SKAITHMUIR MILL – A BARONIAL CORN MILL

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Late in 1987 the Falkirk Local History Society heard that the C Listed building of Skaithmuir Mill (NS 885 832) was threatened by demolition. In advance of this proposal J. Reid, G. Bailey and A. Bailey undertook a short survey of the structure. The building, which was demolished early in 1988, was L-shaped in plan, consisting of two separate structural phases set perpendicularly to one another.

Illus 1: Skaithmuir Mill in 1988 looking north.

The older block lay to the south in an east-west orientation. It measured 15.3m by 5.5m over the stone walls which were composed of random rubble with dressed quoins. The eastern gable, which faced onto the modern road, was finished with a crow-stepped skew which terminated at the wall head in ogival moulded skewputts. In the centre of the gable at first floor level a door aperture had been converted into a window. The wooden lintel, together with the absence of a threshold stone might suggest that this had been a secondary feature inserted when the roof was raised. Whilst it is possible that the door had been reached from a wooden forestair, it is more likely that it was from here that carts parked directly below were loaded and unloaded.

Illus 2: Skaithmuir Mill looking north-west, 1988.

The west gable had also formerly been crow-stepped, but this feature had been dispensed with when the roof had been raised. The lower part of the gable, 1.2m above the 1988 ground level, had been well constructed of coursed stone. It was evidently against this that the mill-lade and water wheel had lain, the superior construction being necessary to reduce damage by the infiltration of water. In the centre, at what was the ground level at the time of the survey, a hole had been bricked up. It would formerly have allowed the free passage of the drive shaft from the water wheel to the mill's geared machinery. In a large arc around this a series of shallow grooves had been cut into the

stonework. These channels were worn by the external iron cladding of the water wheel as it rotated. They represent a wheel of 5.28m diameter, centred approximately 0.2m below the ground level as shown on the elevation drawing. Within the arc formed by these grooves was a second series of elliptical rather than circular channels. Lying within the circumference of the water wheel, these represent the path taken by the pivoted buckets fitted to that wheel.

Illus 3: The West gable of Skaithmuir Mill in 1988 – Elevation Drawing and Photograph.

Such buckets were used on highly developed "scientific" overshot wheels. In this type of mill the water was led to the top of the wheel in a trough, evidence for which appears in the form of two rectangular holes or sockets which have subsequently been bricked in and which occur in the gable immediately above the channels worn by the water wheel. These sockets would have held the horizontal timber beams to support the trough, additional support being given by a brick arch at the north end of the gable, of which only the springers remained. Further confirmation is found in the report of 1800 which mentions "alterations on the Corn Mill trough".

The overshot wheel, where the water was fed from the trough onto the top of the water wheel, was introduced into Scotland in the post-Medieval period and by the eighteenth century most mills were of this type. It was more efficient than its predecessor, the undershot, making fuller use of the gravitational potential energy of the water. This efficiency was developed even further with the use of shaped and pivoted buckets. This later development must, however, be placed in the nineteenth century and so the large wheel represented by the evidence on the west gable cannot have been the original mill wheel.

After the foundation of the Carron Iron Works in 1759 the mill at Skaithmuir was in an opportune location for taking advantage of water-power technology. John Smeaton, the engineer, is reputed to have been the first person in Scotland to use an iron axle for a water wheel, which he designed for the Carron Works in 1769. He also experimented on numerous means of increasing their efficiency, through which the Carron Company and its properties benefited. Power was always of vital importance to the developing industries and the Carron Company kept abreast of any innovations.

The old corn mills tended to lag behind in such technology. In 1800 we know that a spur wheel was introduced at Skaithmuir Mill. This meshed with the pit wheel to drive two sets of stones or mills, one for corn and the second for barley. Although a late date for such a development, this was necessitated by economic and social pressures rather than technological. It is noticeable that the estimates of the work to be done in 1800 do not mention alterations to the water wheel which evidently provided ample power for the increased work-load.

