

# 1. An Eighteenth Century Innovation Meikle Corseford Lime Quarries & Mines

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## Introduction

The Barony of Corseford lies on the eastern edge of the Parish of Lochwinnoch. In the 18th century it was owned by William McDowall of Castlesemple. The farm of Meikle Corseford lies beside the old line of the Johnstone to Howwood Road (NS 411 611). Mapped evidence indicates old Lime Quarries on the farm. The main quarry survives as a central flooded pit surrounded by a jumble of mounds. After several visits it became evident that the overgrown quarry site contained a large number of early lime kilns. Historical records also revealed an innovative method of drainage.

The working of lime and coal has been carried out in the area on a small scale for centuries. This is evidenced by local names such as Coal House Farm and Lime Craig Park. When farming improvements commenced in the early 18th century, the demand increased greatly for lime, for use as a fertiliser and soil improver.

The working of lime at Corseford on a large scale commenced in 1776, when a partnership was formed between McDowall and the adjacent estate owner, George Houston of Johnstone. Such partnerships were the key to early industrial enterprises in Renfrewshire. George Houston had previous experience of lime quarrying. A plan of his adjacent estate in 1733 shows several lime quarries. Houston was to have the technical and managerial input at Corseford and was "empowered to engage men and erect engines and provide tools necessary for the works".

## Drainage

The key to working the Corseford lime was in finding a method of draining the quarries. The area is too flat for rain and groundwater to drain away naturally from a deep pit. The solution was provided by the Swinetrees Burn, which flows from the foothills of Walls Hill, through Meikle Corseford and onwards to the Black Cart.

It may seem a paradox to make use of water to drain a quarry, but this innovation was the key to the whole scheme. At least two other "water engines" had similar use on Houston's adjacent estate, at the beginning of the 18th century. These drained lime and coal pits, and were powered by the Floors and Elderslie Burns. By 1782 the quarry at Corseford was being pumped out by such a water engine. The water wheel was "curiously supplied with water conveyed a great way in wooden roans, and falling perpendicular upon the upper side of the great wheel". The elevated wooden channel (sketched on a survey of Castle Semple Estate dated c.1780.) extended west from the dam on the burn, initially via a lade which survives.

The process of quarrying limestone initially involved the removal of the rock and soil overlying the limestone seam. The limestone at Corseford was only 1.5 metres thick, thus in the central quarry area a huge volume of material has been removed to reach down to the seam. Space had to be found, usually within the bounds of the quarry, for tipping this waste. To save the labour-intensive operation of removing this material, the limestone could alternatively be mined. By 1812 the operations at Corseford had been extended to mining the limestone, from tunnels driven in from the quarry sides.

Today the Swinetrees burn has been diverted into the quarry by vandals. The rapid disappearance of the flood water may give an indication of the extent of flooded underground workings leading off from the quarry.

### **Draw Kilns**

Once quarried, the limestone had to be burned (calcined) to be suitable for spreading on the fields. In the west of Scotland there were two types of kilns used for this process.

The more substantial type was the stone-built "Draw" Kiln. A group survives south west of the site at Midtown (see Forum Journal Vol. 9). Many other Draw Kilns are indicated on maps of the immediate area, but have apparently not survived. With Draw Kilns, the lime and coal were added at the top in layers, and the burnt lime was drawn out at the bottom. The passage of one batch of lime from top to bottom through the kiln could take as little as two days. The lime burning was a continuous process and the fire was usually kept going for a whole season.

### **Clamp Kilns**

A much cheaper and more basic type of kiln was the "Clamp" or Horseshoe Kiln. This consisted of a simple U-shaped hollow dug into a slope. As with Draw Kilns, the lime and coal were added in layers, often with an additional layer of brushwood for kindling. The proportion of lime to coal depended on the skill of the lime burner and the quality of the local coal. A typical mixture with Clamp Kilns was one part coal to two parts limestone. Draw Kilns were more efficient and required less coal.

