

COALEY MILL - CORN, CLOTH & IRONWORKS

By Ray Wilson

Introduction

Coaley Mill is situated in the parish of the same name and lies three miles to the north of Dursley. It stands on the River Cam just below the confluence with a small un-named tributary. A mill seems to have been operated here almost continuously since at least 1674, the time of the earliest known, surviving records for this particular site and no doubt for considerably longer. What has changed are the uses the mill has been put to. In 1674 it was a corn mill and also had a pair of fulling mills under one roof. Then it had become an edge tool and spade and shovel manufacturing works by 1744. This use continued for exactly 200 years until the mill closed in 1944 due in part to wartime shortages.

This article gives a brief history of the site but is mainly concerned with the manufacture of spades and shovels from about 1925 to 1944 by the firm of Leonard Thomas & Co at Coaley Mill. The description of the premises and manufacturing processes are largely based on interviews with former employees and their families as the surviving buildings have been much altered by the new use for the site.

Outline of Ownership and Occupiers

There is no mention in Domesday of a mill at Coaley but a charter in Berkeley Castle records that Robert II, Lord Berkeley gave a water mill and diverse lands in Coaley to the Priory of Leonard Stanley sometime between 1189 and 1220 (1). This probably refers to the site of the present Coaley Mill, [SO 76070247], since it is by far the most important of the three water mill sites identified in the parish. The layout of the site in 1881 is shown in Fig. 1. The second mill site in the parish is that of Mooracre Mill at [ST 78109987], a corn and cloth mill that was working in the early nineteenth century (2-4). Unlike Coaley Mill it is not shown on the 1759 map of the parish (5) nor is it shown on the tithe map of 1838 (6). There are no visible traces of the mill today. The third site at [SO 76820112] was a small corn mill at Field Farm that was built after 1881 (7) and before 1903 (8) but had become disused by 1939 (9). The building has gone and only a few pieces of masonry survive to indicate where the dam was.

The first definite reference to Coaley Mill occurs in 1674 when a London merchant, John Essington leased two fulling mills under one roof in the tenure of Samuel Whorton together with a water corn mill occupied by Thomas Wilkins to George Dobson (10). In 1696 the property was conveyed to Essington's son, also called John who lived at New Park Berkeley (10).

In 1774 the mill and some other property was sold to Nathaniel Underwood an edge toolmaker of Coaley for £2005 (10). After Nathaniel died sometime after 1796 it passed to his son who was also called Nathaniel who lived at Cambridge (11). In 1814 Nathaniel's brother Richard Davies Underwood acknowledged receipt of £500 in return for relinquishing all claims on Coaley Mill. However two years later the property is mortgaged for £1135 and Nathaniel and

Richard Davies Underwood are referred to as partners in trade of edge toolmakers (11). When Nathaniel died in 1823 the mill was put up for sale by public auction where it was bought by the same Richard Davies Underwood for £2660. Richard died a year later and a William Underwood purchased the mill from Richard's widow, Elizabeth for the same sum of £2660. In June 1828 William was declared bankrupt and in the proceedings he was described as having "for four years or thereabouts followed the trade of an edge tool maker by buying and purchasing large quantities of iron and steel and manufacturing the same into edge tools and afterwards selling and disposing of the said edge tools (11). By the end of 1828 Coaley Mill had passed into the hands of Joseph Longmore of the Mythe Villa Tewkesbury where it remained for the next 27 years (12).

From the annual registers of electors for the period (12) it would appear that Longmore was never the occupier of the works. At the time of the tithe survey in 1838 the occupier was Henry Savage (13). After Longmore's death the property was advertised for sale by auction at the King's head Hotel Gloucester in March 1855 (14). The occupier at that time was given as Robert Underwood although the deeds show that a Nathaniel Underwood became the owner in July of that year (11). It is clear that Robert continued as occupier and in July of 1855 Robert insured the premises and machinery for £2000 (15). An insurance policy for 1863 also survives and this is for a lower sum of £1800 and names both Robert Crawley Underwood and Thomas Murray Cooper as the insured (15).

