that if the sheep could see through the gaps to the other side of the wall, they thought that it was more likely to collapse, and therefore would not attempt to jump it. The majority of the dry stone dykes are still standing after hundreds of years, and the majority were been built with gaps in them.

The population of Ardnish from 1841 onwards

The census and parish records for Ardnamurchan/Arisaig and Moidart, which includes Ardnish show the population on a steady decline from 1841. These records show that the census of 1841 had the highest population of 2,556 which was then followed by a steady decline.

| Year | Population | Year | Population | Year | Population |
|------|------------|------|------------|------|------------|
| 1851 | 2,333 | 1881 | 1,836 | 1911 | 1,571 |
| 1861 | 2,013 | 1891 | 1,602 | 1921 | 1,375 |
| 1871 | 1,812 | 1901 | 1,678 | 1931 | 1,175 |

The population of Ardnish declined at a much more dramatic rate than the surrounding area. The steep decline was over roughly a century (from 1840 to 1940), although due to little census type data prior to 1841, the evidence before the 1840s is patchy.

The reasons for the decline seem to fall into the following broad categories:

- Pressure from an enlarged population living on marginal land
 - General hardship, high rents, poverty and isolation
 - Highland clearances, potato famine, poor harvests and economic decline
- Impact of smallpox or similar epidemic
- Impact of the First World War
- Impact of the “between the war years”
- Impact of the Second World War

The census of 1841 shows the population of Ardnish at 198, which is 8% of the total population of 2,556. As the area covered by the census is Ardnamurchan to Arisaig, many hundreds of times larger than Ardnish, it shows that Ardnish was much more densely populated than the surrounding area. Whilst the population of Ardnamurchan/Arisaig and Moidart declined by over 50% from 1841 to 1931, the population of Ardnish declined much more dramatically from 198 in 1841 to under 10 by the late 1940s. The reasons for this steep decline are examined in the next chapter.

There are several pieces of written evidence to support the oral history that the population of Ardnish increased rather than decreased following the Highland Clearances from the 1760s onwards. This was due to Ardnish being a convenient out of the way “dumping ground”, where families evicted from the surrounding areas to make way for sheep could be “settled” on a remote isolated peninsular.

*Gaoithe Dail was cleared of 10 families in 1829 by Lady Ashburton and this farm was also added to the tack, or tenancy, of Mains Farm. Some of the evicted people emigrated and some sought shelter in Ardnish.*⁴⁴

Rents averaged between £5 and £10 per croft, with £22 for a farmer at ‘farmer’ at Feorlain-due (A settlement on the other side of the stream from Peanmeanach). Holdings were small and could not

⁴⁴ Source: <http://www.road-to-the-isles.org.uk/westword/march2010.html>

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pay the rent: the main source of income for the crofters was gathering shellfish, which earned them about 5s (25p) a week. Also the penetration of the Highlands by the railways had cut their income from droving to the lowlands. As well as the complaints about the onerous levels of rents, the tenants were aggrieved at the large areas set aside for deer forest, and the crowding of the crofters onto smaller and worthless scraps of land, with the attendant eviction of families.

A petition was presented to the Crofters Commission by Allan MacDonald, Ronald McEachen, and fifteen other others (presumably all from Ardnish) which echoed the age-old cry of the Highland crofters “we know that the present rent is far too high, in fact double what it should be. We wish that in case of eviction, Government should interfere between tenant and landlord...We hold that the crofter has as much right to live on the land of his forefathers as the proprietor has to be superior over it.”

Although the crofters complained of evictions from Ardnish, and of people being pressurised to leave by being refused permission to build houses (this happened to one James MacDonald), it is clear that Peanmeanach settlement, and the other crofts in this inaccessible peninsular were themselves created by the clearances.

Donald MacVarish from Ardnish gave the following evidence to the Crofting Commissioners report in 1855. It is a matter of recent history that Peanmeanach and Laggan were crofted by one man and the current overcrowding is not from rapid multiplication (but) the result of the clearing of the townships of Goadal and Adrnafuaran whose people were put in among us.⁴⁵

The population of Ardnish increased dramatically in 1829 from the one farmer who farmed both Laggan and Polish prior to the clearances, to a population of nearly 200 in the 1841 census. The population of Ardnish may also have been increasing earlier and later than this date as well, (i.e. from the start of the clearances at the end of the 18th century, to the first census in 1841 although there is little documented evidence to prove or disprove this.

Photographs that are believed to be taken in the mid 1920s of Polish and Peanmeanach show that both of these townships were occupied then, however until the census data is released under the 100 year rule, the details of when each township was abandoned will not be known for a few more years, although by the late 1940's there were only four inhabited houses on Ardnish.

The following extract from a spade in the rushes by Margaret Leigh, illustrates just how difficult the transport of goods was to Smirisary (which is just beyond Samalaman and Glenuig). Ardnish was an earlier stopping point for the same mail boat from Lochailort, so the following comments apply as equally to Ardnish as they do to Smirisary, although there would have been no postman delivering on foot to Ardnish from the 1930's onwards.

Transport, whether in plan or execution, seemed to be our main activity, as it was certainly our favorite topic of conversation. So I had better explain how the inhabitants of Smirisary, his goods, his livestock, and his visitors got from the road and rail at Lochailort to what must have been one of the remotest inhabited places of Britain. In the old day, journeys, if strenuous was simple. You travelled all the way in your own rowing or sailing boat, or if the weather was unsuitable, you walked. There was no shop nearer than Kinlochmoidart, eight miles distant, and no public service but the post, which was carried on horseback.

When the war began (Second war – Ed), there was a daily pony post for letters and parcels, and a local motor-boat, which went up to Lochailort once a week for heavy goods and passengers. Later when the military camps were established in the district. The boat (weather permitting) ran every day and carried the mails. After the war, it ran only three days a week and on the alternate days,

⁴⁵ Source: Mountain Footfalls by Ian Mitchell (Meercat Press)

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letters but not parcels were carried by a postman who went on foot. The store-boat was a solid, beamy little craft, seaworthy and serviceable, but her engine was getting old and no longer very sure. Neither oars nor sail were carried and, in case of a prolonged breakdown, there was nothing for it but to go ashore in the dinghy.

The last resident at Peanmeanach, Nellie MacQueen (the schoolteacher's daughter) left in 1942. Donald Macleod's and his wife left Laggan in the late 1960's (I believe that by then their son Kenneth had already moved to Glasgow), by then they were in their 80's, and the post boat no longer stopped at the end of the island in front of the house (the new road from Lochailort to Glenuig, now meant that the post was taken by road). The cost of installing a telephone to Laggan was prohibitive, and they moved to Lochailort. By the mid 1970's there were two permanently occupied houses on Ardnish, the Old School House at Polish, and Ardnambuith all in close proximity to the main road that runs between Mallaig and Fort William.

The last house at Polish "Wee Ronald's House" named after its former occupant Ronald MacEachen) was abandoned in about 1970. There are records of MacEachens (presumably relations) living on Ardnish, since 1841, so Ronald was probably the last "true" Ardnish resident to live on Ardnish. The house fell into disrepair, and was unlive in for about 10 years. It was rented in the early 1980's on condition that the new owner put in a new front door, and restored the property and has been lived in ever since. In addition Laggan and the bothy at Peanmeanach are sometimes occupied.

Oral history suggested that the population of Ardnish was at one stage about 500, the censuses in 1841, 1851 and 1891 identify a reasonably steady population decline from 198 residents in 29 houses in 1841 to 131 residents in 24 houses by 1891. The 1841 census has an average of 6.8 people living in each house. As a rough estimate there would have needed to be approximately 70 houses on Ardnish with 7 inhabitants. By using satellite images, it is possible to count reasonably accurately the total number of dwellings, although some of these may have been storage and purely animal sheds or byres, and other dwellings may have been cannibalised for larger houses or possibly used as storage sheds.

| Name of Township | Total Number of dwelling structures (using aerial photos) |
|-----------------------------------|--|
| Sloch | 5 probable dwellings and 4 smaller structures |
| Mullochbuie | 8 probable dwellings and 4 smaller structures |
| Peanmeanach | 9 probable dwellings and 6 smaller structures |
| Feorlindhue / Firlindhu/ | 2 probable dwellings |
| Glasnacardoch | 5 probable dwellings and 3 smaller structures |
| Laggan | 6 probable dwellings |
| Polnish / Polness | Lower - 5 probable dwellings Upper – 3 probable dwellings |
| Camusray / Camas Ruighe | 6 probable dwellings and 2 smaller structures |
| (Theodlin) Sheep Fank near Laggan | 3 probable dwellings |

Assuming approximately 52 dwellings and an average of 7 people per household (the 1841 census was 6.8 people per household) the total of 364 inhabitants on Ardnish is still well short of the population of 500 that comes from the oral history of Ardnish. The census normally did not include children under 3, but even with an allowance for this it seems highly unlikely that there were 500 inhabitants certainly from the early 1800s onwards, although 400 (including children) is possible, so the oral history may not be as far adrift from fact, as it originally appears.

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In the following chapter the reasons for the population decline are explored in greater detail. Several theories have been postulated about why the population abandoned or left Ardnish, the following description compares Ardnish with St Kilda, probably one of the most famous islands in the world to be abandoned:

*The last inhabitants left over 60 years ago. Many former buildings, lined up like a miniature St Kilda, are reduced to waist high walls almost hidden by nettles.*⁴⁶

⁴⁶ Source: The Scotsman: The otherworldliness of ruined settlement by Robin Howie 22 January 2005

Reasons for the population decline from 1841 onwards

A series of poor harvests, and the potato famine would also have put extreme pressure on the food supplies on Ardnish, the potato famine in 1846 was followed by a particularly harsh winter. The poor harvests continued in the 1870s.

Wikipedia provides some additional details on the Highland Potato Famine, and the impact that it had on migration from the Highlands.

The Highland Potato Famine was a famine caused by potato blight that struck the Scottish Highlands in the 1840s. While the mortality rate was less than other Scottish famines in the 1690s, and 1780, the Highland potato famine caused over 1.7 million people to leave Scotland during the period 1846–52. The Highland Potato Famine is now in widespread use as a name for a period of 19th century Highland and Scottish history. Famine was a real prospect throughout the period, and certainly it was one of severe malnutrition, serious disease, crippling financial hardship and traumatic disruption to essentially agrarian communities. The causes of the crisis were similar to those of the Great Irish Famine and both famines were part of the wider food crisis facing Northern Europe caused by potato blight during the mid-1840s.

*In the mid-19th century, most crofters in the Highlands of Scotland were very dependent on potatoes as a source of food. The potato was perhaps the only crop that would provide enough food from such land areas. The land was generally of poor quality in exposed coastal locations.*⁴⁷

*By the Spring of 1847, almost all the able-bodied men in Arisaig and Moidart had gone to seek work in the lowlands.*⁴⁸

The emigrations continued apace in the mid 19th century.

*In 1848 four families left Glen Uig, and six left Smirisary (all townships very near Ardnish – Ed), all for Nova Scotia, and this seems to have been the last(?) band of importance to come to Nova Scotia. The depopulation of Moidart and Arisaig has gone steadily on, and in Ardnish, Arisaig, where thirteen families existed thirty years ago, now only two families remain.*⁴⁹

*On 25 August 1849 The Scotsman claimed that 20,000 highlanders had emigrated to Canada during the previous decade, a tally that increased in the early 1850s as Outer Hebridean landowners in particular responded to persistent famine with intensified subsidised emigration programmes.... In 1883, the royal commission appointed to enquire into the eruption of highland discontent into the so-called crofters' war uncovered universal crofter and cottar hostility to a phenomenon that was equated unambiguously with eviction.*⁵⁰

⁴⁷ Source: Wikipedia

⁴⁸ Source: Great Highland Famine p321 TM Devine and John Donald 1988 temporary Migration and the Crofting Region, parish Patterns in the 1840s - Jean Lawson

⁴⁹ Source: Moidart.org.uk The Clan Ranald after the Forty-Five transcribed by John Dye from a collection of photocopied notes carrying the stamp of the Nova Scotia Archives – December 31st 1930

⁵⁰ Source: <http://www.history.ac.uk/ihr/Focus/Migration/articles/harper.html> Crossing borders: Scottish emigration to Canada by Marjory Harper, University of Aberdeen

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During the hundred years between 1750 and 1850, the rural community in the Western Highlands had moved from a feudal clan relationship into an impoverished and overcrowded peasantry. Mass emigration abroad during the whole of this period offered for many, the only option. Some were offered assisted passages, reaching a crescendo at the time when the failure of the potato crop occurred in the mid-nineteenth century.⁵¹

The following extract from the recent Polish survey, also shows the impact of men moving away to find work was also having.

Napier Aug 6th 1883 Vol 3 p2123

33337. Do you know anything of the three cottars, Donald Macdonald, Donald Macdonald, sen.[and Archibald M'Dougal], who live in Polish?—Yes.

33338. They have some potato land ?—Yes.

33339. They have had some potato land off a farm upon which they are cottars, and they complain very much, that the deer have destroyed their potatoes. Where do these deer come from ?—I have no idea.