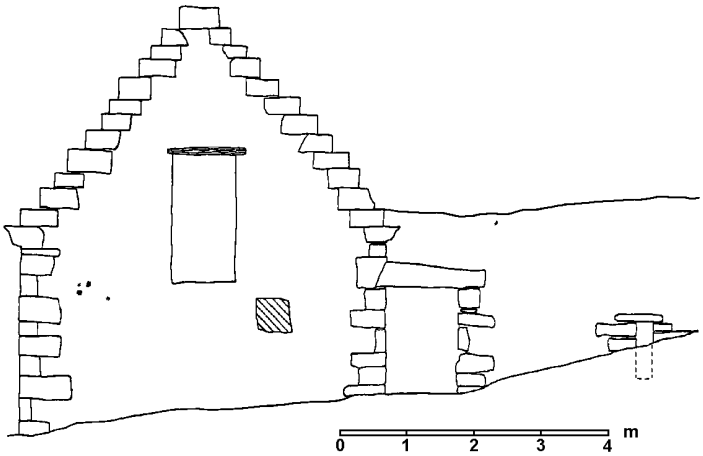
Illus 4: 1862 Ordnance Survey Map (National Library of Scotland).

The early emphasis on the efficiency of the water wheel probably arose due to the slightness of the fall of the Chapel Burn, and more particularly to the small quantity of water contributing to the flow. It was these obvious deficiencies that led to the statement in 1845 that "***Even** this streamlet is forced into the service of trade, and turns two mills in its course*" (Bonar, J. 1845). Undershot wheels required large amounts of water with a high rate of flow. If these conditions were not met the mill had to close for large lengths of time. The situation could be partially alleviated by throwing a dam across the burn to create a pond. However, the same pond could run an overshot wheel continuously. A plan of c1761 shows that the Carron Company's Black Mill, a little further down the Chapel Burn, had such a pond whilst the older corn mill at Skaithmuir did not (RHP 1497). This was probably more a question of scale of the two ponds than of the absence of this feature at Skaithmuir, for another plan of 1759 of Larbert refers to the stream as "Skemmer Miln Damm" (RHP 1531). By the time that the area was surveyed by the Ordnance Surveyors in 1859 the pond at Skaithmuir Mill was of a considerable size.

Returning to the mill structure as observed in 1988. 40cm above the top of the wheel two windows pierced the wall of the west gable, divided from one another by a rough stone mullion. Whilst serving to admit light into the building and ventilating the otherwise dusty atmosphere in the milling area, it is tempting to think that their location was partly dictated by the need to control the flow of the water through the trough. In any case it permitted the trough and water wheel to be inspected at a glance from inside the mill.

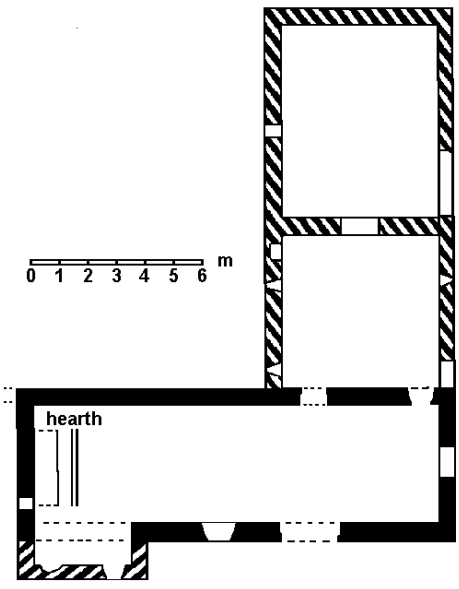
For closer inspection of the water wheel it was necessary to get right inside of it. This may have been the reason for having an opening in the gable set within the wheel arc, to the south and slightly up from the axle. The aperture measured 20cm by 26cm, and care had been taken to chamfer the arris, with neatly mitred corners. The central positions of the lintel and sill, together with the manner of execution, suggest that this ought to be an original feature. Below this opening, an irregularly shaped hole served as a flue for a later blacksmithing hearth. The stones in this area stained black from the exhaust.

As already noted, the roof had been replaced at some stage in order to increase the headroom on the first floor. The rake was shallowed slightly by building up the lower part with brick. On the east gable this was done on the inside of the check and did not greatly affect the external appearance of the skew. On the west, however, the projecting square edges of the crow-stepping were removed, and the spaces filled with brick. The roof was then carried above the entire thickness of the wall, dispensing with the skew to give an open verge. At the same time the walls of a south-western extension were raised, and the roof carried over it without any change in slope. The new roof was of pantile supported on battens in the traditional style of the area.