The registers of electors for 1866 to 1872 give Thomas Murray Cooper as the owner and occupier (12) whereas a trade directory for 1867 refers to George M Cooper & Co Edge Tool Manufacturers, Coaley Works (16). By 1874 the owner of the site is given as David Thomas of Cotham Bristol and the occupier as Leonard Thomas of Coaley (12). The name Leonard Thomas was to remain associated with the site right up to its closure 70 years later in 1944. After 1889 Leonard Thomas is listed as owner for the site and his residential address is given as Clifton Bristol (12).

In about 1924 Leonard Thomas died and the business was taken over by the Birmingham edge tool manufacturers, A & F Parkes (12). However, Parkes retained the name Leonard Thomas for this part of their operations until they closed the works in 1944.

Soon after Parkes closed Coaley Mill they sold it to Mr Harry Ellery who at one time had lived in one of the block of four cottages at the mill. The site was used as a smallholding and the buildings used to keep livestock. In about 1959 the site was purchased by Mr Sid Terrett. The old Hammer Mill in the nearby Millham field was demolished and the machinery disposed of as scrap. Today Millham is back to a "green field" site.

Mr Osman Goring, the present owner, purchased the mill, mill house and some land from Mr Terrett in 1961. Mr Goring completely rebuilt the main mill building and has based his specialist engineering business here. At one time he was producing stone ground flour again on the site using a modern electrically powered mill. Part of his enterprise is concerned with modern high efficiency water turbines and today the greater part of the electrical power used at the mill and his home is generated by his own installation (17).

Leonard Thomas and Co: Spade and Shovel Manufacturers

In 1904 an article in Industrial Gloucestershire on the firm commences with the bold claim that:

"In two respects the works operated by Messrs Leonard Thomas and Company, Coaley Mills near Dursley, are unique among Gloucestershire manufactories: they are the oldest existing ironworks in the County, and the only one devoted exclusively to the manufacture of spades shovels, and similar implements and tools." (18). The article then gives a valuable account of the premises and operations at Coaley Mill at the turn of the twentieth century. It gives the date of the establishment of the business as 1744 which is consistent with Nathaniel Underwood's occupation of the site discussed above. The business had never been suspended since that date and Leonard Thomas, by now the head of the company first became identified with it sometime after 1870 (18). The company was trading under his name by 1875 (19).

The premises and surrounding land covered seven acres of land and had good waterpower. Among the buildings in use were the original large stone structures , a separate building of comparatively recent erection, and various additions. The motive power was furnished by a water-wheel, two turbines and an oil engine. Each department including the forges, finishing, grinding and woodworking shops and stores and the warehouse occupied a separate portion of the buildings. The mechanical equipment is listed and appears to be similar to that in use 25 years later which is described below (18).

The products covered all kinds of shovels, spades, hoes, forks, general gardening and draining tools, road scrapers, ladles and axes. The Company were Government contractors and had carried out what were described as important orders for the leading English and Indian railways and contractors. Some of the specialised implements were also exported, principally through the London and other factors (18).

In about 1924 the Company was taken over the long established firm of A & F Parkes of Lower Dartmouth Street Birmingham (12). A member of the Parkes family by marriage, Major Disney Fayle, was appointed manager at Coaley Mills but Parkes kept the well respected name of Leonard Thomas for this part of their business. It is likely that it was a duplication of product range that caused Coaley Mills to concentrate on just spades and shovels for the last twenty years of the enterprise.

Difficulties over the supply of Materials and labour caused Coaley Mills to be closed in 1944. The parent company only survived a further ten years before it itself became victim of a takeover (20). Such was the quality of Coaley spades and shovels and other tools that the author has been able to locate examples which are still in use in the village today and clearly at least 50 years old. Workers at Coaley Mill between 1927 and 1944 have also been traced and from their recollections the following account of the mill, the machinery, the products, the processes and working conditions has been drawn up.