33340. Where is that deer forest—round about here ?—No; it is on the Kinloch Moidart part of the estate.

33341. Where do these deer come from?—They must be wild deer travelling over the country.

33342. It is stated that the late Mr Astley promised to fence this potato ground. Do you know why that has not been done ?—I do not know; but Mrs Nicholson was disposed to fence it, and there was an arrangement that it should be fenced when a certain thing was done. There was a small rent put on the tenants, and, as soon as they clear that, I understand they will get that altered.

33343. But has that been intimated to these people ?—Yes, I have done it myself, by letter. It is a small potato patch.”

The subsequent pages of the Napier Report tell us that the MacDonalds had a single cow, and that not only the proprietor’s deer (for deer would certainly not have been discouraged by the factor, wild or not) but her sheep were causing havoc with MacDonald’s potatoes.

There was also a dispute about whether the rent had been paid or not. Next day, Donald MacDonald goes on to say “We were promised a fence by the late Mr Astley and by Mr M'Kenzie, factor, and on the strength of these promises we planted potatoes; but they were destroyed, and our husbandry entirely stopped. The result is that from being poor we have become poorer, and our case is truly pitiable. We are a sad example of the ruinous effects of the growth of deer forests - especially where they are not fenced.” He points out that they rented only the shells of the black houses and had to thatch them themselves. Life for the cottars was not easy.

The 1870s saw a major depression, with a succession of bad, wet harvests, overgrazing by sheep and the development of deer estates, and by 1881 we see only five men claiming to work the land. 1891 shows a marked change – the population dips and, of the six household heads, only the schoolmaster is male – the other five are older women, four of whom are widows. Fifteen out of the twenty people recorded on the census are female.

The following extract from the Napier Commission highlights the financial hardships of living on Ardnish in the 1880’s. It also highlights the ongoing issue of deer forests, lack of fencing and the damage and impact that deer and sheep can have on crops, and therefore food to feed the crofters.

⁵¹Source: <http://www.moidart.org.uk/datasets/reflectionsonagriculture.htm>

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Napier Commission on 6th August 1883. Donald MacVarish, Ardnish, 64, gathered whelks, which were their best source of income now that all other occupations had failed. Earned 5sh in a 5-6 day spring tide. Droving of cattle and sheep to Falkirk gone. Used to make £15-£16 in a season. Canals and trains stopped droving. Donald MacDonald, one of 3 at Polish, nearly 80 afraid of old age. Rents - one paid £2 the other two paid 30sh each. Pay £3 apiece for a cow each (to tacksman). 17 Commandments. Sons and daughters had to leave when they reached 21.⁵²

Napier Aug 6th 1883 Vol 3 p2123

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We are a sad example of the ruinous effects of the growth of deer forests - especially where they are not fenced." He points out that they rented only the shells of the black houses and had to thatch them themselves. Life for the cottars was not easy.⁵³

The ongoing decline in the fishing, which was an important source of both food and money was also seen as an additional pressure on populations that relied heavily on it. This came partly from the collapse of the herring industry, the use of larger and more commercial boats, and a move from towards the use of coal powered fishing boats.

The fishing was only a shadow of its former self. It was quite clear then that the island's mainstay was gone never to return. The depopulation began in earnest. Whole families left all at once, some going to Australia, to Canada and the U.S.A., while others found jobs and homes on the mainland.⁵⁴

The general isolation of the Ardnish peninsular and the advent of the railway has also been seen as a cause of the ongoing decline.

⁵² Source <http://www.moidart.org.uk/archives/landscapearchive.htm> Go Listen to the Crofters pp59

⁵³ Source: Lower Polish: a Township on the Ardnish Peninsula - A report for Scotland's Rural Past by the Moidart History Group

⁵⁴ Source: <http://www.scottishweb.net/articles/40/11/The-Story-Of-Island-Roan>

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The Peanmeanach bothy and the row of now roofless "black-houses" (traditional dwellings) stand on a pebble bar to the rear of a raised beach. Peanmeanach is the most modern building and originally had a slate roof. It was probably the post office at one time (it was - Ed). Before the coming of the Fort William/Mallaig railway (4 miles away) in the late 19th century, the sea was the main means of travel. After the railway the Peanmeanach area became relatively isolated and declined. Sheep, just visible on the grass of the raised beach, were removed from the Ardnish peninsula in c.1980 (Actually early 1970s- Ed) .⁵⁵

The majority of the NSA cannot be accessed by roads or vehicular tracks, in particular... The Ardnish peninsula. In the past, settlements were cleared to make way for sheep-farming, and crofts were created. Hence there has been considerable depopulation, as witnessed by the visible remains of houses and settlements. This can evoke the memory of a once-populated landscape where people are now largely missing. ⁵⁶

Impact of smallpox or similar epidemic

Oral history passed down from Miss Becher (who owned the Ardnish peninsula until the mid 1970s) and her factor suggested that the reasons for the decline was due to the isolation of the population, and that this isolation from external contacts, had left the population with little resistance to diseases such as smallpox or chickenpox, and the impact of an epidemic on the Ardnish population, caused a significant and sudden decline in the population, from which it never recovered. I can however find no hard evidence of an epidemic on Ardnish, and it is possible that this is not the reason for the decline, although the following quotes hints at such an epidemic, and there is definite evidence of smallpox being in the west coast in the mid nineteenth century, although definite proof of a smallpox epidemic on Ardnish seems to be elusive.

He mentioned an ancient graveyard at Meoble (near Ardnish – Ed) which has slate slabs on top of the grave sites. No-one seems to know exactly why this was done, which is strange – mention of a smallpox epidemic has been made but no confirmation of this has been found. ⁵⁷

The ship 'Lulan' left South Uist in 1848 with emigrants for Nova Scotia of whom about a quarter died of smallpox on board or shortly after arrival.⁵⁸

The last emigration from Moidart went to Australia and took place in 1852, when about five hundred went to Port Philip (now Melbourne)... I have heard one story of a ship which left for Australia with some of the Clan Ranald aboard, and smallpox breaking out claimed many lives. ⁵⁹

Impact of the First World War

It is widely believed that the first war often had a twin impact on the populations in rural areas, firstly a large number of males never returned, and secondly that those who did return had both seen and heard about other better ways of living. There is no memorial on Ardnish that lists the fallen of the wars, and therefore it is hard to establish the number of Ardnish residents (if any) who took the Kings shilling, never to return.

⁵⁵ Source: <http://www.geograph.org.uk/photo/290870>

⁵⁶ Source: <http://www.snh.gov.uk/docs/B699725.pdf>

⁵⁷ Source: <http://www.road-to-the-isles.org.uk/westword/march2002.html> Arisaig Historical Society - Comunn Eachdraidh Arasaig

⁵⁸ Source: <http://hebridesweb.wordpress.com/2007/10/26/the-lulan-voyage/>

⁵⁹ <http://www.moidart.org.uk/datasets/clanranpost45.htm>

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The following quote highlights the impact of the war and improved education on a similar remote population to Ardnish.

Education was advancing, and having been all over the world during the war years (First World War – Ed), the younger generation had been given an insight into what was going on elsewhere, and that sealed the doom of the island. It was the same all around the north and west coast of Sutherland. The young people were leaving to make a living elsewhere.⁶⁰

What the Clearances started, however, the First World War almost completed. A huge percentage of Scots were among the vast numbers killed, (Scotland lost over 147,000 men in World War One - 20% of Britain's losses while only being 10% of the total British population) and this greatly affected the remaining population of Gaelic speakers in Scotland.⁶¹

Impact of the “between the war years”

The impact of the economic downturn in the 1920's and 30's seems to have had a disproportionate effect on the Highlands, and in particular the younger community, many of whom turned their backs on the traditional crafting community, never to return, and the ongoing mass emigration continued after the first war.

In 1923...within a single week in April, 600 Hebrideans embarked on two Canadian Pacific liners at Lochboisdale and Stornoway, many of them taking advantage of the year-old Empire Settlement Act to secure subsidised passages to Canada.⁶²

In the past emigration had been seen as the answer to the problem of unemployment and this traditional remedy was seized on in the 1920s by thousands of desperate people. In the period 1921-1931 Scotland lost 400,000 of its population, or 8%, compared to only 0.5% in England. The Highlands suffered disproportionately as the collapse of the white fishing industry in the 1920s, and the decline in the demand for seasonal labour in agriculture, saw many Highlanders, mainly young, leave their crofts for a future elsewhere.⁶³

Impact of the Second World War

It is interesting that until doing the research for this book, I had never even heard of the speculation that the reason for the decline was the use of the peninsula by the Special Forces in the second war, and that the population was evicted so that Ardnish could be used for training. Having stayed with Mrs Cameron Head at Inverailort castle on many occasions, and as Mrs Cameron Head was living at the castle during the second war, I find it hard to believe that she would not have mentioned this in the many conversations that we had about Ardnish. I can recall that Mrs CH (as she was universally called), talking about how the occupants of the villages on Ardnish would barter the herrings for salt, and other goods, and that she used to get involved to ensure that they were not taken advantage of. I am sure that she would have mentioned the enforced clearance if this was the case, but perhaps she was sworn to secrecy, and rather like the Bletchley Enigma code breaking story, the truth has only recently emerged, after many decades of self imposed silence.

My grandfather was based at Bletchley during the second war, however he never discussed his work there, or even alluded to what he did, and only mentioned that he had been based there when I

⁶⁰ Source: <http://www.scottishweb.net/articles/40/11/The-Story-Of-Island-Roan/Page11.html>

⁶¹ Source: http://en.wikipedia.org/wiki/Highland_Clearances

⁶² Source: <http://www.history.ac.uk/ihr/Focus/Migration/articles/harper.html> Crossing borders: Scottish emigration to Canada by Marjory Harper, University of Aberdeen

⁶³ Source: A history of the Scottish people – Summary of Economy and Society in Scotland 1840-1940 http://www.scran.ac.uk/scotland/pdf/SP2_10Economy.pdf

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mentioned that I had driven past Bletchley on my journey to see him (and this was over 40 years after he was demobbed) prior to this we had no idea he was even based there, and it was just as if it had slipped out by him letting his guard drop temporally.

The rationing of paraffin and other goods caused additional hardship. In 1942 paraffin became very scarce, and the ration was cut to half a gallon per week per household, plus one candle and one box of matches, this must have had a real impact on living at Peanmeanach and Laggan, in the winter, where it is dark till half past nine in the morning and dark again by four in the afternoon. The small windows in the houses, would just have accentuated the problem, and it has been recorded that this had a negative impact on morale. It is probably not a coincidence that Peanmeanach was abandoned in 1942. As there was no electricity on Ardnish, and in winter paraffin lamps would have been the only real way of lighting a house effectively.

The rationed goods would arrive at Lochailort on a Thursday morning, having come from Glasgow. It was loaded onto a lorry and moved to the pier at Lochailort, where it would be loaded onto the mail boat, which would then ply down the loch carrying its precious cargo, for Ardnish, Roshven, Glenuig and the surrounding townships.

The following two extracts provide some more detail to the Special Forces at Ardnish and in Inverailort area.

During the second world war, the whole area, and the Ardnish peninsula, were cleared of inhabitants and became a secret base for Special Forces training starting in Inverailort House, where the first Commandos were trained, it was followed by the formation of the SAS, the SBS and the US Special Operations Executive, nowadays the CIA. Troops from Norway, Poland, the USA, Canada, Australia and Czechoslovakia were trained alongside British soldiers in Big Houses around the area.⁶⁴ The population of Polish declined for reasons common everywhere in the Highlands: poverty, hunger, lack of work, sheep and deer grazing destroying crops, and in Ardnish the situation was not helped by the second world war, when the entire peninsula was cleared of people to enable secret Special Forces training to be carried out.⁶⁵

It seems hard to believe that the Macleods were allowed to stay at Laggan on Ardnish, but all other occupants from Ardnish were evicted, however it is possible that this was due to some legal issue regarding the lease, again it is hard to believe that Miss Becher's factor would not have known the real reason, and thirty years after the event would have at least alluded to it.

Inverailort Castle was used as a base for the SOE during the war. When I used to stay there in the 1980s the ranks of the individuals allocated to each room were still stenciled on the doors. I have occasionally found the remains of second war munitions on the Ardnish hillside, as a more permanent reminder. Oral History recalls that a destroyer once visited Lochailort, although the journey through the two narrow channels must have been very tight. It was piloted by the mail boat skipper Post Ardnish.

Whilst there can be no disagreement that the population of Ardnish declined dramatically from several hundred in the mid 1800's to a relatively negligible population in 2010, the reasons for the decline are complex, it seems likely that a range of reasons combined to the overall decline, with the triggers to the decline being wide and various.

⁶⁴ Source: <http://www.thecartbarnroshven.com/main>

⁶⁵ Source: Lower Polish: a Township on the Ardnish Peninsular: A report for Scotland's Rural Past by the Moidart History Group December 2010

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Further desk research in the parish archives would be required to establish if there was an epidemic or if there was a general evacuation of Ardnish due to the Special Forces being based at Inverailort. It is possible that both of these explanations are merely convenient and simple explanations, that seem to be both credible and logical, given the dramatic decline of the population. It is possible that the ongoing decline was part of a general long term trend, however, the simple quick fix explanation, is sought as it is a simpler and more convenient answer.

