

SCOTLAND

Although there is an isolated reference to a powder mill on the Water of Leith in 1701 (Shaw 1984, 469), it was not until the end of the 18th century that the gunpowder industry became firmly established in Scotland. It was introduced, probably by manufacturers from Kent, mainly to produce blasting powder. The early mills were located in the Lothians, on either side of the Pentland Hills within about 30 km of Edinburgh. Their sites at Fauldhouse, Gorebridge, Marfield and Roslin, are marked on James Knox's *Map of the Shire of Edinburgh*, published in 1812. Most ceased operation during the 19th century but Roslin continued until 1954. There was also a late factory established at Camilty, in the 1880s.

A second group of powder mills was established on the coast of Argyll from the 1830s onwards. Unlike the eastern mills, which were located in relation to markets, these were situated in relation to the supply of raw materials and convenient sea transport. Entrepreneurs from the Glasgow area were active in setting up the industry and iron manufacturers, who had moved to Scotland from the Lake District in the 18th century in order to obtain charcoal, were involved also. The last of this group, Kames, closed in 1921. The coast of Ayrshire was chosen for the site of Alfred Nobel's dynamite works, which opened in 1872. This factory, at Ardeer near Stevenston, became the centre of explosives manufacture in Britain when the industry was rationalised after the First World War. It was the last factory in Britain to manufacture black powder, the plant closing in 1977. A new factory operated for a short time at Wigtown during the Second World War.

ARGYLL

Additions 2005-

A paper has been published on the powder mills of Argyll (Robertson 1990).

GLEN LEAN (NS 12 81)

At the village of Clachaig, 5 km west-north-west of Sandbank, near Dunoon. The site is on private land on the south side of the B836 road from Sandbank to Auchencreech. The Little Eachaig river was dammed a short distance upstream to provide a main leat from which the mills were served in parallel (O.S. 6-inch map (Argyll sheet 173 SE, 1st edn 1869; 2nd edn 1898).

There are ruins of massive stone process buildings between the road and the river. The manager's house opposite has a moulding featuring two barrels above the door. The mills were taken over by Curtis's & Harvey in the 1840s and the gravestone, 1861, of Curtis's favourite dog Dash is at the base of the wall above the mills (visited 1985).

The mills were established by Robert Sheriff in the 1830s (Shaw 1984, 470) and made blasting powder until the late 19th century. They then closed temporarily but were reopened in the 1890s for the manufacture of Amberite, a smokeless sporting powder (Boothroyd 1984). They closed a few years later when the manufacture was transferred to TONBRIDGE in Kent (*Rise and progress*, 357).

Chronology

1832 Established (Patterson 1986).

1834-40 Glenlean Gunpowder Company (Glasgow Post Office Directories).

1840-6 West of Scotland Gunpowder Company, Alex B Seton, Manager (*ibid*, *Glasgow Chronicle*, 30 October 1840, 3).

1846- Curtis's & Harvey, Clyde Powder Mills (Glasgow Post Office Directories).

1855 New water-powered mills, schoolhouse and cottages (*North British Daily Mail*, 2 October 1855).

- 1876 Continuing Certificate no.10
- 1878 Temporary closure (Boothroyd 1984).
- 1891 Reopened for manufacture of Amberite (*ibid*).
- 1892 End of black powder manufacture (Patterson 1986).
- 1903 Works closed (McConnell 1984).

KAMES (NR 96 71 and 97 72)

The Kames Gunpowder Company had its saltpetre works on the coast at Kames, 2 km south of Tighnabruaich on the Kyles of Bute, and its powder manufactory some 2km inland at Millhouse (Plan, 31 August 1869: SRA: TD/489/77). The former saltpetre refinery and associated buildings at Kames are occupied by a haulage contractor (visited 1985). The firm's shipping used the more northerly of the two existing piers, which was known locally as the Black Quay (McConnell 1984).

There were two sites at Millhouse, the Low Mills south of the road and the High Mills, which appear to be later, north of the road. There are substantial remains, particularly of the Low Mills, on private land (information from Miles Oglethorpe, RCAHMS, 1986). The works' bell and former office, which is now a dwelling house, and several workers' cottages can be seen on the road through the village. A mortar used for proving gunpowder also survives. There are complex water courses through the sites, fed by a leat from Craignafeich Burn, which flows out of Loch Ascog. There were also two reservoirs. Steam engines and water turbines were added later (McConnell 1984).