The Site: The Buildings and Plant

The basic manufacturing processes and nature of the plant probably remained largely unaltered throughout the 200 years that edge tools were made at Coaley Mill. A sale notice of 1855 describes the works as "...comprising five ranges of workshops with 19 forges, grinding mill, capable of driving 3 grindstones, having 4 plating hammers, with cast-iron heads and blocks,

and pair of large shears. 3 water wheels for driving hammers and bellows....two warehouses, with a powerful crane, country house, stable. cart house, and other well-arranged buildings,the whole in the occupation of Mr. Robert Underwood".

A less detailed account of the buildings and plant is given in insurance policies of 1855 and 1862. Initially the whole of the works was adjacent to and powered by the River Cam. Later the so-called hammer mill was built across the village street on the field called Millham. It is likely that it was erected by Leonard Thomas which would mean it was built after about 1875. It is shown on the first edition of the 25 inch Ordnance map which was surveyed in 1881 (7).

In the period 1927-1944 the main sources of power in the main mill were two turbines and a waterwheel. They were positioned in a line across the head race as shown in Fig. 2. Nearest the road was the smaller of the two turbines which manufactured by C L Hett, The Turbine Foundry, Brigg Lincoln. The model was called the Trent and was a vertical shaft machine, known as a vortex type and was after the style of those built by James Leffel an American manufacturer. The turbine was rebuilt by Mr Goring in 1963 and fitted with a generator. The overall fall was about 16ft 6in and about 8kW could be obtained. The middle position was occupied by the larger turbine manufactured by Joseph J Armfield & Co. of Hampshire. It is thought to date from about 1905. Both turbines became obsolete again when Mr Goring rebuilt the main mill as a tall steel framed flour mill in 1977. The walls are of brick and stone and an Ossberger turbine from Germany was installed (17).

Some parts of the old turbines can still be seen on site. The new turbine is of the cross flow design and can handle widely different flows in the river and can produce 25kW maximum output. Finally, furthest from the road was the large water wheel. This was mainly used for cutting steel bars into blanks and it also powered grindstones.

This area contained a number of forges and workbenches. Each forge had its own hearth, vice, anvil and hand shears. There were various presses, punches and guillotines and emery belts and wheels for polishing the tools and handles. An open hearth was provided to heat the blanks for them to be worked.

The Hammer Mill lies in the angle formed by the village street and Elmcote lane. The approximate positions of the machinery are shown in Fig. 3. The main piece of equipment was a large wooden tilt hammer which was by then powered by a stationary oil engine. There was also an upright hammer worked by compressed air from an electrically powered compressor. In each of the two corners nearest Elmcote Lane was a large open hearth. They were equipped with a fan which drew air up from the bottom. Each hearth could heat up 12 or so moulds at one time.

At the north west end of the building was storage for handles and other wooden materials on the ground floor. The workshop above this space was used for shaping the handles and fitting them to tools. The site had evidently used steam power at some period. The engine house lay on the south west side of the building. Further to the south west was the boiler house with the 40ft chimney nearby but both were already obsolete by 1927. Electricity had been installed in the mid 1920's. This would be about the time that the West Gloucestershire Power Company's generating station at Norchard near Lydney was opened.

The mill house once enclosed a courtyard on four sides as can be seen on Fig. 1. However, Parts of the building were used as a warehouse. Much of the building had become largely derelict by the 1960's when Mr Goring demolished three sides of the mill house and rebuilt the remaining one for his own house.