The everyday lives of the people of Ardnish from 1900 onwards

There are very few records of everyday life at Ardnish, however there are a few books written about life in nearby townships from the 1900 onwards. Smirisary was a very similar isolated community to Peanmeanach, its close proximity (about 5 miles) and very similar characteristics i.e. both could only be reached by the sea, or a walk of a few miles on a path. The following extracts written give a brief glimpse of just how hard life was, in the 1940's and how time consuming and fraught routine tasks were, from carrying water, to getting supplies such as coal and paraffin.

Water-carrying was heavy work, especially when one had a dairy, and a nuisance at the end of a long day, so that I toyed with various schemes for taking water to the house. But gravitation was impossible, rotary pumps an annoyance, and corrugated iron sheets for catching water an eyesore: and so I still walk to the well, and when a few years have passed, I shall forget that I ever considered anything else....Fuel was harder to get than water.

I had an occasional bag of coal, but transport difficulties made this a precious luxury. You would order say half-a-ton from the store at Lochailort, and a lorry would dump it at the pier head in a little heap, along with other little heaps belonging to other people. Here it would remain until you succeeded in begging, borrowing or stealing ten sacks. In due course, weather permitting, the store-boys would go up to Lochailort, fill the sacks, which were usually rotten and full of holes, and land them at either Glenuig or Samalaman boathouse. Should there be a storm or an extra high tide, they might be washed off the pier and you would spend the hours at low water gleaning lumps and dross from the sand and seaweed of the ebb. Those days are long gone and no one regrets them.⁶⁶

One area that has been completely lost, as it does not feature in any book is the local names of all the rocks, hollows, burns, places and features on Ardnish. The knowledge of these names has died with the former residents. The names would normally be in Gaelic, and would tend to be named after an individual or event associated with the area or feature. The names that remain tend to be islands and lochs or other large geographical features, such as Goat Island (Eilean nan Gobhar). One example is Woolpack rock, which is a large rock on the mainland that was used to land the wool from Ardnish. This is still in use today as the main and easiest launching and landing place for boats to and from Laggan and Peanmeanach.

Traditions

Alexander Carmichael composed a major book of Gaelic Songs or *Carmina Gadelica* which was published in 1899. His descriptions provide a rich insight into how life would probably have been like for the inhabitants of Ardnish, and the West coast.

The people of the Hebrides Carmichael wrote are:

"Are good to the poor, kind to the strangers, and courteous to all. During all the years that I have lived and travelled night and day, I never met with incivility, never with rudeness, never with vulgarity, never with aught but courtesy. I never entered a house, without inmates offering me food or apologising for the want of it. I never was asked for charity in the West (coast of Scotland - Ed), a striking contrast to my experience in England, where I was frequently asked for food, for drink, for money, and that by persons whose incomes would have been wealth to the poor men and women of the West."

⁶⁶ Source: A spade in the Rushes by Margaret Leigh (first published in 1949)

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“The house of the storey teller is already full, and it is difficult to get inside and away from the cold wind and soft sleet without. But with politeness native to the people, the stranger is pressed to come forward and occupy the seat vacated for him by the houseman. The house is roomy and clean, if homely, with its bright peat fire in the middle of the floor. There are many present – men and women, boys and girls. All the women are seated, and most of the men. Girls are crouched between the knees of fathers or brothers or friends, while boys are perched wherever – boy like they can climb. The houseman is twisting twigs of heather into ropes to hold down thatch, a neighbor crofter is twining quicken roots into cords to tie cows, while another is plaiting bent grass into baskets to hold meal.”

*“The housewife is spinning, a daughter is carding, another daughter is teasing, while a third daughter, supposed to be working, is away in the background conversing with low whispers with the son of a neighboring crofter. Neighbour wives and neighbour daughters are knitting, sewing or embroidering. The conversation is general: the local news, the weather, the price of cattle, these leading up to higher themes – the clearing of the glens (a sore subject), the war, the parliament, the effects of the sun on the earth and the moon on the tides. The speaker is eagerly listened to, and is urged to tell more, but he pleads that he came to hear and not to speak saying:
“A chaid sgial air fear an taighe, Sgial gu la air an aoidh” The first story from the host, Story till day from the guest.*

Ardnish in fact, fiction and song

There are only a handful of books or publications that contain more than few sentences about Ardnish, (although there may be others waiting to be discovered!) these are:

- Mountain Footfalls by Ian Mitchell (Meercat Press)
- Study of Birds on Ardnish by the RAF Bird watching club
- Behaviour of Badgers by The Institute of Terrestrial Ecology (published 1977)
- Sheep study
- Nellie Macqueens pamphlet about returning to Peanmeanach
- Traditional song inspired by Ardnish, on the album called Crossing the Ottercops, the album cover discussed staying at Roshven before electricity

Ardnish was the setting for a series of childrens books written by Elinor Lyon.

Elinor Lyon who has died aged 86, was the author of nearly 20 books for children, written over a period of 30 years, which were successful in both Britain and the United States.

Most of her novels were set on the west coast of either Scotland or Wales and, in keeping with many children's books of the post-war period, featured enterprising young characters living largely unsupervised, and experiencing holiday adventures in remote and beautiful places.

Praised at the time by Walter de la Mare for her "complex plots and her lively English" and by the Boston Herald for her "exciting" stories, her "vibrant" characters, her "sharp" dialogues and for evocative descriptions that were "some of the loveliest to be found anywhere", the novels were not published as paperback editions and thus did not enjoy the same wide circulation as books by such authors as Enid Blyton, Malcolm Saville or Arthur Ransome.

Elinor Bruce Lyon, the eldest of four children, was born on August 17 1921 at Guisborough, Yorkshire. The family moved to Edinburgh where her father, Hugh Lyon, was Rector of the Academy before becoming headmaster of Rugby. Elinor attended Headington School, Oxford, and in 1939 began studying English at Lady Margaret Hall, but with the outbreak of war she left, after two terms, to join the WRNS as a radar operator.

She married Peter Wright, a young English and Classics master at Rugby, and lived within that community for 30 years until her husband's retirement in 1975. Their move to Harlech offered a different community experience, and Elinor enjoyed memberships of local institutions. It was during the Rugby years, juggling her roles as wife of a housemaster and mother of four children, that Elinor began writing: her first book Hilary's Island (1948) was written when she was confined to bed during her first pregnancy. From the restricted environment of a boarding school she drew on memories of holidays taken in wild and remote places as settings for her books.

Many of her novels comprise single adventures. But her best-known work is the series of 10 "Scottish" novels, featuring the characters Ian, Sovra and Cathie and set in the recognisable location around the Ardnish peninsula near Arisaig.

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Her astute observations of child and adult behavior enabled her to create engaging and believable characters whose sensitivities, knowledge and understanding were enriched and shaped by an awareness of the landscapes around them.⁶⁷

⁶⁷ Source: <http://www.telegraph.co.uk/news/obituaries/2446416/Elinor-Lyon.html#>

APPENDIX 1 – Review of the Theories of how and why vitrification occurred

There are numerous theories of how vitrification may have been achieved, these range from the use of some form of additive that increased the temperature, to alien involvement, with dozens of other alternative fringe ideas in between. It is however possible to group the various theories into the following broad categories:

- Alien involvement and other external influences
 - Nuclear war, lasers and other weapons
 - Time travelers, lost Civilizations and other alternative views of History
- Increasing the temperature by using additives
 - Greek fire
 - Other additives e.g. salt
 - Creating tar from peat
- Other options that would also increase the temperature
 - Using storms to fan the flames
 - Controlling the air to fuel ratio
 - Using woods with a high burning temperature
 - Using smaller rocks on the outside of the fort, which are easier to melt
 - “Importing” rocks from other locations, to use for the exterior of the fort (these rocks would have a lower melting point, than the surrounding rocks)
- Natural phenomenon
 - Lightening
 - Volcanic action
 - Plasma discharge
 - Meteor or other aerial explosion
- Other explanations
 - Lower melting temperatures required than currently believed
 - The construction without The
 - Regular firings rather than a one-off vitrification
 - Continual stoking the fire until vitrification occurs
 - A whole host of other fringe explanations, some possible but many highly improbable ones too!

Alien involvement, and other external influences

Vitrification of brick, rock and sand may have been caused by any number of high-tech means. New Zealand author Robin Collyns suggests in his book, Ancient Astronauts: A Time Reversal? that there are five methods by which the ancients or "ancient astronauts" might have waged war on various societies on planet Earth. He outlines how these methods are again on the rise in modern society.

The five methods are:

- *Plasma guns*
- *fusion torches*
- *holes punched in the ozone layer*
- *manipulation of weather processes*
- *release of immense energy, such as with an atomic blast*

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As Collyns's book was published in Britain in 1976, the mentions of holes in the ozone layer and weather warfare seem strangely prophetic⁶⁸

The eminent scientist and writer Arthur C Clarke was once asked "What's the most baffling thing you have ever investigated"? He replied, "The oddest thing is these vitrified forts in Scotland. I just thought 'How the hell?' After all, lasers weren't common in the Stone Age." To understand his incredulity, we need to understand what a vitrified fort is, and how they defy description by scientists and archaeologists. Do they point to high civilisations lost in the myths of time? Do they point to intervention in our past from forces out with our planet? Both are plausible and at times, the only answers we can come up with for this enduring mystery. ⁶⁹

There are over 100 vitrified forts scattered throughout the world dating from the Stone Age onwards, some in France, Germany, Spain and Italy, there's even one in Iraq, but by far the majority are to be found in Scotland. Over 50% of the world's known vitrified forts are in Scotland and they number between 60 and 70. But what is a vitrified fort?... The obvious choice is that the forts have been vitrified by an attacking force. This leads us to the major problem confronting scientists and archaeologists however, as Clarke noted, "The temperatures required to vitrify the entire fort structure in-situ are equal to those found in an atomic bomb detonation." No known method for vitrification of such large scale objects has ever been discovered in pre-modern history. Archaeologists have tried to reproduce the process but without success, they have 'vitrified' small sections of forts but nothing on the scale of an entire fort and concede that it appears impossible. Could the forts have been attacked by technology 'not of this earth'? It really does seem like the only answer, but it almost goes without saying that no such record of an attack exists, and certainly no such record of technology which could produce these temperatures has been recorded. Or has it?

It's a huge leap of the imagination but nuclear/atomic weapons have been described in historical writings - The Mahabbarat describes one of the Gods (who was responsible for a 'race' of people) as using what can only be interpreted as a laser to 'heat' ground based objects to super high temperatures and 'fusing' them as a sign of his displeasure...I stress this wasn't lightning which was well documented and understood - this was a 'light beam'. Curiously Robert Oppenheimer, creator of the atomic bomb, chose to quote from these same Indian writings when discussing his first nuclear detonation. Even more remarkable was when he was asked if - the nuclear explosion he oversaw was the first? his reply was - "Yes, in modern times" ⁷⁰

The combination of Arthur C Clarke's comments, combined with the inability of archeologists to recreate anything more than a limited vitrification, has created a large number of conspiracy theorists, and the following quote provides a very succinct summary of why so many alternative theories exist.

Vitrified forts are one of the strongest pieces of evidence on the surface of the earth, for an 'alternate' view of history and the development of human society. ⁷¹

The following two extracts from the internet provide some of these alternative theories.

Vitrified Forts blasted by laser and nuclear activity scatter the globe and are found in Moray in Scotland - the land of the giants - at the Center of the universe - eastern Scotland. ⁷²

⁶⁸ Source: http://www.bibliotecapleyades.net/ancientatomicwar/esp_ancient_atomic_01.htm

⁶⁹ Source: <http://www.planet-flipside.com/index.php/ancientlink/71-vitrified>

⁷⁰ Source: www.planet-flipside.com/index.php/ancientlink/71-vitrified

⁷¹ Source: <http://highstrangeness.net/index.php/ooparts-news/100-vitrified>

⁷² Source: http://www.bibliotecapleyades.net/vida_alien/alien_watchers11.htm

The Vitrified forts of Scotland, which are of pre-Roman origin, yet appear to have walls of melted stone which would have required immense heat. Some people argue that these examples and others show that there have been careless time travelers and show that "temporal secret agents" have been here on containment and damage limitation missions. These are said to be the smoking guns of the ultimate conspiracy theory. ⁷³

Increasing the temperature by using additives

One possible way of increasing the temperature so that the rocks would “fuse,” is using an additive that increased the temperature of the burning wood. Several possible additives have been suggested, and these range from salt to “Greek Fire” which may have contained pitch, tar or other alternative additives, that burned at a higher temperature. Other additives such as sulphur, lime, resin, phosphorus etc are also mentioned.

