

RCAHMS

East Ayrshire Dalmore Mill Hone Stone Works and Mine

NS42SW 19.00/19.01/19.02



General view south west, c.1905, showing the 'T'- shaped Dalmore Mill (right), storage (gabled building, centre) and packing sheds (curved roofs, centre) with allotments (DP157560)

Summary

The Dalmore Estate, East Ayrshire, currently owned by Kenneth Montgomerie, has the remains of several estate industrial concerns within its boundary. In 2013-14 RCAHMS recorded some aspects of this estate industry including the [Milton Hone Works](#) (19th century on, north bank River Ayr), [Dalmore Quarry and Mine](#) (originally sunk 1870 and then a second shaft in the late 1930s), the [Dalmore stone roasting and grinding mill](#) (around 1916 - 1920), and the [suspension footbridge](#) connecting the Dalmore and the Milton hone works all on the south bank of the River Ayr.

Hones (shaped stones of various sizes used for the fine sharpening of blades, razors and other tools and for polishing of metal plates) have been made in Scotland for many years. Along with other countries such as Turkey, Germany, USA, England and Wales, Scotland has exported hones all over the world. (1)

The hone works at Milton and at Dalmore Mill provided hones worldwide for a range of customers. Hone-making became less lucrative as artificial emery and mass produced carborundum (silicon carbide) became more widely used in the 20th century. The hone works, mine and quarry at Dalmore (and Milton) had all closed by the late 1990s, after years of falling orders.

Background

The New Statistical Account describes the state of the operation in 1845:

"In the lands of Dalmore, upon the banks of the River Ayr, is a species of whetstone, well known in the country by the name of Water-of-Ayr stone. For several years, both the raising and dressing of the stone has been conducted with much greater care and neatness than formerly. There are two men almost constantly employed; the one in stripping and polishing, (both of which operations are performed by machinery), the other in the quarry, or in performing whatever else may be necessary. Besides what is disposed of in the home market, there is a very considerable quantity exported. The stone is 40 feet under cover. The dip and rise is on east and west direction..." (2)

The honestone is a baked mudstone (due to its proximity to volcanically produced dolerite sill) with a high level of quartz and white mica present with grain sizes 0.025mm - 0.05mm. (3) Hones had been worked on or near the Dalmore Quarry site since the late 18th century at least (4) probably using the 'Water of Ayr' name as a generic title. 'Water of Ayr' stone and 'Tam O'Shanter' have different geological characteristics. For instance, the mottled beige Tam O'Shanter stone ([Dalmore Quarry](#)) is coarser than the finer and darker Water of Ayr stone which was discovered at Meikledale Quarry (at NS44524 23067) in the 1920s. This stone was used to make hones which were used for sharpening razors, scalpels or very fine knives. There were also other local stones used in hone making. (5)

By the 1880s there was confusion resulting from the mutual use of 'Water of Ayr' as a trade name for different quality hone stones produced by different hone makers. In 1900 a private limited company was formed (the Water of Ayr and Tam O'Shanter Hone Works Ltd) to try and minimise the competition for less good quality hone producers where John C. Montgomerie stated that the aim was *"To buy or otherwise acquire the business of whetstone manufacturer, stonemason and trader carried on by John Cunninghame Montgomerie of Dalmore in the parish of Stair in the county of Ayr, Dalmore, Ayrshire, and the company of whetstone manufacturers, Quarrymen and traders conducted by the firm of G. Junior McPherson and Co., Meikledale in the parish of Stair and Enterkine in Tarbolton parish, Ayrshire and Glasgow, together with the goodwill and the entire property ... of their respective companies"*. (6) This merger continued a process whereby the firm of G. Junior McPherson mentioned (which made their hones at Milton) incorporated the company (prior to 1900) of J.A. Donald and Co. hone suppliers and ironmongers based in Glasgow. G.