The mills operated from 1839 to 1920 (Patterson 1986). They were purchased by Curtis's & Harvey in 1876 and made blasting and sporting powder for the home and export markets (*Rise and progress*, 358). Research has been carried out on the families employed at the mills (McConnell 1987).

Chronology

- 1839 Kames Gunpowder Company established (Patterson 1986). Partners Thomas Grey Buchanan, John Macallum (information from John Robertson).
- 1858 Visit by Lammot du Pont (Wilkinson 1975).
- 1876 Purchased by Curtis's & Harvey (Patterson 1986). Continuing Certificate no. 20
- 1918- Explosives Trades, Nobel, ICI
- 1921 Closed (McConnell 1984).

Additions 2005-

Explosives Inspectorate reports in *Parliamentary Papers*

1891, 11 September (1892, xx, 419).

1895, 12 September (1896, xviii, 565).

LOCH FYNE (NN 02 01)

At the village of Furnace on the west side of the A83 road, 10 km south-west of Inveraray, on private land (O.S. 6" map, Argyll sheet 140 SE, 1st edn 1871-2). There are substantial ruins of a row of six bottom-driven incorporating mills, foundations of other buildings and a mill pond and leat. There is a terrace of workers' cottages, which are still occupied, on the east side of the road (visited 1986).

The Loch Fyne Gunpowder Company mills were started in 1841 by Robert Sheriff, who also owned those at GLEN LEAN. Many workers moved to Furnace when the MELFORT mills closed c.1874, including the manager William Robinson, who was killed in an explosion in 1883 (information from Mrs McKeller of Furnace, grand-daughter of William Robinson; Patterson 1968). The business was purchased in 1879 by Messrs John Hall of FAVERSHAM in Kent (*Rise and Progress*, 361). It closed in the 1880s.

Chronology

- 1841 Licence granted at Inveraray Quarter Sessions to Robert Sheriff, senior and junior, of Dunoon (Patterson 1968).
1872-3 Robert Robin & Son, Goatfield, Lochgilphead (Return of owners of lands and heritages, Scotland, 1872-3. HMSO, 1874).
By 1875 Sold to Mr Carl Heuser of Glasgow (Patterson 1968).
1876 Continuing Certificate no. 28.
1877 Trustees of Mr Robert Robin of Glasgow (Patterson 1968).
1879 Messrs John Hall & Son of Faversham, Kent (*Rise and progress*, 361).
1887 Closed (Patterson 1986).

Additions 2005-

Explosives Inspectorate reports in Parliamentary Papers

1883, 29 September (1884, xvii, 719).

MELFORT (NM 84 14)

On the River Oude, 1 km north-west of the village of Kilmelford and by road 24 km south of Oban. The land is privately owned.

The manufacturing buildings were strung out along the steep-sided valley and were served by a long leat which carried water from both the Oude and its tributary the Bad Tarsuinn. The remains are very decayed but are identifiable from the 1871 O.S. 25" map (Argyll sheet cxxii, 13). The river flows into Loch Melfort, a sea loch that was used for transport. A group of cottages and the service and administrative buildings near the loch have since 1983 been converted into holiday accommodation by the Melfort Club. Offices and indoor leisure facilities are provided in the former cooperage and saltpetre complex and the quay is used for sailing. In Kilmelford churchyard there is the tombstone of William Macdonald, a native of Uist, who was killed in 1860 in an explosion (visited 1986).

It has been stated that the mills operated from 1838 to 1867 (RCAHMS 1975; Shedden 1938) but both dates are incorrect. The site was purchased in 1838 by the proprietors of the Bonawe Furnace, to supply charcoal for iron working, but the mills were established 15 years later (*Oban Times*, 1 December 1866, 2). They closed temporarily after an explosion in 1867 (*Oban Times*, 9 March 1867, 2; 24 August 1867, 2) and continued until 1874 (RCAHMS 1975). There were 68 employees in 1871 (1871 Census Return, Kilmelford). The manager then was William Robinson from Kent (*ibid*; information provided by Mrs McKeller of Furnace). Many workers moved to the LOCH FYNE gunpowder works at Furnace when the mills closed (*ibid*). Some of the buildings were later used as a sawmill (Argyll & Bute District Council Archives. Valuation Roll. Argyll, Kilninver and Melfort, 1874-5).