Clamp Kilns were lit and left to burn for up to two weeks, and the fire was then allowed to die. Once cooled, the mixture of burnt lime and ash was dug out. The large number of Clamp Kilns on this site would have allowed a continuous process to be carried out, with some kilns being filled, some burning and others being emptied.

In some seasons there was a large demand for the lime and the farmers competed to obtain a supply. Among some old Johnstone Estate Papers is a note advising a tenant to collect a load in July 1729: "The lime will be done this day, therefore I have sent this express, that you may order your tenant to load upon Monday morning early".

Although the lime working and burning at Corseford was on an industrial scale, it continued in parallel with farming. In 1790 the lease of Meikle Corseford farm permitted the agricultural tenant to quarry and burn lime on the farm for manure, but only for his own use. He was forbidden to sell or give any away.

Due to their friable nature, the survival rate of Clamp Kilns is much lower than for stone-built kilns. In fact examples of such Clamp Kilns in Renfrewshire are virtually unknown. On this site the number and preservation of the Clamp Kilns is remarkable. Twenty-seven have been identified (see plan). On investigation, the sides of the kilns are lined with slag and weathered fragments of shelly limestone.

In a survey of Lime Quarries in Scotland in 1833 the general consensus was that Clamp Kilns were inferior to Draw Kilns, for example at Duntocher quarry, "it is stated by the manager that there would be a great saving of both coal and labour, by having draw-kilns instead of clamp kilns, for beside the extra expense of burning (nearly one half) the clamp kilns require a great deal of cleaning out every time they are fired". However Clamp Kilns were still popular on several sites: "clamp kilns are preferred by many to the draw kilns on account of the slow and superior manner in which the stones are calcined; whereas the process of daily removing a quantity of lime from the draw kiln either hurries the operation or defeats it, bringing down the limestone before it is thoroughly calcined".

### **Hurlet Limestone and Coal**

The limestone worked here is the "Hurlet" limestone named after its occurrence at Hurlet, north of Barrhead. In 1837 Hurlet Quarry employed eight miners and two kilnmen. The work was on a smaller scale than at Corseford, and only ten Clamp Kilns were employed to burn the limestone.

The Hurlet limestone has two coal seams conveniently below it, which were worked to fuel the kilns. The value of limestone in the 18th century is illustrated by the fact that the coal was very much secondary to the limestone. This is evident in the original 18<sup>th</sup> century deeds, where it states that "none of the coal in the said ground shall be sold, but used utterly for burning the limestone". Three possible shafts within the quarry perimeter (A, B & C on figure) may be related to coal working to provide additional fuel for the kilns. Later in the 19th century the limestone and coal were mined from shafts which cover a more widespread area, and are still evident in the fields surrounding the quarry. Corseford Coal & Limestone Pit finally closed on 30th April 1886, when 29 miners were put out of work.

Today we find it hard to picture the lime industry. Two centuries ago lime burning was so widespread in many areas of Renfrewshire that it would have been taken for granted. The smoke from the Corseford kilns would have presented a well-known local landmark for decades.

Perhaps the interest generated by the visits to this site will allow it to be fully recorded, and hopefully preserved.

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### **References**

A preliminary visit was made to the site by Forum members in 1998. Two subsequent Saturday morning visits were made in February and March 1999. The preliminary survey in the figure is based upon additional visits by the writer. This article and the figure have been updated in light of further fieldwork and the rediscovery of Castle Semple Estate Plan by John Ainslie, dated c.1780, which shows the elevated lade.

Houston of Johnstone Papers (Glasgow City Archives Bundle TD 263/ 159-168).

Plan of Quarrelton Estate, 1733 (SRO Register House Plan 22280).

Plan of Newton Farm, 1749 (SRO Register House Plan 43558).

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History of the Shire of Renfrew, Semple W. & Crawford G., 1782, (p.262).

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