Junior McPherson operated Enterkine and Meikledale Quarries by 1900. In the late 1920s this firm was acquired outright by the Montgomerie family. (7)



Left: Dalmore Mill aka Heron's Mill, view from south (DP162025). Right: 1967 view from east, gable of former polishing department (J R Hume, SC589636)

Map Evidence

The Ordnance Survey (OS) maps give a good overview of the development of the Dalmore estate industries. The Dalmore Mill and its associated buildings depicted in 1860 (and named 'Dalmore Mill (Whetstone)') consisted of a T-shaped mill building, with a lade adjacent. Also depicted is the southern range containing the wood-cutting band saw for making hone boxes. (8)

By 1895, the southern range has been extended west with the addition of the office, the east range containing storage and offices and the three western sheds used for packing and storage. The tramway from the quarry and mine (shown as 'Shaft (Whetstone)') is also shown with its engine house. A later shaft to the south is also shown as 'Shaft (Whetstone)' which was latterly named as 'Sundrum Mine' and forms another shaft for the Dalmore 'Tam O'Shanter' hone stone mine. (9)

The Buildings

The Dalmore or Heron's Mill site consists of several buildings: Dalmore/Heron's Mill itself, a packing shed and two storage sheds with barrel-vault shaped roofs on the west part of the site. There is a south range which housed the band-saw used to cut wood to make boxes for the hone stones. The office and a range of buildings containing storage and packing facilities were adjacent. It is unclear how long the site has been unused, but it was still occupied in 2004.

Dalmore/Heron's Mill

This originally water-powered building has a [date stone](#) of 1821 (corn sheaf date stone survives) and appears to have been built by William Heron (who came into possession of the estate in the early 19th century). By 1857 it was described as a hone mill. *"Dalmore Mill (Whetstone) A hone mill worked by water - 10 horse power - two storeys high, slated and in good repair. The stone found in Dalmore Quarry is dressed and polished here. Property of William Dunn Esq. Dalmore".* (10)

The T-shaped Dalmore Mill is of rendered rubble and is two storeys in height, covering an area of approximately 174 sq. metres. There is a fore-stair on the west elevation of the 'tail' of the 'T' shape of the building. The building has sandstone quoins and is an example of a good agricultural building of the late Georgian period. The floors and ceilings were replaced using concrete after the mill was burnt by an incendiary bomb during World War 2. The corrugated iron roof was thin and reinforced with tarred felt. The top right of the 'T' - the polishing department - was gutted by fire around 2003 and is now roofless. (11)

Latterly the ground floor was used for cutting smaller hones on the diamond saws (all except two are of North American origin), the upper floor being used by the carpenter to make hone boxes for the smaller hones (larger industrial whetstones were made at Milton Mill on the north side of the River Ayr). (12)



Left: Detail of wheat sheaf on Dalmore Mill (DP162037). Right: storage sheds on west part of site (DP16233)

South Range and Office

The rubble-built and corrugated iron roofed south range was the former sawing area and wood store for hone box-making. It is located to the south of Dalmore Mill and is now in a state of decay. This building was extended from some 48 sq. metres in 1857 to 176 sq. meters by 1895 (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2). The original north elevation appears to have been incorporated into the larger structure. The remains of the band saw (for cutting estate pine wood) is visible, but the building was too dangerous to enter.

A large pile of waste hone sits in this building at its west end. The former brick-built, slate roofed Office (approximately 48 sq. metres in area) was built 1857 and 1895 (based on map evidence, see (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2)). The Office butts against the south range, (former sawing area and wood store) and is therefore older than South Range.

East Range

The east range covers approximately 27.5 sq. metres and was built between 1857 and 1895 (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2). Divided into three compartments, it was probably

always used for storage and labelling of the individual hones prior to dispatch. This block also has two brick chimneys. The interior walls were painted white to increase light levels and reduce dust.



Left: View (DP162035) from north of edge of Dalmore Mill, South Range (centre) , Office (centre right) and Packing Shed (right). Right: View of East Range from west (DP162036). This range would have housed as washing, labelling and storage area for the finished fine hones.

The northern compartment contains a copper and sinks - this area would have been for washing and drying the smaller hones. The only natural light would have come through roof lights and the doors in its west and north walls when open. This compartment affords access to the lade on the east gable of the main mill building. The room adjacent which had its own (now blocked) window, appears to have been an office or labelling area for the stones when washed and dried with a surviving drying rack and a glue pot for attaching labels to the hones surviving.

The compartment to the south was a storage area with a large blocked window and ingress from the east courtyard. Hone storage shelving survives in this area. These still on them the dimension sizes of the hones that were stored there.

Packing Shed

This is a brick-built, corrugated-iron roofed, single pitched-roofed building of between 1857 and 1895 (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2). It covers approximately 134 sq. metres. The building is split into two compartments and the door to the south compartment is blocked up. This building is connected to storage shed no. 1 by a short, brick-built corridor.