Illus 5: Elevation Drawing showing the East Gable of the early block and part of the North Wing.

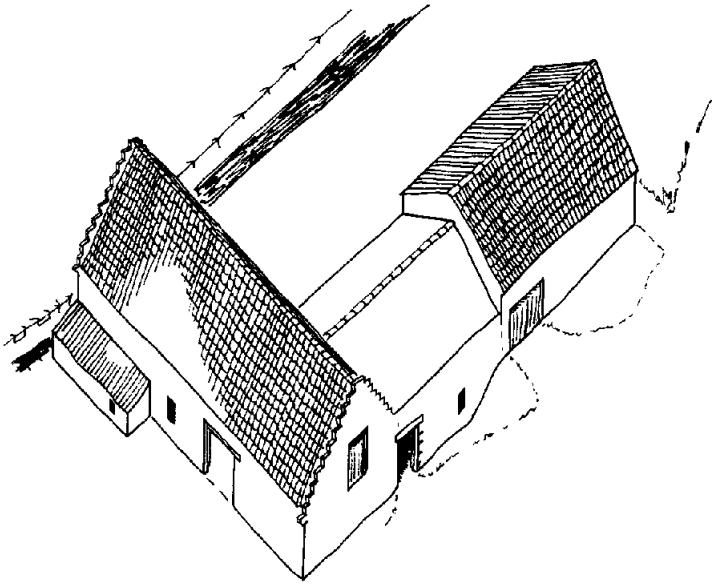
During this operation the south wall had been raised by around 70cm along its entire length using hand moulded bricks. The small extension at the south-west corner and the later sliding door obscured much of the original face of the building. The extension was probably necessitated by the increase in machinery associated with improvements to the mill; this was after all the real business end of the building. The large doorway may have been an original entrance with its checked rybats partly destroyed by later modifications. To the west of this was a simple splayed window, with the side of a second window used as the point from which to demolish the south door to receive the extension.



The north wall, as might be expected, did not have windows. It had been badly disturbed by the numerous repairs to it. The door into the north-south range had checks similar to those on the large entrance opposite it on the south wall. It also had two stone lintels indicating that it too had been an original feature. Almost at the north-east corner an opening, subsequently blocked with stone, appears to have been used variously as a window and a door.

Illus 6: Plan of the structures demolished in 1988.

In its later life a large smithing hearth dominated the west end of the building where once the pit wheel would have been. The substantial hearth was of factory made bricks with a large iron lintel supporting a corbelled brick flue. Below this was a large basin containing the coke. Blacksmithing on the site had continued into the early 1980s, but with the cost of repairs to the building mounting, and more particularly with part of the roof having been lifted off by a strong wind, the building had been declared unsafe and abandoned. Shoeing horses and the usual general repairs had been carried out at the former mill, changing its name as well as its function to "Roughlands Smithy".



Illus 7: Axonometric Drawing of structures demolished in 1988.

The north-south block had been added on to the eastern end of the earlier building in line with its eastern gable. It measured 6.6m by 13.6m and was terraced into the shallow hill slope adjacent to the road. It contained two ground floor rooms set on different levels. The southern room was entered from outside by a door adjacent to the corner of the earlier block. It had a massive stone lintel with its southern end resting in a notch cut out of the quoins of the earlier building. To the right above the lintel was a re-used stone with a circular socket hole which had evidently seen an earlier life as a millstone. The room had three tapering window slits, 24cm wide on the outside widening to 45cm on the inside. The front slit, protected by a single vertical iron bar, had been partially buried by the road make-up. The back two slits had been subsequently built up with stone. The room had a low ceiling, forming the first floor which communicated directly with the room to the north by a large door in the partition wall. The doorway was set slightly below the first floor level and would have been reached from it by two or three steps, a further flight of steps going to the basement, and a single step down into the northern room. This last room was larger than the previous two, with a large door in its eastern wall. This had been enlarged at a late date, removing the southern rybats. A square aperture in the west wall served as a window. The whole wing had presumably been used as a store. The wing had a pantile roof, with a shallower rake than its counterpart. Even so, the ridge of this roof must have been slightly higher. The northern end was hipped.