Since John Williams - one of the earliest of British geologists, and author of The Mineral Kingdom - first described (vitrified forts), in 1777...the method by which the fusion of such extensive fortifications was produced has always excited much interest and conjecture. Williams, when he first directed attention to the subject, maintained that the builders of the forts, whoever they were, found out, either during the process of smelting bog-ore, or whilst offering sacrifices, the power of fire in vitrifying stone, and that they improved upon this discovery by using it for the purpose of cementing and strengthening their strongholds. ⁷⁴

While incendiary weapons had been in use for centuries (petroleum and sulfur had both been in use since the early days of the Christians) Greek Fire was much, much more potent. Very similar to our modern napalm, it would adhere to surfaces, ignite upon contact, and water alone would not extinguish it's flames... it's hard to imagine that the method of creating a weapon as devastating as Greek Fire would be lost to the passage of time. But the recipe for this weapon was so closely guarded that within only 50 years of its invention, the knowledge was lost even to the original owners. ⁷⁵

The use of the mysterious Greek Fire to raise the temperature of the fire seems to be raised time and time again when the vitrification of forts is discussed, this is probably partly due to the mystery that seems to surround it, and that flamethrowers that used similar substances were mentioned in documents from 424BC onwards.

www.Wikipedia.com provides some background details on Greek Fire: Although the term "Greek fire" has been general use in English and most other languages since the Crusades, in the original Byzantine sources it is called by a variety of names, such as "sea fire, "roman fire", "war fire" "liquid fire", or "processed fire.")... "This fire is made by the following arts. From the pine and the certain such evergreen trees inflammable resin is collected. This is rubbed with sulphur and put into tubes of reed, and is blown by men using it with violent and continuous breath. Then in this manner it meets the fire on the tip and catches light and falls like a fiery whirlwind on the faces of the enemies... Incendiary and flaming weapons were used in warfare for centuries prior to the invention of Greek fire. They included a number of sulphur-, petroleum- and bitumen-based mixtures. Incendiary

⁷³ Source: http://www.all-science-fair-rojects.com/science_fair_projects_encyclopedia/Anachronism_and_time_travel

⁷⁴ Source: <http://www.libraryindex.com/encyclopedia/pages/cpxlwcgnla/vitrified-forts-walls-found.html#ixzz1Kk34MFPd>

⁷⁵ Source: <http://stronghold.heavengames.com/sc/history/greekfire>

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arrows and pots containing combustible substances were used as early as the 9th century BC by the Assyrians, and were extensively used in the Greco-Roman world as well.

Furthermore, Thucydides mentions the use of tubed flamethrowers in the siege of Delium in 424 BC. In naval warfare, the fleet of the Byzantine Emperor Anastasius I (r. 491–518) is recorded by the chronicler John Malalas as having utilized a sulphur-based mixture to defeat the revolt of Vitalian in AD 515, following the advice of a philosopher from Athens called Proclus.

There seems to be direct evidence that the pre-cursor to Greek Fire was in use approximately 400BC, which pre-dates the general consensus of the age of the vitrified forts. Many believe that Greek Fire was invented by Kallinikos, or Callinicus depending on the use of the Greek or Latin alphabet, a refugee from Maalbek (or Heliopolis), in the seventh century (673 AD).

Greek Fire was the secret weapon of the Eastern Roman Emperors. It is said to have been invented by a Syrian Engineer, one Callinicus, a refugee from Maalbek, in the seventh century (673 AD). The "liquid fire" was hurled on to the ships of their enemies from siphons and burst into flames on contact. As it was reputed to be inextinguishable and burned even on water, it caused panic and dread. Its introduction into warfare of its time was comparable in its demoralizing influence to the introduction of nuclear weapons in our time.

Both Arab and Greek sources agree that it surpassed all incendiary weapons in destruction. The secret behind the Greek fire was handed down from one emperor to the next for centuries. Rumors about its composition include such chemicals as liquid petroleum, naphtha, burning pitch, sulphur, resin, quicklime and bitumen, along with some other "secret ingredient". The exact composition, however, remains unknown.

For a thorough investigation of the weapon one can refer to Professor J.R. Partington's book, "A history of the Greek Fire and Gunpowder", Heffer, 1960. This volume quotes the ancient authorities extensively, with an excellent commentary. It also examines ancient and modern theories on the composition of the chemicals used in the Greek Fire. This is considered the most up to date source on the subject.⁷⁶

Greek Fire, tended to be used in battle, and was either squirted at the enemy via a tube device, or was launched by a catapult or other mechanism. It was said that the fire could not be extinguished, and even burnt underwater (possibly because it contained quicklime or phosphorus). It seems likely that it was a concoction of chemicals such as resin, pitch, lime, sulphur, phosphorus and other highly flammable liquids.

Given that the manufacture and use of Greek Fire was a state secret, with the manufacture and use being separated, restricted, and carefully controlled, as well as being divided up into a number of stages, with very limited contact between the people involved in the stages (on purpose to ensure secrecy), perhaps it's not surprising that we no longer know how to create Greek Fire.

An effort to replicate Greek Fire, for a television series called "Machines Time Forgot" in 2002, using a crude oil mixed with wood resins, achieved a flame of over 1,000 °C (1,830 °F) and an effective range of up to 15 meters (49 ft) when squirted. An adaption of Greek Fire could therefore probably have been used to increase the temperature, thereby causing vitrification, although there is no direct evidence that this technology ever reached Scotland.

⁷⁶ Source: <http://www.middle-ages.org.uk/greek-fire.htm>

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The following is a typical linking of Greek Fire with vitrification of the forts.

Could a form of Greek Fire have been responsible for the vitrification? While ancient astronaut theorists may believe that extraterrestrials with their atomic weapons vitrified these walls, it seems more likely that they are the result of a man-made apocalypse of a chemical nature. With siege machines, battleships and Greek Fire.

Fortunately for us, a formula for Greek Fire has survived through a passage from the Eighth Century book of Marcus Graecus, *Liber Ignium ad Comburendos Hostes* — a passage which has come down to us through a quotation by the Ninth Century Arabian physician, Mesue: Greek Fire is made as follows: take sulfur, tartar, sarcocolla, pitch, melted saltpeter, petroleum oil, and oil of gum, boil all these together, impregnate tow [i.e., the coarse or broken part of flax or hemp, prepared for spinning] with the mixture, and the material is ready to be set on fire. This fire cannot be extinguished by urine, or by vinegar, or by sand ...*

Flying fire may be obtained in the following manner: take one part of colophony [rosin], the same of sulfur, and two parts of saltpeter. Dissolve the pulverized mixture in linseed oil, or better in oil of lamium. Finally, the mixture is placed in a reed or a piece of wood which has been hollowed out. When it is set on fire, it will fly in whatever direction one wishes, there to set everything on fire.⁷⁷

The Greek Fire recipe included the following ingredients which are defined as follows:

- *Quicklime - Quicklime also known as calcium oxide (white, caustic, lumpy powder)*
- *Saltpeter - Saltpeter aka sodium nitrate is a type of salt which has long been used as an ingredient in explosives*
- *Bitumen - Asphalt and tar are the most common forms of bitumen. The city of Carthage was easily burnt down due to extensive use of bitumen in construction.*
- *Sulphur (Sulfur) - Sulfur is a soft bright yellow solid. Unlike most other liquids, increases with temperature due to the formation of polymer chains. Because of its flammable nature, sulfur also finds use in matches, gunpowder, and fireworks.*
- *Resin - Resin is a sticky liquid produced by most plants. Some resins contain Heptane which is explosively flammable*
- *Pitch - Pitch is a thick, dark, sticky substances obtained from the distillation residue of coal tar, wood tar, or petroleum and used for waterproofing*

Understanding the properties of the ingredients which were possibly included in the recipe or formula for Greek Fire explains why its exact composition was kept such a closely guarded secret.⁷⁸

other possible additional additives have also been suggested, these include salt and potash.

Additional chemicals such as sea salt may have also been used to increase the temperature of the process and to act as a 'flux' to help the rock join.⁷⁹

Other possible additives, such as potassium may have been used, and this could possibly be linked to the Fire Druids.

Certain Druids (in Ireland mainly but also in Scotland too) were called the Fire Druids. At Uisneach in Co. Westmeath they used to look after an eternal fire that was used to relight the fires of Ireland

⁷⁷ Source: http://www.freepyroinfo.com/Pyrotechnic/Black_Powder/Section_10.pdf

⁷⁸ Source: <http://www.middle-ages.org.uk/greek-fire.htm>

⁷⁹ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

after Samhain, but is that the only reason they are named thusly? Potash, if my chemistry serves correct would have been obtainable and is used as a source of potassium in explosives. Potassium does have a naturally high burning temperature. If the druids did indeed have advanced knowledge of chemistry, would they be able to perform vitrification as a "sign" from the fire God?⁸⁰

The episode of the popular BBC series Coast called the "Outer Hebrides", included a short reconstruction on the Isle of Lewis by scientist Mike Bullivant, from the Open University who re-created a Victorian experiment. By burning the peat in an enclosed space, a tar residue was extracted, which would have had a high burning temperature. This is possibly the sort of relatively simple technology that could have been used to create tar or other types of crude oils with a high burning temperature.

The following two comments seem to discount the possibility that Greek Fire was the cause of vitrification.

Did the attackers possess a fire-based weapon that we no longer understand? Did they have something similar to modern napalm? Had they discovered a toxic mixture of flammable chemicals (the recipe a closely guarded secret that has since been lost) that could generate enormous temperatures and could not be extinguished?

The classical ancients mention Greek Fire that could be hurled and catapulted at the enemy, and would even burn under water. But whatever Greek Fire may have been, even if the accounts are not exaggerated, it is difficult to see how it could be used extensively enough to cause the amount and degree of vitrification seen in the forts.⁸¹

Other options that would also increase the temperature

There are several options that could have been taken to increase the burning temperature; these could have been used in combination with an additive to further increase the temperature.

By torching the fort in the teeth of a gale, the wind would fan the flames, and increase the temperature, although as recreations have proved (The Gordon Childe torching was undertaken in violent winds), this still did not increase the temperature enough to achieve anything but minimal vitrification.

It has been suggested that the correct wind conditions may serve to "fan" a fire, perhaps after the rampart had been set on fire during an attack, but it must be remember that for a furnace to reach these sorts of temperatures the fire is enclosed and the heat reflected in, an open fire stands little chance of reaching such temperatures without much greater amounts of fuel. ⁸²

There are several theories about how the fire could be concentrated onto the ramparts. These include using a covering of peat, and creating a superstructure to incorporating wood into the ramparts, so that the heat surrounded the walls or ramparts.

Vitrification took a great degree of planning and involved the collection of a large quantity of wood and other materials in order to create the desired effect. It is likely that a super-structure will have been erected around the rampart which had the effect of concentrating the heat onto the rampart so

⁸⁰ Source: <https://www.headheritage.co.uk/headtohead/tma/topic/4946/flat/10>

⁸¹ Source: <http://www.robertschoch.com/articles/schochvitrificationnewdawnspecialissuesept2010.pdf>

⁸² Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

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as to ensure an even application of the extreme temperatures involved.

<http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

The vitrified walls of the Scottish forts are invariably formed of small stones which could be easily acted upon by fire, whereas the outer ramparts where used, are not vitrified and are built of large blocks. Many of the continental forts are so constructed that the fire must have been applied internally, and at the time when the structure was being erected.⁸³

By controlling the air to fuel ratio, it is possible to achieve temperatures high enough to smelt iron, and this was being done in Africa well before the vitrified forts were created. By building some form of baffles, the builders (presumably not the attackers) could have increased the temperature was by altering the ratio of air to fuel.

To build hot fires, one has to remember two things, it is the combination of the fuel and oxygen that is creating the fire, and the best fuels present the maximum surface area to the air. We can understand the difficulty of reaching consistently high temperatures when we consider the effort required to turn iron molten - 1050 degrees, here bellows need to pump gusts of "wind" into a kiln, which is constructed to reflect the heat back into the furnace, the hottest kilns, use coal or coke, their granular composition combined with the forced air flow serve to maximise the air to fuel ratio. Clearly, the concept of a wall constructed with heavy timber beams, separated by layers of rock, reaching such extreme temperatures is difficult to imagine.⁸⁴

Certain woods burn at much higher temperatures than others, Oak for example is reasonably plentiful in the surrounding area, burns at a higher temperature than other soft woods (e.g. pine) that also grow nearby. Wood when dried for a year or two tends (seasoned) to burn better (and hotter) than most newly cut or wet wood, although there are some exceptions. By using well seasoned wood, possibly with an additive as well, a higher temperature could be obtained. It seems likely that the Ardnish settlers of two or three thousand years ago, given their close relationship with fire, would have been well versed with the types of woods that were likely to burn best and hottest and therefore more likely to keep them warm, as well as those that were likely to spit and possibly cause fires in the thatch or elsewhere.

Opinion seems to be divided about how old the following rhyme about which type of logs burn best (and worst) is, and this is further complicated by there being several variations. Some believe that it is an ancient traditional rhyme, whilst others believe that it is a fairly recent, as the following two quotes show.