Storage Shed 1 and Engineers Workshop

Built between 1857 and 1895 (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2), this building is divided into two compartments and is connected to the Packing Shed (to the east). It covers an area of approximately 160 sq. metres. It has a modern breeze block-built south wall, possibly originally wooden like Shed 2. The south compartment contains the engineer's workshop with its belt-drive. It was here that all the general engineering work for Dalmore and Milton sites was carried out. The north compartment was used for painting and storing large industrial whetstones made at the Milton site on the north bank of the River Ayr.



Left: Interior of storage shed 2 looking north (DP162032). Right: View along lade from east (DP161996)

Storage Shed 2

Built between 1857 and 1895 (Ordnance Survey 1st edition 25-inch map, Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair); 2nd edition 25-inch map, Ayrshire, 1895 (published 1896), sheet 34.2), this storage shed is of wooden construction with a corrugated-iron roof and an open north end. Covering an area of approx. 208 sq. metres, it was used for general storage of waste hone material and packing boxes in the form of ex-army wooden munitions boxes. These were cut down and reused as they were sturdy enough to ship the fragile hones.

[The Lade](#)

The lade probably dates from the same time as Dalmore Mill main building (1821). It is approximately 190 metres in length, running from NS43485 23468 to NS43674 23450. It varies between 2.0 and 3.0 metres in width. The edge coping stones of the north side of the lade are shaped, but the wall construction below is of a rough masonry. The south wall is carved out of the solid rock with later repairs of brick in some areas. The lade is dry, as the east sluice gate is blocked due to a rock fall.

Machinery

The machinery in Dalmore Mill is of a post-war period and is mostly consists of diamond cutting saws for the fine cutting of hones. The carpenter shop on the first floor also has some small electrically-driven table saws for making wooden hone presentation boxes.

It would appear that the original machinery was lost in the bombing in the 1940s. The engineer's shop at the south end of Storage Shed no.1 contains a lathe and line shaft with drive wheels.

[The Quarry and Mine](#)

The quarry and mine are no longer in use. The Dalmore Quarry which supplied the hone works, and later the mine adjacent, supplied the good quality Tam O'Shanter fine hone stone. The Quarry at Dalmore is said to have been worked since the late 18th century. The OSA states *"In the lands of Dalmore...there is a species of whetstone, well known in the country as Water of Air Stone...it has been exported to different parts of Europe and America and has been found preferable to any other stone for sharpening edge tools.."* (13) It may be that this refers to the Dalmore Quarry rather than the others in the vicinity. By 1839 it is noted that *"For several years, both the raising and dressing of stone have been conducted with much*



Left : interior of ground floor of Dalmore Mill from south. Diamond saw cutters line the walls. The replaced steel joist and concrete ceiling is just visible. Right: interior of Storage Shed no.1 from south. Note the collapsed wooden roof lining and the completed industrial hones below. These were stored by size.

greater care and neatness than formerly. There are two men almost constantly employed; the one in stripping and polishing, (both of which operations are operated by machinery), the other in the quarry ...there is a very a considerable quantity exported..." (14) The stone for making hones would have been taken from Dalmore Quarry in the summer months.



Left: Dalmore Quarry (DP162049) and right: mouth of adit into Dalmore Mine (DP162508)

Between 1857 and 1895 the quarry grew from approximately 5000 sq. metres to 12,000 sq. metres in area. This appears to have been the extent of the quarrying. The quarry was filled in with waste hone stone which was in turn recycled in the [stone grinding mill](#) which was built around 1916. A 120 feet vertical shaft (for ventilation and emergency access) was sunk in around 1870 to enable the exploitation of another seam of Tam O'Shanter stone. (15) The current winding engine house is of a more recent date and contains a former ship's deck haulage engine. A letter from Thomas Reid and Sons (Paisley) Ltd (now defunct) from 1972 refers to an estimate for a new haulage winch for the mine. (16)

The 20 feet beam engine used to pump the mine was dismantled in 1938 and the building with which it was associated had been demolished by 1967. (17)



Left: Dalmore Mine photographed by J R Hume 1967 from the north. The timber buildings of board and batten build have been demolished (SC682116). The headgear and just glimpsed winding engine house survive. Right, the site today (DP162521) with the steel winding gear and electric winder which was originally a marine winding engine

An adit or drift mine (a horizontal shaft following the rock strata rather than a vertical mine shaft) is still visible at NS43173 23248. By 1895 another vertical shaft was sunk to the south which was named and depicted as 'Sundrum Mine' on the Ordnance Survey 2nd edition map. This mine was worked from c.1949 to at least 1966. (18) The remnants of the mine buildings were cleared after 1967 (located at NS43270 23102).