Illus 8: Skaithmuir Mill in c1970 (Kenneth MacKay).

The course of the lade has been filled in since the mill ceased operation and that of the burn has also altered slightly. In 1988 the banks of the burn were lined with stone which incorporated part of the brick vaulting that carried the road to the mill, some 8m west of the modern road.

It is not possible to assign a precise date to any of the structures described. The north-south wing has features, such as the slit windows, in common with farm buildings. These would place it in the early nineteenth century when it might have been used as a barley store. The east-west wing is considerably earlier. The crow-stepped gables and ogival moulded skewputts indicate a date at the end of the seventeenth century, or early in the eighteenth. The map of 1761 depicts four individual buildings at "Shaiths Muir Mill", all to the east of the burn. Three of the buildings form a courtyard with the fourth building set perpendicular to it and the burn on the remaining side. This fourth building is probably the east-west wing described above. By 1860 both wings are depicted on maps, and now the associated buildings are on the west side of the lade, linked across it by a

further structure. These are described as "*A small corn mill, with dwelling house and offices attached, all one storey slated and in good repair. Machinery propelled by water. Water wheel, 8 horse power.*" (O.S. Name Book).

The earliest recovered record for the mill is exactly four hundred years before the last mill building was demolished, for on the 20th November 1588 John Livingston of Dunypace received a charter under the Great Seal of Scotland of several lands including the lands of Skaithmuir with the mill (Register of the Great Seal,v,1595).

Under the feudal structure of Mediaeval Scottish baronies the baron or laird was empowered with the milling rights of his estate. In practice this meant that he provided a mill, which would be let to a tenant miller, where the tenants and portioners who were subject to him were obliged to take their corn to be processed. This was known as "thirlage". Naturally, they had to pay for this service. The payment was twofold: the first and larger part being "multure", that is a portion of the grain presented at the mill, which could be as great as about 25% of the total amount and was the landowner's revenue as return for the provision of the mill; the other portion was the miller's payment called "knaveship". This was the case with Skaithmuir Mill and it is not surprising to see the formal reference to it on the title deeds: "*All and whole the Lands of Skaithmuir with the mill and mill lands of the same with the astricted multures sucken sequels ans services of the same*" (Title Deeds inspected by courtesy of Bett Brothers plc and Messrs I. Allan Grant and Co.).

The lands of Quarrel and those of Skaithmuir had been jointly held as a barony since the middle of the fifteenth century and appear to have been held in feu with the superiority issuing from Herbertshire which, at that time, was held by the Earls of Orkney. The lands of Skaithmuir, with the mill, however, seem to have been pledged at some time to the abbey of Holyrood (Scottish Record Office, GD65). Eventually, in 1749, they were sold by George Drummond of Blair Drummond to Thomas Dundas, younger, of Fingask, an immediate predecessor of the Earls of Zetland, in whose family it remained for many years (Fleming, J. 1902). The acquisition by Dundas took place in the aftermath of the Jacobite risings which, along with the upheavals of the industrial and agricultural revolutions, led to the dissipation of baronial power, and eventually to the abolition of heritable jurisdiction. With their power in decline, and with the shifts in population which took place at the time, the landowners found it increasingly difficult to retain control over those who were astricted to them and the role of the baronial mill declined. Several fell into disrepair; many others found a new purpose by being adapted to perform tasks for which they were not initially intended. Among these was the innovatory process of pot-barley making. Prior to the latter half of the eighteenth century this had proved to be a task which could only be accomplished by the use of mortars and pestles, and one which in this country had proved to be beyond the scope of the millwright's ingenuity. It remained so until an entrepreneurial East Lothian mill-owner sent a millwright to Holland to investigate the technology available there. The venture was successful but the process was monopolised for several years (Shaw, J. 1984). Once it became common knowledge many mills were adapted to serve the purpose and amongst these was Skaithmuir Mill, albeit still retaining the facility of milling corn. This took place very early in the nineteenth century, for in March 1800 two estimates for the conversion were received from millwrights; one of these being from a local man, John Tobbie (or Dobbie) at Bonny Ford (Scottish Record Office, GD58.8.54). Tobbie's estimate was couched as follows:

The Estimate of a barlie mill for Skathmuier mill with alterations for the Corn mill their	
to altering the Sack tackle	*£1.1.0*
to making the top of the upwright to shaft at and on to the face of the pit whiel	*£1.0.0*
to alteration on the Corn Mill trough to make it answerable for both mills	*£1.10*
a Cast iron Sigment for the pit whiel with the whole machenrie of the barlie mill	
all confined within the brist all the tooth and pinnion Cast iron everything to Compleat	
the best barlie mill in the Countrie and don upon the newest plan and left to the inspiction	
of Competant judges when finished at	*21.18.4*
	25. 4.4

And if you please to provide the materials your Self I shall work all the wright
workmanshipe to the sight of Competant Judges the three first artikls at *£2.1.0*
to making all the moulds and the whole wright workmanship of the barlie mill at *6.10.0*
8.11.0

Bonnie Foord your most obt John Tobbie
March 11th 1800

The other estimate was from a wright called Robert Frazer, although it is not clear where he was based (Scottish Record Office,GD58.8.42). His estimate, while somewhat more literate, appears decidedly the more expensive of the two:

5th March 1800

Sir,

According to your desire I have made out a sketch of an Estimate of your Barley mill which you will see on the other side and any Alterations that will be needed will be don on days wages such as making the upwright shaft to shift off the pitt wheel and putting the sack tackle wrights again and as you spok of the whole being don by days wages we shall do the whole @ 2/6 per day for my self and Brother and from 12 to 14 for the man that may be employed at her.

I am
Sir your most obt servt
Robert Frazer

Estimate of a Barley mill to be incerted on the Machinery of Skaithmure Mill for James Potter being driven by the present pitt wheel having a ring of cast iron cogs fixed round it for driving a spur wheel which drives the stone the lying shaft to be of cast iron 4 1/4 square & the arms of the spur wheel to be of cast iron and the spur wheel of hard wood with wood cogs the Barley stone 3 feet 10 inches deameter & 9 inches thick with one pair of hoops the posts and framing of fir wood from 7 1/2 to 8 inches squar & the whole proportionable strong the amount are as follows

Wood	*£7.10*
Cast iron & Brases	*10.5*
wrought iron	*7*
hoop and stone	*3.5*
Workmanship	*12.12*
Undertakes trouble & Incident expenses	*2.13.9*
@ 7 1/2 per Cent	

The lands of Quarrel and Skaithmuir are adjacent to the site chosen for the Carron Iron Works and a large portion of these lands were leased by the Company in the following years, including the old coal harbourage of Quarrelshore where they built a wharf and which became better known as Carronshore (Scottish Record Office, GD58.8.54). One of the reasons for choosing the area had been the availability of water to drive mills. Carron Company built several mills and leased many more. They were used for a variety of purposes such as grinding castings and milling charcoal to produce “blackening". They soon obtained a lease for the mill at Skaithmuir although the mill still seems to have been used for grinding corn. It remained in the possession of the Dundas family until the end of the nineteenth century when the Carron Company finally purchased it. At this time the building was being used as a smithy (Ordnance Survey, 1913).

The buildings at the west end of the mill and a large wooden shed in the yard were being used as a joinery by Daniel Thomson in 1930. He refurbished and painted caravans. The shed was completely destroyed by fire in February 1930 at which time it contained five “motor trailer wagons” (Falkirk Herald 8 February 1930, 7). The firm continued on the site as Daniel and David Thomson, and in the 1940s became Thomson (Carron) Ltd of Skaithmuir Mill.

James Miller ran Roughlands Forge from 1914 until his death in 1949, when his son took over. The business shoed horses, constructed and erected gates and railings, undertook welding and general jobs. In 1974 James Miller junior had three employees and about half of the work was on agricultural equipment and half on ornamental and industrial items.

In 1969 the building was obtained by Birling Nominees Ltd and two years later sold to Bett Brothers.

Illus 9: Skaithmuir Mill in use as a Blacksmith's shop, 1978, looking north.

Millers

1687 John Slaker [Stalker?]
1774 Lewis Potter
1800 James Potter

Skaithmuir Mill (SMR 655) NS 8850 8323

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GD....Reference in Register House, Edinburgh.

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