Wood as fuel has been so important for so long that it's understandable that some long-gone poet would have fashioned these lines extolling the virtues or warning of the deficiencies of our various species. There are a number of versions of this poem from both sides of the Atlantic, but invariably the last couplet is as follows:

*Ash wood wet or ash wood dry,
A king will warm his slippers by.⁸⁵*

This charming, but not very accurate, poem about the supposed burning characteristics of different woods occurs in several versions. Softwoods and hardwood are different, but, beyond that, it is how

⁸³ Source http://en.wikipedia.org/wiki/User:Salmanazar/Personal_Sandbox

⁸⁴ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

⁸⁵ Source: http://northernwoodlands.org/articles/article/the_long_view8

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wood is grown and seasoned which makes the big difference. We've never been able to trace the origin of the poem, though we suspect it is pretty modern. ⁸⁶

Beech wood fires burn bright and clear
If the logs are kept a year
Store your beech for Christmastide
With new holly laid beside
Chestnuts only good they say
If for years 'tis stayed away
Birch and fir wood burn too fast
Blaze too bright and do not last
Flames from larch will shoot up high
Dangerously the sparks will fly
But Ash wood green and Ash wood brown
Are fit for a Queen with a golden crown

Oaken logs, if dry and old
Keep away the winters cold
Poplar gives a bitter smoke
Fills your eyes and makes you choke
Elmwood burns like churchyard mould
Even the very flames burn cold
Hawthorn bakes the sweetest bread
So it is in Ireland said
Apple wood will scent the room
Pears wood smells like a flower in bloom
But Ash wood wet and Ash wood dry
A King may warm his slippers by

Importing stones from nearby

There is some clear evidence that smaller rocks with a lower melting point were sometimes used to cover the walls of the forts, and that they may have been “imported” from other areas, to ensure the vitrification process, used rocks with a lower melting point, as the following quote highlights.

In some cases, where the local rock would not easily vitrify imported rock such as sandstone was brought in and used to provide a melted frontage to the rampart. ⁸⁷

Hamilton describes several sites in detail, including Arka-Unskel, which he found that the rampart of local Gneiss was covered with imported feldspatic sandstone in order to create the vitrified effect. This method found also in the vitrified fort of Dun Mac Snuichan, on Loch Etive. ⁸⁸

Natural phenomenon

Perhaps the causes of vitrification could be due to a natural phenomenon, such as lightening, as the following comments highlights:

It's quite feasible that the builders of vitrified forts induced the lightning via rudimentary lightning rods... a lot of these forts are high up on hill tops. And surely, ancient man has seen how lightning strikes trees... A few tall timbers in the right place, and a few seasons later, you got a vitrified fort. ⁸⁹

Although other comments on the same website point out that the occurrence of lightning in Scotland would be far less frequent than in other areas which have no vitrified forts.

There is one strong argument against it however...the location of the majority of the forts in Scotland. Scotland is not noted for lightning. One would expect to see the greatest number of vitrified forts in areas with warmer climates where lightning strikes are common. In the Highlands of Scotland where most forts are - they are lucky to get one lightning storm per year and even then they

⁸⁶ Source: <http://www.soliftec.com/fascinating.htm> (Solid Fuel Technology Institute)

⁸⁷ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

⁸⁸ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

⁸⁹ Source: <http://highstrangeness.net/index.php/ooparts-news/100-vitrified>

*are highly localised and not particularly powerful. To vitrify a fort in the Highlands using lightning could take a very, very, very long time!*⁹⁰

The likely temperature of a lightning bolt ranges from 15,000 to over 60,000 degrees Fahrenheit, or many times the temperature of the surface of the sun, which is enough to vitrify rock. The old adage that “lightning never strikes twice”, would perhaps make this theory unlikely, and when combined with the lack of vitrified forts, or any other vitrified material in areas with much higher instances of lightning (e.g. the Tropics) it seems unlikely then that repeated lightning strikes are the cause of vitrification, unless the climate two or three thousand years ago in Scotland was very different from today, and perhaps the vitrification occurred gradually over a long period, rather than the “immediate vitrification” from one single act, that we probably tend to graduate to.

Some of the very earliest explanations of vitrified forts surmised that they were caused by volcanoes, which are now extinct. These views are no longer taken seriously by scientists.

The following two possible theories come from a geologist (Robert M Schoch PhD), and whilst both are not in the mainstream of opinions, they seem to be well balanced suggestions.

Lightning is actually a type of plasma phenomenon. Plasmas essentially consist of ionized gases or charged particles, and together with magnetic and electric fields, they ubiquitously pervade interplanetary to intergalactic space. The aurora borealis and australis (northern and southern lights) are plasma related phenomena, as are large-scale upper atmospheric phenomena known as sprites. There is evidence that in the ancient past the surface of our planet was occasionally subjected to major plasma events. These may have taken the form of huge electrical outbursts with electric “sparks” or “lightning” that hit the surface, incinerating any flammable materials and melting and vitrifying the underlying rocks. The cause may have been plasma outbursts from our own Sun, or the close flyby of an electrically charged space object. We just do not know; but the forts sitting at high elevations could have served as lightning rods, attracting intense electrical currents that resulted in their vitrification

*As appealing as ancient nuclear weapons may be to some sensibilities, I have my doubts and as a geologist I tend to look for other, more naturalistic, explanations first. However, the evidence does suggest that the causative factor originated from the skies above. A possible explanation, which I have heard more than a few times from various people over the years, is that perhaps themid-air explosion of a meteor, comet, or asteroid, was responsible. Such an incoming space object (bolide) could create a tremendous blast in the atmosphere, generating intense heat and massive destruction over a widespread area, as was the case in Tunguska, Siberia, in 1908. The Tunguska object exploded with an estimated force of between 500 and 2,000 Hiroshima atomic bombs, scorching and leveling trees over a vast area, yet no major crater formed, perhaps because the explosion took place about 5 to 8 kilometers above Earth’s surface.*⁹¹

Other explanations

Some archeologists have suggested, that the temperature required to melt certain types of rock, is actually much lower than is often stated, although the experiments by Gordon Childe and Arthur C Clark (who subjected examples from over 10 forts to temperature testing do not seem to bear this out.

⁹⁰ Source: <http://highstrangeness.net/index.php/oo-parts-news/100-vitrified>

⁹¹ Source: <http://www.robertschoch.com/articles/schochvitrificationnewdawnspecialissuesept2010.pdf>

Vitrification is a chemical process by which silicate-based rocks are turned into a glass-like amorphous solid; calcinations is the loss of moisture, reduction or oxidation in carbonate rocks. Granite, basalt, gneiss or other silicate rocks begin to crystallize at temperatures about 650°C, and melt and vitrify when exposed to temperatures between 1050 and 1235°C. Biotite micas melt at 850°C. Carbonate rocks such as limestone and dolomite become calcined when exposed to temperatures of 800°C. Source: http://archaeology.about.com/od/vterms/g/vitrified_forts.htm

This analysis seems to directly conflict with the analysis of the melting temperatures of the rocks taken from the 11 vitrified forts in Arthur C Clarke television experiment.

The construction of the forts from “dry stones” without any earth, but with a wooden supporting structure, has been identified as a possible cause of vitrification, as the construction process itself would have assisted the vitrification process. The replication experiments by Gordon Childe would suggest that the temperatures were still not hot enough to achieve extensive vitrification, without some additional factor to raise the temperature.

Timber-framing of Iron Age hillfort stone walls and earthen ramparts is quite widespread in Europe and Britain but in most cases their destruction by fire does not produce vitrification. I suspect that the prevalence of the phenomenon in Scotland is explained by the use there of pure dry rubble in the wall cores, without any earth and other rubbish. In this case, when the fire in the superstructures took hold (accidentally or through enemy attack), and the high wall started to collapse, the already burning and partly carbonised beams became exposed to the wind and started what were in effect small blast furnaces in places, fusing and melting the adjacent rubble.⁹²

The following extract suggests that the vitrification process was not a one-off process, but occurred due to repeated (annual) burning, and also counters the idea that they were forts in the first place.

In our vitrified forts, too, it is possible that we behold a relic of the times and observances of Druidism. This is the likeliest solution of a problem which, after many attempts, still remains unsolved. We know that on a certain night of the year immense bonfires were kindled on the more conspicuous of our hill tops, and the whole country from one end to the other, was lit up with the blaze of these pyres. The intense heat of such immense masses of wood as were consumed on these sites year by year through a series of centuries, must, in process of time have converted the stones and rocks on which they were kindled into a vitrified mass.

The idea that these vitrifications were forts is barely admissible. They occur, with a few exceptions, on mountains which possess no strategic quality, and which were not likely to have been selected in any great plan of national fortification, supporting the natives capable of forming such a scheme of military defense. The undoubted hill-fortresses of Scotland may be traced by hundreds in their still existing remains, but these are of a character wholly different from the antiques of which we are now speaking. The site selected for their erection was some hill of moderate height, standing forward from the chain of mountains that swept along behind it and which overlooked the wide plains and far-extending straths which lay spread out in front.

The builders of these strengths, whoever they were, did not seek to fuse the materials with which they worked into a solid mass, they were content to draw around the mountain-tops, which they fortified, a series of concentric walls, broad and strong, constructed of loose stones, with ample space betwixt each circular rampart for the troops to maneuver. The vitrifications, on the other hand, are scattered over our mountainous districts, with no strategical line binding them together, and in

⁹² Source: www.themodernantiquarian.com/forum/?thread=5087&message=86782

the absence of any conceivable use to be served by them, which would compensate for the toil of dragging up their materials to the elevated sites where they are found, the annual occurrence of a religious observance which, year by year, during a very lengthened period, rekindled on the same spot immense bonfires, presents us with by much the likeliest solution of their origin. Other vestiges of this early and now fallen superstition are scattered over the face of the country, and a glance at these may help to bring back the image of the time, and strengthen the proof, if it needs further strengthening, that Druidism once dominated in Scotland.⁹³

The extract below counteracts the theory that the tops of forts could be vitrified by beacon fires, even if they were ongoing, over the years.

Some researchers have suggested that vitrification along the tops of fort walls was the result of lighting beacon fires. But it is odd that beacon fires would be intense and hot enough to vitrify the rock. And those forts that are vitrified continuously around the perimeters, does that mean beacon fires were built in continuous lines along the tops of the walls? This too seems odd; it would perhaps make more sense to build beacon fires at designated spots best observed by those who were intended to see the fires. Or were the tops of the forts purposefully vitrified to make a sort of walking path? ⁹⁴

The following extract published almost two centuries ago (1814) in the Transactions of the Geological Society, 1st series, vol. 2/On the Vitrified Forts of Scotland appears to be an updated version, but suggests as an afterthought that the vitrification may have been caused by continually stoking the fire until vitrification. This article then goes onto detail how it was still being done in India.

In the 12th vol. of Nicholson's Journal, p. 313, quoted from the report of a French engineer (M. Legoux de Flaix), describing a method of building practiced in Hindustan. In this process a wall of brick earth is erected, which is then surrounded by a coffer filled with combustibles. As the combustion proceeds fresh fuel is added, until the whole wall is baked into one solid brick. The coincidence of the effects of this actually existing process with those of one long since forgotten, seems to prove almost to demonstration, that similar means have been practiced in the ancient military works of Scotland to produce structures so analogous to those now commonly used in India, and that the "baking" of buildings in this country must be considered in the light of a lost art.⁹⁵

Summary

How the vitrification of the forts was actually achieved thousands of years ago, will probably remain an unsolved mystery, until a series of follow up experiments (similar to those conducted by an independent archaeologist such as Gordon Childe) are conducted. The additional analysis of rocks from many different forts to establish the melting points would also be required, however even this is probably unlikely to curtail the alternative theories and speculation from thousands of internet users.

Having reviewed all the options, my own opinion is that the vitrified forts were probably created by a combination of the options for increasing the temperature (e.g. burning oak etc) and also using some sort of additives or concoction (a Gaelic version of the Greek Fire). The process of vitrification was repeated hundreds of times across Scotland, so these additives must either have been available

⁹³ Source: <http://www.electricscotland.com/history/wylie/vol1ch12.htm>

⁹⁴ Source: <http://www.robertschoch.com/articles/schochvitrificationnewdawnspecialissuesept2010.pdf>

⁹⁵ Source: http://en.wikisource.org/wiki/Transactions_of_the_Geological_Society,_1st_series,_vol._2/On_the_Vitrified_Forts_of_Scotland

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in large quantities across Scotland (and in other Countries with vitrified forts as well), or have been relatively portable, so that they could be moved from other Countries or areas of Scotland.

The volatility of the individual components of Greek Fire, and the Greek Fire when mixed, must have made them very dangerous to transport, so the additives or basic ingredients were probably widely available across Scotland.

Plotting all the known vitrified forts in Scotland initially (and then across Europe) on maps that identified geological and other data (e.g. flora and fauna) would go some way to identifying the common threads potentially available additives at or near all vitrified forts. As one tends to associate the highlands with peat reserves, and as burning peat in a confined environment, creates pitch and tar, this would be a good starting place as a common thread.

Why were the forts vitrified?