Mineral Tramway

There is no tramway shown on the Ordnance Survey 1st edition map, but by 1895 the tramway ran from Sundrum Mine (NS43270 23102) to the quarry (a distance of about 138 metres; possibly a 20-inch gauge as used in the mine), where it tipped mine waste into the quarry at its south end. A further tramway ran from the northern shaft at NS43204 23240 for 475 metres to Dalmore Mill terminating at the ground floor stone-cutting area next to the east courtyard.

It is said that the tramway was abandoned in the 1940s (19) with horse-drawn carts and lorries moving material from the mine to Dalmore Mill (for dressing/finishing) and on to customers by road and rail.



Left: Winding engine for the mine cage is a second hand former boat winding engine (DP162513), Centre: Mine cage (DP162511) and right, headgear (DP162510)

Conclusion

This is a remarkable survival of a number of estate related industrial enterprises. Despite closure, damage and vandalism over the years, they survive because it is still owned and regularly checked and made secure by the current owner, Mr Montgomerie. He is the grandson of J.C. Montgomerie who acquired the Dalmore estate through marriage in 1876 and who invested in the hone works and Dalmore mine.

This direct familial and emotional link with the past through Mr Montgomerie has ensured that the Dalmore Estate industries (including Milton Mill, 1-5 Milton Cottages, Milton turbine house and Dalmore stone roasting and pulverising works) have survived. The company archives are deposited with East Ayrshire Archives.

References

- (1) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), pp. 8-10
- (2) New Statistical Account of Scotland, (1845), Vol. 5, December 1841, p. 638
- (3) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), p. 15
- (4) Old Statistical Account of Scotland, 1791-99, Volume 6, 114)
- (5) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), p. 15; G Gordon Tucker also lists other stones used in hone production such as Dark Blue Water of Ayr (Enterkine Quarry, NS42150 24074) Dalmore Blue (Craiksland Quarry, NS35604 31837, coarse, for carpenters and joiners), Dalmore Yellow (Craiksland Quarry, NS35604 31837, used preliminary to finer honing of tools and used by carpenters and joiners), Tam O'Shanter White (Dalmore, very fine polishing or sharpening razors, or for use by watchmakers or jewellers). Also, information from Mr Kenneth Montgomerie, August 2013.
- (6) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), p. 21)
- (7) http://bosq.home.xs4all.nl/info%2020m/grinding_and_honing_part_3.pdf; retrieved: 13 March 2014 and G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), pp.21-2
- (8) Ordnance Survey, First Edition, 25-inch map (Ayrshire, 1857 (published 1860), sheet XXXIV.2 (Stair))
- (9) Ordnance Survey, Second Edition, 25-inch map (Ayrshire, 1896, sheet 34.02)
- (10) Ordnance Survey Name Books, Ayrshire, c.1856, vol. 56 , p.13
- (11) Information from Mr Kenneth Montgomerie, August 2013
- (12) Information from Mr Kenneth Montgomerie, August 2013
- (13) Old Statistical Account of Scotland, 1791-99, Volume 6, p.114
- (14) New Statistical Account of Scotland, 1845, Vol. 5, December 1841, p.638
- (15) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), p. 30

(16) South Ayrshire Archives, Montgomerie archive, un-catalogued

(17) G. Gordon Tucker, (1983) *'The Water of Ayr and Tam O'Shanter Hone Works at Stair and the History of the Industry in Britain'*, Ayrshire Collections, Vol. 14, no.1 (Ayrshire Archaeological and Natural History Society), p. 30

(18) South Ayrshire Archives Collection given by Mr Kenneth Montgomerie: *'Water of Ayr and TO [Tam O' Shanter] Hone Works, Dalmore and Sundrum Mines, 1947, Underground Workings'* (South Ayrshire Archives, 44.11)

(19) Information from Mr Kenneth Montgomerie, August 2013