Chronology

- 1838 Harrison Ainslie & Company purchased the site.
1853 Powder mills established.
1867 Explosion and temporary closure.
1874 Estate sold.
1875 Melfort Gunpowder Company site vacant (Argyll & Bute District Council Archives. Valuation Roll. Argyll, Kilninver and Melfort, 1874-5).

Additions 2005-

Surviving structures are discussed in detail in a paper on the Argyll powder mills (Robertson 1990).

A considerable amount of additional information about the operation of Melfort gunpowder mills is provided by two ledgers held by the Cumbria Record Office and Local Studies Library, Barrow in Furness.

The first is a letter book containing 336 letters and other items entered during an 8-month period in 1859-60. Gunpowder was being sold to many overseas customers in, for example, Australia, Chile, Indonesia, Madagascar, Malaysia and Malta, as well as to many companies and individuals in Scotland and elsewhere in Britain. The purchase of raw materials, equipment and supplies for the works shop are also itemised in detail (A Crocker & P Sandbach forthcoming 2010).

The second ledger is a stock book for 1871-76 of the powder stored at the company's magazine on a small island off Barrow. It records the amounts of gunpowder of different grades arriving by ship from Melfort and the transfer of this powder to a magazine near the company's iron mines in Furness and, by ships, carts and train to customers in many parts of Britain (A Crocker forthcoming 2010).

AYRSHIRE

ARDEER (NS 29 41)

The Ardeer Works, which after 1926 became part of the Explosives Group/ Division of ICI, was established in 1872 by the British Dynamite Company. This company was formed to manufacture the product invented by Alfred Nobel, who personally selected the site (*Rise and Progress*, 395-402; Reader 1970).

Black powder was made at Ardeer from 1935 to 1977 (Patterson 1986). The manufacture was transferred to the works from FAVERSHAM in the 1930s. When the Lake District mills also closed down during this decade, production became concentrated at Ardeer, with some processes being carried out at ROSLIN until 1954.

Chronology

1872 Factory established by British Dynamite Company.

1876 Nobel's Explosives Company.

1918- Explosives Trades, Nobel, ICI.

1935 New Licence no. 3.

1977 Black powder manufacture ceased.

Additions 2005-

A 1926 incorporating mill from Ardeer has been erected as an exhibit at the Oare Gunpowder Works at FAVERSHAM in Kent.

The archive of the late Ted Patterson is held by RCAHMS, Edinburgh.

MIDLOTHIAN

CAMILTY (NT 06 61)

On the Camilty Water, which becomes the Linhouse Water, a tributary of the River Almond, 5 km east-south-east of West Calder. The site is in private grounds and some buildings remain (information provided by E M Patterson).

Ordnance Survey maps indicate that the factory was established on the site of an earlier corn mill and that a large pond was formed for the gunpowder works (O.S. 6" map, Edinburghshire: sheet 11 NE, 2nd edn 1895; sheet 10, 1st edn 1853). Power was provided by a gas engine (Patterson 1986). Blasting powder was produced for local markets and the factory was the most

modern of its day, being built after the passing of the 1875 Explosives Act (*Rise and progress*, 355, 363).

Chronology

1889 Established by Midlothian Gunpowder Company (Patterson 1986). New Licence no. 143.

1895 Saltpetre factory added (*Rise and progress*, 363).

1898 Incorporated with Curtis's & Harvey Limited (*Rise and progress*, 363).

1918- Explosives Trades, Nobel, ICI.

1931 Closed (Patterson 1986).

GOREBRIDGE (NT 34 61)

At Stobsmill on the Gore Water, a tributary of the South Esk. Most of the factory buildings were on the north side of the river between the present B704 road through Gorebridge and the A7 road from Edinburgh to Galashiels, with some water-powered mills on the south side of the river (O.S. 6" map, Edinburghshire sheet 13, 1st edn 1854). Little remains of the buildings and part of the site is occupied by a water treatment plant (visited 1985). The land is private.

The mills were established in 1794 by an English company headed by Messrs Hitchener & Hunter (Shaw 1984, 469-70). Also involved were John Merricks (Midlothian DC 1970s) and a Mr Christie (*Rise and progress*, 363). Merricks left soon after the mills opened to set up business nearby at ROSLIN. The mills closed in the 1860s (Midlothian DC 1970s), Hitchiner & Hunter's Liverpool office being listed in directories until 1865 Gore's *Directory of Liverpool*).

Chronology

1794 Established by Messrs Hitchiner & Hunter.

c.1865 Closed.

Additions 2005-

Explosion reports in *The Times*, 1790-1850

1827: 4 October.