The reasons for vitrification seems to revolve around either deliberate or accidental vitrification, and fall into these broad categories:

- Deliberate Vitrification
 - Vitrification as a defensive action whilst the fort was under attack
 - Vitrification to prepare the fort for an attack in the future
 - Belief that the fort would be stronger/harder to attack after vitrification
 - To stop the attackers firing the fort
 - The Fort was set alight by the attackers
 - During a battle
 - Once captured as a visible demonstration of victory and power
 - Dedication or christening a fort (with no attack imminent)
- Accidental vitrification either by the attackers or the defenders

The possible explanations for a deliberate vitrification seem to far outweigh the number for accidental vitrification, although once again, there are many theories as to why the fort was vitrified.

The analysis of vitrified forts has provided us with enough evidence to show that vitrification; in most cases at least, was a deliberate act. The analysis of vitrified forts has provided us with enough evidence to show that vitrification; in most cases at least, was a deliberate ac... There are some forts which have been placed on practically infusible rock, such as the quartzose conglomerates of the Old Red Sandstone, as at Craig Phadraig, and on the limestones of Dun Mac Uisneachain. In these examples, pieces of fusible rocks have been selected and carried to the top from a considerable distance demonstrating that the act of vitrification was deliberate.⁹⁶

Daubrée, in an analysis which he made on vitrified materials taken from four French forts, and which he submitted to the Academy of Paris' in February 1881, found the presence of natron⁹⁷ in such great abundance that he inferred that sea-salt was used to facilitate fusion again suggesting that it was a deliberate act.⁹⁸

⁹⁶ Source: <http://www.ancient-wisdom.co.uk/vitrified.htm>

⁹⁷ Natron is a naturally occurring mixture of sodium carbonate decahydrate. Historical natron was harvested directly as a salt mixture from dry lake beds in Ancient Egypt and has been used for thousands of years as a cleaning product for both the home and body.

⁹⁸ Source <http://www.ancient-wisdom.co.uk/vitrified.htm>

Vitrification as a defensive action whilst the fort was under attack

Firing the forts intentionally would assist the defending forces, and would signal to allies that the fort was under attack, and allow them to come to the defense of the fort (if they chose to do so). The firing of the fort would also give the defenders an advantage by silhouetting the attackers against the flames. The attackers would thus be more vulnerable and at a disadvantage at night, as the following quotes illustrates.

The Pictish and Celtic tribes of this period practiced guerilla warfare, that's ambushes, surprise attacks and night attacks. Of these the last was the most popular, more so after the Romans arrived and showed that daytime attacks against them were futile. The effect of night vision blindness is a tactical advantage that's hard to beat, imagine having just passed the big fire and gained entrance into the fortification, all you can see are shadows and all the people using the shadows are armed and can see you.

One man with good night vision is worth ten without and it takes 30 minutes to regain your night vision after looking at a bright light, that's 30 minutes they would have been at the mercy of the inhabitants. Calach is the last Scottish Chieftain to have attempted a day attack on the Romans in 80AD, after that it was all out guerilla war and the Romans retreated to the English border and stayed there. There they built a wall of their own.⁹⁹

This theory is interesting in that, often the fort is not completely vitrified. The vitrification has been limited to the parts of the fort that are most venerable to attack, and those parts which were impossible to scale (due to cliffs etc) have been left unfortified.

The walls are chiefly vitrified at the weakest points, the naturally inaccessible parts being unvitrified¹⁰⁰

Assuming that the fort was under imminent threat of attack, by firing the fort, just prior to the attack, this would have made the fort almost unassailable to an attacking force, as the following comment highlights.

Suppose the builder of such forts are under imminent attack from a larger force... we're looking at a large area to be defended. Consider the possibility that an engineer/mage/druid/smartass from the tribe or from another land has introduced the technique of Greek Fire (or similar). No matter how strong the ramparts or how numerous the defenders, the invaders may be in a position to storm the defenses and gain access.

If the builders/defenders, anticipating an attack have prepared the walls using flammable materials, when the tribe advances on the fort, torches could be used to ignite the walls - thereby creating A) an impassable sheet of flame B) and impressive display C) a fiery Beacon to warn neighboring forts/settlements D) Light to see by during a night attack E) hot slippery walls which would be difficult to scale.¹⁰¹

Vitrification to prepare the fort for an attack in the future

Whilst historians used to argue that the vitrification process strengthens the walls, it is now generally acknowledged that the walls would be weaker once vitrified, although the people that

⁹⁹ Source: <http://forums.randi.org/showthread.php?t=170047>

¹⁰⁰ Source: <http://www.1902encyclopedia.com/V/VIT/vitrified-forts.html>

¹⁰¹ Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

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vitrified the forts several thousand years ago may well have seen vitrified forts as stronger, and more impenetrable.

Some antiquarians have argued that it was done to strengthen the wall, but the heating actually weakens the structure. Source: http://castlelist.com/Vitrified_fort

As the fort would have been constructed out of loose rocks, there would have been a need to enclose the smaller rocks with wooden supporting timbers, to maintain them in position. There may have been concerns that an attacking fort would try to torch the fort. By setting fire to the wooden supports intentionally, this would deprive the attackers of the chance of setting fire to the fort, and thereby gain an advantage.

*It may be that a fort could be 'dressed' by vitrification ready for battle, but this vitrification was not specifically intended to strengthen the defenses of the fort.*¹⁰²

The Fort was set alight by the attackers

It is possible that the fort was set alight during the battle, as part of the storming tactics, the walls would have contained wooden supporting structure, which could have been set alight by the attacking forces.

*The obvious choice is that the forts have been vitrified by an attacking force.*¹⁰³

Another theory, states confidently that the fort would have been vitrified as a visible demonstration of the transfer of power to the captors, and also probably the later destruction and ransacking of any shelters in the vitrified fort.

This theory seems to have some strong archeological support. Following the excavation of the vitrified hilltop of Abbey Craig, the Archaeology Officer Murray Cook, from Stirling Council concluded that it was a deliberate vitrification following the sacking of the fort; this conclusion is partly due to the fact that it has subsequently been rebuilt, shortly after vitrification.

The fort could have been one of the main centers of the Gododdin, a Brittonic people who lived in northeast England and southern Scotland. Part of this tribe formed the kingdom of Manaw, which local place names such as Clackmannan and Slamannan suggest could have included the area around Abbey Craig. But this high-status settlement also appears to have come to a dramatic end, destroyed by a fire so intense that its stones fused together. Murray Cook said this process, called vitrification, only occurs when stone is heated above 1000 degrees centigrade for an extended period of time.

He said: 'The fire would have burned for days and days, and there can be no question as to the process being deliberate. This would have taken central planning, large quantities of wood and a substantial workforce. The smoke would have been visible for miles, and at night the bonfire could have been seen from even further away. It would have been an enormously visible and powerful statement.'

Stone vitrifies when expose to intense heat for an extended period of time. Murray Cook added that there were two possible causes for the fire; either the inhabitants had started it themselves as some

¹⁰² Source: <http://www.brigantesnation.com/VitrifiedForts/VitrifiedForts.htm>

¹⁰³ Source: <http://www.planet-flipside.com/index.php/ancientlink/71-vitrified>

kind of closing ceremony for a settlement that was no longer needed, or it represented the site being obliterated by an enemy force.

In this instance, Murray Cook believes the fort was destroyed by a hostile force as the site was apparently refortified shortly after it burned down. He said: 'There is a second construction layer over the top of the first, which is not vitrified. This has not yet been explicitly dated but it seems very unlikely that a late hill fort like this would be refortified anything more than a generation or two later, if for no other reason than there are really no more hill forts after the 9th century. My interpretation is that the site was captured, destroyed by fire, and then refortified either by the victors or perhaps recaptured by the original inhabitants.

Battle damage is also unlikely to be the cause, as the walls must have been subjected to carefully maintained fires to ensure they were hot enough for vitrification to take place. Currently, the most popular suggestion is that the process was a symbolic demonstration of power, spectacularly removing the seats of a warrior aristocracy.¹⁰⁴

Dedication or christening a fort

The following comment suggests several possible reasons for vitrification, including dedication or christening a fort, that have been suggested by others, although the author then goes on to say that he does not find them very plausible.

At a loss to explain the reasons behind vitrification of the forts, one researcher suggested vitrification was a purposeful ceremonial or religious rite, despite the fact that the vitrification weakens the structure! Perhaps, according to this theory, vitrification was used to dedicate or "christen" a fort, or was an act of supplication to a deity, served to commemorate a victory or other significant event, or to simply inspire the masses. I cannot say that I find this theory particularly compelling.¹⁰⁵

Accidental Vitrification

There is a body of opinion that the vitrification process was accidental. The definition of accidental is important, as there seem to be two separate views. The first uses accidental as the vitrification itself being accidental (i.e. the vitrification process was not intended). This is usually seen as occurring at the end of the forts "useful life" or occupation. The fort would have been abandoned or sacked and then "torched" at the end of its life, and the vitrification was therefore an accident, and the vitrified fort as such was not actually ever used as a fort. The second defines accidental vitrification as the fort itself being fired by a "careless accident". Given the wide number of vitrified forts in Scotland, accidental (i.e. a careless accident) vitrification of a hundred or so forts seems relatively unlikely.

Several careful archaeological excavations have shown them to be badly burned examples of stone-walled hillforts which had timber framing incorporated within their cores. Accidental burning at the end of the site's occupation produced the fusing of parts of this rubble core.¹⁰⁶

In some cases, vitrification of timber-laced ramparts was done on purpose, to produce a more solid defensive feature. In others, vitrification was a result of an accidental or purposeful fire by people bent on destruction.¹⁰⁷

¹⁰⁴ Source: <http://www.riaanbooyesen.com/enigmas?start=3>

¹⁰⁵ Source: www.robertschoch.com/.../schochvitrificationnewdawnspecialissuesept2010.pdf

¹⁰⁶ Source: www.themodernantiquarian.com

¹⁰⁷ Source: http://archaeology.about.com/od/vterms/g/vitrified_forts.htm

Why were the forts created?

The following extract from an encyclopedia at the turn of the last century (long before the conspiracy theorist seem to appear) provides an interesting view that the vitrified forts were built as a defense against the Viking invaders.

A great antiquity has been assigned to vitrified forts, but without sufficient proof. Articles of bronze and iron have been found in the Scottish forts, while in Puy de Gaudy a Boman tile has been discovered soldered to a piece of vitrified rock. In a few of the German forts Prof. Virchow found some of the short logs of oak used as fuel in vitrifying the walls, and he concluded from the evenness of their cut surfaces that iron and not stone implements must have been used.

These results indicate that these structures are the products of a high civilization, and were possibly in use as late as the early centuries of our era. It has been suggested that they were built as temporary refuges against the invasions of the Norsemen in Europe. There is much in the situation and character of the forts which favors this supposition. This is especially the case with reference to the Scottish forts. Here the vitrified summits are invariably so selected that they not only command what were, as we learn from the sagas, the favorite landing places of the Vikings, but are the best natural defenses against attacks made from the direction of the sea-coast. In Saxony and Lusatia the forts are known as Schwedenfmrngen, and in the Highlands of Scotland as the fortresses of the Feinne—designations which also seem to point to an origin dating back to the times of the Vikings.

The Goat Island vitrified fort certainly fits into the best “natural defenses” category, and as we will see in the next chapter there is direct archeological evidence that the Vikings lived on Ardnish.

Conclusions

Even with advanced archeological tests and knowledge, pinning down how, why and when the vitrified forts were created and vitrified seems to be like playing a game of Cluedo with a labyrinth of rooms and half the cards missing. This has inevitably led to the large volume of speculation and alternative history views on the web.

There seems to be little agreement regarding the dates the vitrified forts were fired or created, except that they were no longer used or created after the 9th Century (due to the arrival of the Vikings). The reasons for vitrification are as hard to pin down as when they were vitrified, although the weight of opinions seem to that it was a deliberate act.

How the forts were vitrified seems to be the greatest mystery of all, and is probably unlikely to be solved in the short term, although I tend to favor the idea of some sort of locally sourced additives being used in parallel with other practical ways of increasing the temperature, such as burning dry oak logs (that burn at a higher temperature).

Torching the recently sacked fort would have been a powerful signal to all the nearby inhabitants that the “old order” had changed, and a “new order” was now in charge. Firing the fort intentionally to silhouette the attackers against the flames and ruin their night sight is a strikingly simple idea, and seems to fit in with the battle tactics at the time. This theory may goes some way to explaining why forts were only vitrified in the weakest points (and tend not to be completely vitrified).

These views are however are just “educated speculation” and until there are further archeological attempts at both analysing rocks from the forts, more accurate measurement techniques and

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attempting to reconstruct the vitrification process by for example the Time Team television series or similar, the speculation will probably continue unabated.

APPENDIX 2 – What would the people of Ardnish have eaten?

It is likely that the Ardnish population would have eaten similar food for centuries, and change would probably have been relatively slow.

The inhabitants of Ardnish are likely to have been much more keenly aware of seasonal foods, than our generation where most foods available from a single source – the supermarkets and with availability all the year round. The inhabitants of Ardnish would probably have been well aware when these seasonal foods were most abundant and where they were likely to be found on Ardnish, and the surrounding islands. This information would no doubt have been passed down through the generations.

The following quotation about growing up on Ulva early in the twentieth century, provides a good description.

“At different seasons of the year, as we rambled along the roads, through the woods and by the shores, we would emulate our hunter/gatherers ancestors, picking and eating as we walked, bramble berries, black, sweet and juicy, wild raspberries and sometimes the tiny sweet wild strawberries that grew in the ditches by the roadside. In Autumn we gathered hazelnuts from the copses and stored them till they were ripe and brown. We gathered whelks from the shores and boiled them in empty tin cans on fires made of dry bracken and twigs, eating the molluscs with the aid of my mother’s hatpins.”¹⁰⁸

The diet of the inhabitants of Ardnish could be broadly classified into food:

- foraged from the land and islands
- from the sea and rock pools
- from cultivated crops, fruit and vegetables
- from animal husbandry

Foraged from the land and islands

This would cover both meat from wild animals such seals, deer and rabbits that would have been available at certain times as well as both fruit and nuts. Whilst the following list is by no means exhaustive, it does show the range of food available.

Seals – which are fairly plentiful, would probably have been killed. The following description of seals, and when to kill (and play) with them comes from an island on the north coast of Scotland, but the same procedure was probably followed by the inhabitants of Ardnish.

During a short period at the beginning of October the men went seal hunting. That was the time of year when the seals had their young in the numerous caves around the island. After a fortnight the mother could take her youngster out to teach him the art of swimming and fending for himself. I remember as a boy, on fine sunny days, visiting the baby seals sleeping on the rocks around the island. We used to catch them with the greatest of ease as they had no sense of fear at that stage. We would carry them home in our arms to play with for a while. We tried to tame them but it never

¹⁰⁸ Source: Donald MacKenzie “As it was” (Sin Mar a Bha) An Ulva Boyhood

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proved successful. They would eat nothing but fresh fish, and that was not always obtainable. There were hundreds of seals around, and they could be shot and killed at any time of the year, but it was the bull which the islanders were after. Although the bull was always distinguishable from the female, he was never easy to catch. Even when shot he would wriggle into the sea and finally drown. The blubber of a drowned seal is always slightly tainted and would not preserve so well. Hence their reasons for catching them on dry land. The only time this could be done was when the seals were having their young.

The bull almost always attended his spouse at that time, and therefore could also be found in the cave. He could be killed with a club quite easily, but both the bull and the female could be quite dangerous when cornered. The bull, if not swiftly knocked out, would attack immediately. By properly organised expeditions, the islanders were able to get the seals they wanted. The blubber was melted down, put into bottles and used for the cattle and sheep throughout the winter. The islanders would also take a small drop of the oil themselves, and the older folk, to help their rheumatics, would rub some of the oil on the affected part, and would claim it was doing them good.

¹⁰⁹

Birds Eggs – The season for bird's eggs is reasonably short, but the islands and headlines around Ardnish would have provided a welcome source of nutrition, in the spring especially after a hard winter. In the mid 1950s a famous experiment with wild eggs was conducted by a Zoologist from Cambridge H.B. Cott. He assembled a tasting panel to try various different wild birds' eggs.

They were served scrambled, without any salt or pepper, and in true research style this was a "blind testing" with no indication of the species. The lucky panel then scored each scrambled egg from ideal (10 points) to 2 as repulsive and inedible (presumably 1 was left for poisonous!).

A mean score was produced which rated Lesser Black backed gulls as 8.3, Herring gull as 7.9, Guillemot as 7.7, whilst the Common Eider was only 6, the Gannett was 5.4. The Shag rated a lowly 4.4, which was rated between 5 (unpleasant) and 4 (off). As a market researcher for 25 years, the idea of a difference between 4 as off, and 2 as repulsive and inedible seems hard to establish (but I digress).

The inhabitants of Ardnish would not have needed to reference Cott's numeric scoring system to decide which eggs to take and which to avoid, it would probably have been passed down from one generation to another. The following account from near Ardnish gives a detailed account of the collecting process.

Across a narrow channel, fangles with skerries, lay two islets Glas-eilean and Eilan Coille...they were also the breeding-place of duck and black-backed gulls, and boats from Smirisary would visit them in May to gather eggs. Both islands were treeless and only a few feet above sea level, being covered with heather and incredibly lush green grass, fertilized by⁷ the sea spray and the droppings of birds. Above the tide-mark was a fringe of corn, chickweed, and other mainland plants whose seeds were carried out to sea by the floods. The nests, mere hollows scooped in the grass, were soon found and the large prettily speckled eggs collected in pails. Before leaving we would test them for freshness in a pool near the shore and all that failed to float were discarded. A fresh gull's egg is very good, much like a hen's only larger, and with no taste of fish. They should be boiled for a quarter of an hour.¹¹⁰

Berries – It is likely that the berries of the rowan, blackberries and blaeberrys would have been collected. The islands on Loch Doir 'a' Gherrain, have a heavy crop of blueberries (probably because

¹⁰⁹ Source: <http://www.scottishweb.net/articles/40/11/The-Story-Of-Island-Roan/Page11.html>

¹¹⁰ Source: A spade among the rushes by Margaret Leigh

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they are not grazed by the deer). Blackberries currently grow in the abandoned cottages at Peanmeanach and around the sheep fank at Ardnish.

Nuts – These would have been collected, dried and stored from Hazel and other nut bearing trees.

Mushrooms and Toadstools – There are a wide range of edible mushrooms and toadstools on Ardnish, and these would probably have been either gathered and dried or used immediately. These range from horse mushrooms, chanterelle to hedgehogs mushrooms.

Many other plants would probably also have been utilised, such as burdock etc

From the Sea and rockpools

Seaweed – Dulse and other seaweeds would probably have been eaten on a regular basis, often mixed with oatmeal to form a thick broth, as well as being washed and boiled and eaten as a vegetable. The Rev Landsborough noted in 1849 that Dulse "is a favorite ingredient in ragouts, to which it imparts a red colour, besides rendering them of a thicker and richer consistence." It would also have been used as remedy for ailments such as a poultice.

Prawns and Shrimps – are found in both the rock pools and inshore around the Ardnish coast, and would probably have been a welcome source of food in the winter.

Limpets – whilst often considered as a food of last resort, limpets would have been eaten if little else was available, and some reports suggested that in some areas of the west coast, limpets kept dozens of families alive in the winter following a poor harvest.

Shellfish and Bivalves (cockles, mussels, whelks, oysters, and scallops etc) – The old "dump" at Laggan (where John Macleod used to throw his rubbish up until the late 1960's) contained a fascinating insight into his diet (and probably the inhabitants of Ardnish for hundreds of years before this). A wide variety of shellfish remains could be seen into the late 1980's these were mainly scallop and oyster shells (which take a longer time to decompose), as well as mussel shells. Shellfish could be gathered by hand from the rocks and sandy shallows at low tides. I can recall a holiday in Arisaig in the early 1970's which coincided with a low tide. We collected over a hundred scallops in a few hours. We were very selective in those days - only selecting the very largest, and replacing the smaller ones in the sand, as we got the larger ones. I have never found a live king scallop on Ardnish, despite looking for 30 years, although I have found a few of the much smaller Queenie scallops, although now even these are now relatively scarce. Oral history has it that scuba divers from Glasgow cleared out the King scallop beds around Ardnish in the very early 1970s.

Native oysters can still be found at a low tide around the Ardnish peninsula. In the late 1970's I moved a dozen oysters to a new "oyster bed" on Ardnish. These have thrived, and I take great pleasure in collecting a few every year, and occasionally creating a "new" oyster bed, just in case the original "bed" is plundered, or dies out.

A wide range of fish would probably have been caught and eaten on Ardnish. Probably the most plentiful and best known on the west coast was the Herring, although Cod, Mackerel, Ling and many others would have been caught at different times of the year.

Herrings - Thomas Pennant, a Welshman journeyed north from Flintshire in Wales in 1769 and again in 1772, and his subsequent "Tours in Scotland" is regarded as the first major account of Scotland after the 1745 Jacobite rebellion. He noted that in Loch Fyne (South of Ardnish) 600 boats fished for

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Herring in the season that lasted from September to Christmas. The fishermen worked all night, four men to a boat, setting their nets across the loch. During the day the fishermen played bagpipes and danced, and some slept under the sails of the boat.

James Anderson published “An Account of the Present State of the Hebrides and West Coasts of Scotland” a weighty tome of 450 pages in 1785. His overall intention was to suggest improvements, provide statistics on the current situation and make observations.

Thomas Newte toured Scotland in 1785, the same year as Johnson and Boswell, and whilst Newte provided detailed descriptions of a fishing station at Loch Torridon (North of Ardnish), Johnson and Boswell make few comments on the Herring industry.

John Knox, an Edinburgh bookseller was however probably the most influential of the travellers. He set off to investigate, and his first book was grandly entitled “A view of the British Empire, more especially Scotland, with some Proposals for the Improvement of that Country, the Extension of the Fisheries and the Relief of the People.” Several other less weighty tomes followed, but the end result was the setting up of the British Fisheries Society in 1786, with the Duke of Argyll as president. They planned to build fishing villages especially in the Hebrides, to support viable fishing communities.

After the inland population had been forced under the threat of expulsion from their tenanted crofts during the Highland clearances (when absentee landlords favoured sheep rearing to human land cultivation), the suggestion was that these “displaced people” (at least those who did not emigrate to America and beyond) would be able to supply the workforce. Three settlements were initially built (in Tobermory in Mull, Stein on Lochbay and Ullapool on Loch Broom) although Knox had advocated forty settlements. Subsequent settlements in Wick (Pultneytown) thrived and within half a Century it was to become known as “the Herring capital of Europe.”

John McCulloch published in 1824 “The Highlands and Western Isles of Scotland” and provided detailed descriptions of a fishery at Loch Ranza in Arran:

The whole bay formed a beautiful sight when I saw it last, one fine evening in August, when it happened to be the rendezvous of the Herring fleet. The busses that were purchasing fish were at anchor in the loch, each with its flag flying and surrounded by boats delivering their cargoes, whilst some were running alongside, others hoisting their sails, the white topsails above displayed to dry, and the bright yellow hulls of the herring boats, with all their variety of brown and yellow and white sails, and with the smooth green sea below, reflecting every tint, formed combinations of colouring even more exquisite than those produced by the elegant forms of these boats, with their tall masts and pyramidal sails, dispersed and contrasted and grouped in every possible manner. Far away towards the Argyllshire coast, the sea was covered with a swarm of boats of all sizes and kinds, with sails of all shapes and colours, standing away towards Loch Fyne on every possible tack, and gradually diminishing in sight till they vanished under the distant land. The shore was another scene of life which served to complete the picture.

Other boats drawn up upon the beach, or ranged along the margin of the water, were delivering cargoes to the country people and to the coopers; the whole green beneath the castle being strewn with fish, and nets, and casks, while horses and carts and groups of people in motion, with the hum of their voices, and the hollow sound from the coopering of the casks re-echoing from hill to hill, added to the smokes of numerous fires employed in the cookery or in boiling the oil, rendered the

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whole scene of confusion, activity and bustle, contrasting strangely with the wild solitude of the mountains around, and the calm repose of the setting sun.

Herring-curing stations such as the one described were to be found in many distant parts of the west coast. Between the mainland of Skye and Loch Hourne, hundreds of boats landed their catch which was cured and then taken by boat to distant markets. What makes these places remarkable is that they were largely within inaccessible places, where the only way in or out was by sea. The Herring season was limited to short seasons, it thrived for short periods, and when the Herring moved on it stopped, as though it had never existed.

Salted Herring was considered ideal “slave food” due to its high salt content, that replenished sweat at work, and vast amounts were exported to the West Indies up until the abolition of slavery in 1833.

Is there much fishing in this loch now? A crofter from Lewis was asked by one of the Investigating Commissioners in 1894. “There used to be when herring came into it” he replied. “There is very little fishing except when there are herring” Do you know the reason why the herring are not coming in now?” “Providence” said the crofter, “the administration of the creator.”

To prepare the common Herring (often called the Silver Darling), it is usually salted or cured. If the Herring was for speedy consumption, a loose English or French salt could be used. The English salt mainly came from the Cheshire salt mines whereas the bulk of the French salt came from the Adriatic coast, where the sun was hot enough to evaporate the sea. If the Herring were to be stored for longer a stronger salt like Lisbon salt (from Setubal, just south of the City) would be used. Lisbon salt was famed for its whiteness, and large crystals, and was deemed ideal for salting Herring.

The Herring would be gutted and cleaned, rinsed in sea water and left to drain in woven baskets. They would then be placed into wooden barrels, sprinkled with salt and left for 24 hours. They would then be removed and once more allowed to drain. The final stage would be to pack them tightly into wooden barrels in layers, backs down, with crushed salt between every layer of fish, until the barrel was full. A weight would be placed on top of the fish to keep them in the brine. The barrels would be allowed to stand for a few days, with more fish being added as they settled. Once the settling process had finished, the barrels would be sealed, and then rolled daily and also turned upside down to ensure that the brine had fully penetrated the fish. Just prior to the shipping, the barrels would be opened, and topped up as necessary. They would then be ready for sale or bartering. Herrings were a rich source of proteins and minerals, especially iodine. A pound in weight has a 755 calories, compared to a pound of meat, which has 685 calories. By comparison a pound of potatoes has 370 calories, and a pound of milk 310 calories.