1832: 29 November.

1838: 29 March 'near Edinburgh'.

The partners' first attempt to set up a factory was at ABINGER HAMMER in Surrey (English & Field 1991-2).

MARFIELD (NT 18 57)

Within a southward bend of the North Esk, 1 km south-east of Newhall near Carlops (O.S. 6" map, Edinburghshire 17, 1st edn. 1853). The mills operated in the early 19th century.

Chronology

1812 Powder Mills on Knox map.

1830 Explosion (Shaw 1984, 470).

1853 Powder mills and neighbouring paper mills both ruined (O.S. 6" map, Edinburghshire 17, 1st edn. 1853).

ROSLIN (NT 27 63)

A report on the site, its history and potential as a public amenity, has been prepared by Midlothian District Council (1970s) and a film was made when the works closed in 1954 (*Goodbye to Roslin*. Film held by National Film Archive, London).

The site is on the North Esk, 1 km south of the town of Roslin. It is open to the public, some steps having been taken towards the creation of a Country Park. It is entered at a sharp bend on the B7003 road at NT 268 627 from which it extends about 1 km upstream to a weir. Some buildings have been cleared and others selected for conservation, in particular the shell of a pair of water-powered incorporating mills (visited 1985).

The mills were established at the beginning of the 19th century by John Merricks, previously of GOREBRIDGE, and his new partner John Hay. There were 60 employees in 1845. The works continued into the 20th century, producing modern explosives as well as black blasting and sporting powder (*Rise and progress*, 363). Water power was later supplemented by steam and gas engines (Wilkinson 1975). The company eventually became part of ICI and when black powder manufacture became concentrated in Scotland in the 1930s, Roslin carried out finishing processes on powder incorporated at ARDEER.

Chronology

c.1805 Established by John Merricks and John Hay.

1858 Visit by Lamot du Pont (Wilkinson 1975).

1876 Limited company formed: Hay, Merricks & Company Limited; Continuing Certificate no. 2.

By 1905 Gelignite manufacture started.

1914-18 Wartime production of gunpowder, incendiary bombs and gelignite.

1918- Explosives Trades, Nobel, ICI.

1930s New building phase.

1954 Closed.

Additions 2005-

A volume of oral history has been published by the Tuckwell Press in its Flashback series (MacDougall 2000). A CD-ROM presentation was produced as a Millennium Project by the Roslin Heritage Society (Stevenson & Meikle 2001).

Explosives Inspectorate reports in *Parliamentary Papers*.

1885, 9 July (1884-5, xiv, 995).

1890, 22 January (1890, xx, 533).

1890, 22 October (1890-1, xix, 433).

1892, 17 September (1893-4, xvi, 6870).

WEST LoTHIAN

FAULDHOUSE (NS 95 61)

Shown on the Knox map of 1812, the mill was on the Breich Water, a tributary of the River Almond, 2 km east of Fauldhouse. It was established on an earlier corn mill site in 1812, was still operating in 1817 but not listed in Pigot's directory of 1837 (Shaw 1984, 470). It had reverted to corn milling by 1855 (O.S. 6" map, Linlithgow sheet 11, 1st ed 1856).

Chronology

1812 Established by O'Neil & Company (Shaw 1984, 470).

1814- 47 year lease by William Christie (*ibid*).

By 1837 Probably closed (*ibid*).

By 1855 Fauldhouse Mill (corn) on O.S. map.

WIGTOWNSHIRE

WIGTOWN (NX 42 59)

The remains of a Second World War black powder factory survive 5 km north of Wigtown and 200 m east of the A714 road to Newton Stewart. The site is approached by a lane, 500 m north of Carsegowan Farm, which leads to a farm cottage and the former entrance lodge. It is surrounded by the old security fence and much of the ground is waterlogged (visited 1985).

The factory was built by the Ministry of Supply in 1940 and closed in 1945 (Patterson 1986). It was established as a shadow factory to use in case of loss by bombing of ARDEER and ROSLIN, which by then had the only remaining black powder plant. It was built on soft subsoil and there has been uneven subsidence. However, the ranges of brick incorporating mills, which had adequate foundations, stand intact. The buildings were surrounded by mounds through which in some cases shaft drives were carried from external electric motors. All the heavy machinery was removed for scrap at the end of the war (information from E M Patterson).

Additions 2005-

Plan of explosion and aerial photograph held by Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), Edinburgh. (Information from Miles Oglethorpe, May 2005)