From agricultural crops

Behind Peanmeanach is what looks like a head dyke. This would be used to define and separate the area for hill grazing and the infield. The hill grazing would normally be “common ground” for all residents to use. This physical barrier would ensure that both the domesticated animals as well as any deer and badgers could not get easy access to the infield areas. The infield would have been cultivated and would probably have been divided up in some way, according to the rent that was paid by each household.

The crops associated with the West Coast tend to be Oats and Potatoes, although it is likely that other crops such as bere and turnips were also grown by some families.

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Oats - The traditional type of oats grown in Ardnish (along with the majority of the west coast of Scotland and the Outer Isles) would have been black or grey oats. These were a sturdy variety of oats that withstood the ravages of the winds. It was a “short” variety that did not grow more than very high, and was therefore more resistant to being flattened by the “summer breezes”. It is estimated that approximately five acres of land in the west coast would have been needed to feed a family (of five). Whilst oats was relatively low yielding crop, it had the advantage of it being resistant to the ravages of the wind, and therefore unlikely to be flattened, and causing second growth (where the oats is flattened, the seeds are dispersed into the ground, and they start to grow, thus making harvesting more difficult).

Potato - The potato became an increasingly common crop after 1760s and proved to be a high yielding crop that was able to provide food for a relatively large population, whilst occupying a relatively small acreage. At this stage the kelp gathering industry was gathering pace, and a large workforce was required to harvest the crop, this allowed the landowners employ the local population (who could then pay rent, in addition to the profits obtained from selling the kelp), who could live and survive (if only barely) on food grown in the local area.

Bere - (pronounced Bear) was an ancient grain, probably the oldest cereal still in cultivation. It is believed to have been brought to Scotland by the Vikings, and became a significant crop in the Highlands and Islands of Scotland due to being well suited to the climate, and maturing in a very short period, and being harvested earlier than other crops. It was sometimes known as “90 day barley” as it could be harvested 3 months after being sown. The name was probably adapted from the Norse for barley “bygge.” The Bere may well have been used to create whisky and beer. The straw would have been used for animal bedding.

There are several clearance cairns on Ardnish, one of the largest being on the peninsular in front of Laggan. The stones would have been cleared from the surrounding area and put into a central heap. The cleared ground would then be formed into lazybeds, which were a series of parallel heaped ridges a few feet wide, that would improve the drainage. Fertiliser of kelp, other seaweed, discarded fish, fish bones, and manure would have been used to improve the yield, and provide additional nutrients to the relatively poor soil.

From animal husbandry

Cattle would provide milk, butter and crowdy in the summer months. The butter, crowdie and cheese would have been preserved for winter by packing it in small wooden kegs.

Black Cattle - These were a small fairly hardy breed of cattle.

The cattle themselves were the precursors of today's Highland cattle. They were much smaller than most breeds today, probably not weighing much more than 5 cwt. (254 Kg). Descendants of the old Celtic oxen, they were and still are the hardiest of breeds and easy to handle. Until red/brown variants were exported from Glen Lyon in the mid 19th century, they were black. The gene for the red/brown colour proved to be dominant and this is now the colour of most of the breed in various shades.¹¹¹

The cattle would have been taken to the higher ground in the summer, and the women and children would also have moved to the shielding whilst they were in use in the 17th and 18th centuries. In the

¹¹¹ Source: <http://www.scotshistoryonline.co.uk/bridges/html/drovers.htm>

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winter months they would have been kept closer to the townships, possibly sharing the living accommodation with the human inhabitants. Where humans and cattle shared a black house, there would have been dividing partition of some sort. Providing winter fodder for the cattle was a significant problem, due to the shortage of hay etc. There is much evidence that by the end of spring the cattle would be so weak from lack of food that they could barely walk. The spare cattle would have been taken to market by drovers by using the “drove roads” that connected the major routes. Cattle prices were high at the turn of the 18th Century, and this would have been a major source of income.

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Source: www.vikingship.com and Google pictures

AP APPENDIX 4 – Maps and Charts of Ardnish

Prior to 1800 when most maps and nautical charts were relatively inaccurate, the Ardnish peninsular simply appears not to exist at all, and is subsumed into the general topography. Andrews' new and accurate travelling map of the roads of Scotland printed in 1783 marks both Polish and Ardnish as villages, although the peninsular is not clearly defined.

The West Part of Inverness Sh. Lochaber with all the Territories west from it / by H. Moll
Imprint: London : Bowles and Bowles, 1745



Source National Library of Scotland

Extract from A new chart of the West coast of Scotland from the point of Ardnamurchan to Cape Wrath. London : Laurie & Whittle, 1794.



Source National Library of Scotland

Andrews' new and accurate travelling map of the roads of Scotland
Imprint: J. Andrews and J. Harris London 1782 and 1783



Source National Library of Scotland

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Following the 1745 Jacobite rebellion, when the Hanoverian military leaders in Scotland were 'greatly embarrassed for want of a proper Survey of the Country' (John Watson, 1770, quoted in the Royal Scottish Geographical Society's, *Early Maps of Scotland to 1850*, 1973, p.105). The need for reliable maps which commanders could use to direct troops and plan campaigns, was quickly identified, as the following extract from the website shows.

Soon after his victory at Culloden, Cumberland successfully petitioned King George II (his father) for the Military Survey of Scotland and in 1747 Watson was instructed to begin work. He in turn delegated the primary practical responsibility to his Assistant Quartermaster, William Roy. Finally, through Roy's efforts and his promotion of the construction of a new three-foot theodolite by Jesse Ramsden, the accurate measurement of a base line on Hounslow Heath laid the foundation of the Trigonometrical Survey of Great Britain in 1791. This was later to become the Ordnance Survey.

Source: library of Scotland

Compared with similar maps both before and after 1755, the detail and accuracy far surpasses all the others, and many of the latter maps, in terms of detail. The townships are clearly marked, and it also details an additional two townships, East of Laggan, with the name of Theodlin, although this may be some other reference. There is certainly evidence of several houses in this area still visible, and a large area enclosed by stone walls.

Roy's Military Survey of Scotland 1747-55



Source National Library of Scotland

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By the mid 1850's the nautical charts and maps had improved dramatically, although the spellings still seem to vary considerably between maps. The Nautical chart from 1863 calls Ardnish "Ru Ardnish" Ru or Rue being another word for a point or headland, so at this stage Ardnish or Ru Ardnish could be roughly translated as point, peninsular, headland!

Ardnamurchan Point to Loch Bhreatail, Skye, including the Small Isles and Sleat Sound
London : Hydrographic Office, surveyed 1852 and 1863



Source National Library of Scotland

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Ordnance Survey Map of Scotland – Sheet 61 – Arisaig Publication Date 1855



Source National Library of Scotland

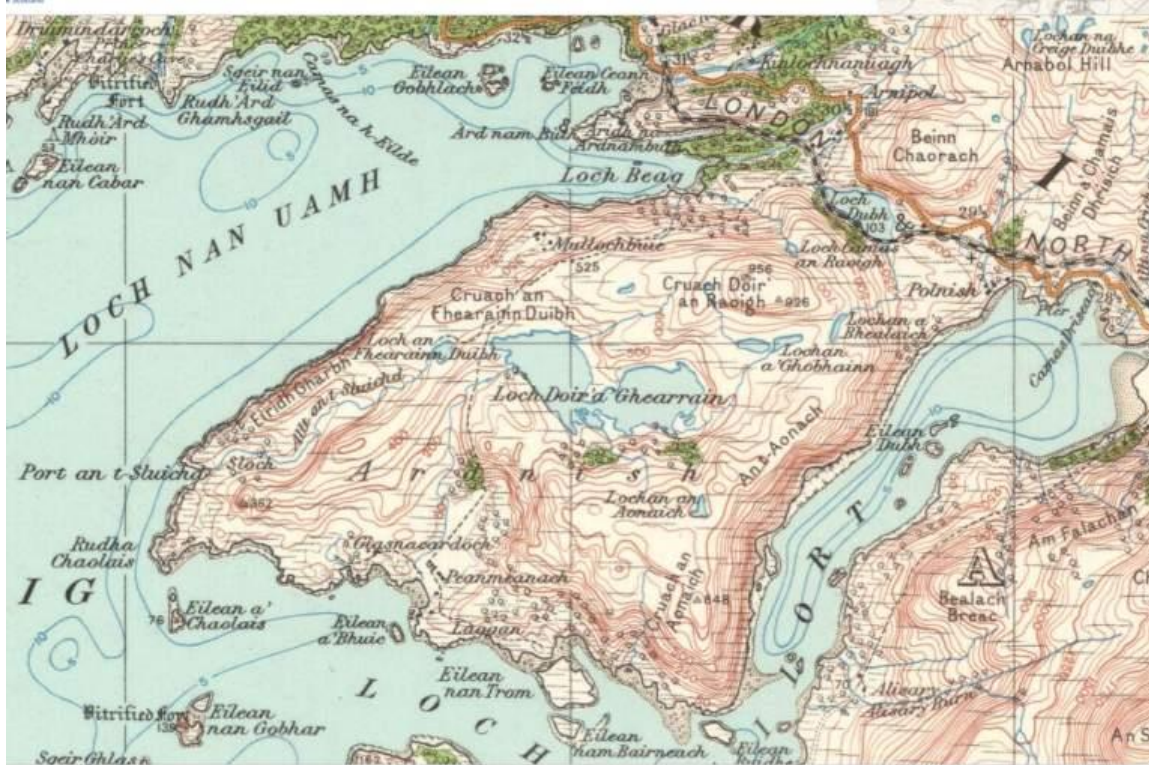
John Thomson's Atlas of Scotland, 1832 Northern Part of Inverness Shire. Southern Part



Source National Library of Scotland

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Ordnance Survey Maps One-inch "Popular" edition, Scotland, surveyed 1924-27, Sheet 46



Source National Library of Scotland

Bartholomew's "Half Inch to the Mile Maps" of Scotland, Sheet 14 - Arisaig and Rum Publication date: 1931

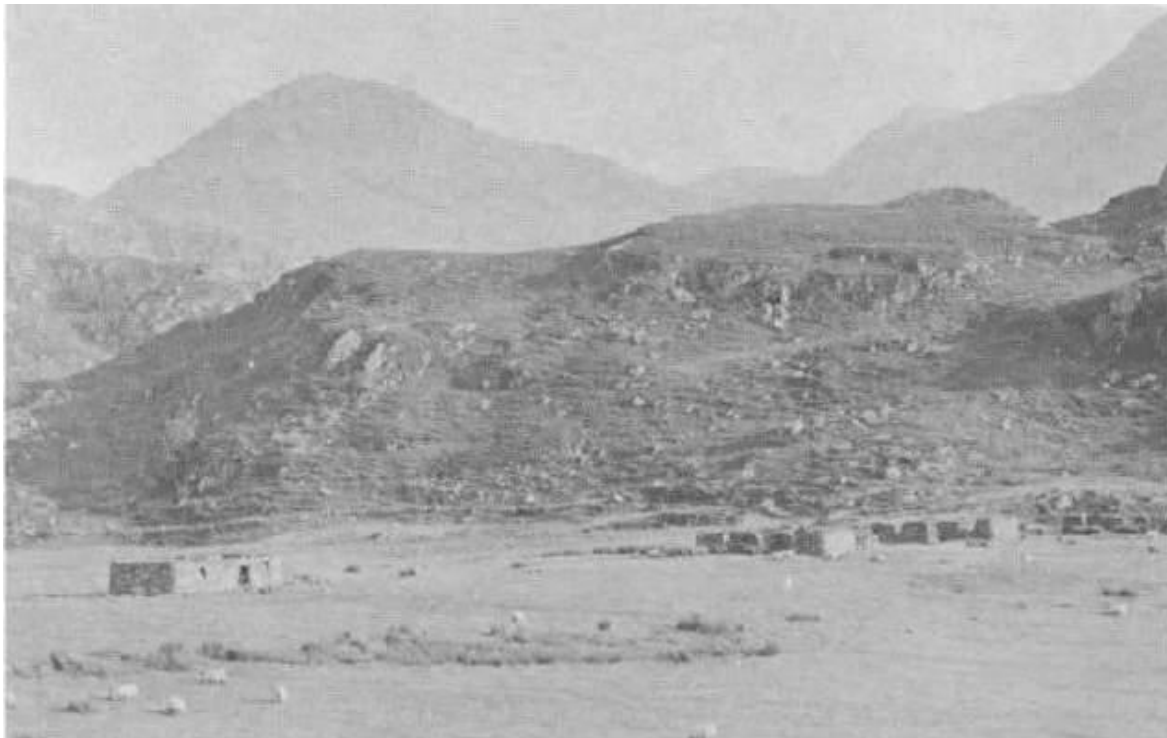


Source National Library of Scotland

APPENDIX 5 – Additional Photographs



Example of an isolated shieling near the coast between Slochd and Mullochbuie



Picture of the bothy circa late 1960s.