Other buildings included the cart house and stable. The latter survives and has been converted to a holiday cottage. The row of mill cottages was effectively demolished in about 1969 and a single dwelling, Mill Court, built almost exactly on the line of the old cottages. It incorporates the end wall from the cottages as its east wall. In 1990 the National Rivers Authority constructed two new lakes in fields to the south of the mill for amenity purposes

The Products

The early references to the works simply call it an edge tool works from which we can surmise that is likely that a variety of agricultural tools were manufactured. Fortunately a comprehensive illustrated catalogue of the products of Leonard Thomas & Co survives (21). The catalogue is undated but is likely to be from the early part of this century. The title page highlights "Railway and Contractors Tools" in addition to the usual range of agricultural tools. It also refers to the company as being "Contractors to his Majesty's Government".

Over 120 different product types were offered and many of these were available in a wide range of sizes, finishes and handle type. Nearly all the spades and shovels could be supplied with either 'crutch' or 'eye' handles. These were the names used for 'T' and 'D' handles. Some of the tools were designed for very specific purposes such as the coffee digger and the locomotive stoking shovels. The catalogue opens with 36 different types of shovel and the names of some of these imply regional variations in the design preferred in different parts of the country. For example there are London, Cheshire, Devon & Cornwall and Bristol shovels advertised. Other types were for miners', platelayers', moulders', coal trimmers' gravel, mud and even snow.

It was a similar story with 34 types of spades but now Gloucestershire, Gloucester Cirencester and Welsh types were included in those offered. Trade prices varied from about £1.20 to £2.50 a dozen for shovels and a little more for spades. Next come 14 types of fork for digging, manure, hay, coke, clay and stone. The other products were hoes, pickaxes, Mattocks, axes hatchets, hooks, rakes, scrapers and hammers. Just how many of these items were actually made at Coaley we cannot be sure. Certainly in the closing years the former workers said that the product range was very small. It was mainly spades and shovels. Forks were sent down from A & F Parkes of Birmingham to have handles fitted.

The 1904 account notes that the firm had executed important orders for leading English and Indian railways and contractors. Considerable quantities of their special implements were also exported, principally through the London and other factors (18). Quite large quantities of tools were exported to India in the 1930's. The manager, Major Fayle made successful trips to India in 1932 and 1936 to promote the firms products (20).

It was said by one of the former workers that large numbers of gravel shovels were made for the local roadmen of the district. Probably the first stage in their journey for nearly all the products was to be taken to Coaley Junction railway station by the horse and cart which made

the return trip each evening. Finished goods were taken on the outward journey and raw materials such as iron bar were brought back from the station.

Manufacturing Processes

Despite the wide variety of shapes and sizes of spades and shovels made at Coaley the manufacturing processes were similar for all types.

First a blank of suitable length was cut from a mild steel bar using the waterwheel powered shears in the main mill. This would be typically 3 x 1 inches in section and 6 inches in length (75 x 25 x 150 mm). The blanks were heated in a hearth to a dull cherry red and then taken to a punch which shaped one end into a neck and shoulders. Whilst still hot the blank was mounted neck uppermost in a vice and a mandrel was pressed down into the neck forming an indentation which in some designs would later become the socket hole to take the wooden handle. In other designs the socket would be split into two straps which were riveted to the handle.

At this stage the blank is referred to as a "mould". The moulds were taken across the road to the hammer mill where they were reheated in one of the open hearths to red heat. The hearth was looked after by a "fire-boy" who brought the moulds from the hearths to one of the two hammers where the operator or plater sat on a seat suspended from a roof beam by a chain. Swinging round in an arc the plater moved the red hot mould under the hammer blows so that it beat out the lower part of the mould into the form of a plate slightly larger than the finished tool. The mould might need to be reheated more than once before it could be forged into a plate of the correct shape. Not surprisingly the hammering was very noisy. It was said that you could hear the hammers all over Coaley.

The plate was taken back across the road to the main mill where it was made into the appropriate tool. The outline of the required shape (allowing for pressing) was marked using a piece of slate. Next the plate is trimmed to the correct size in a hand shearing machine. It was then heated up again. The handle socket or straps were then formed depending on the design. After it had been heated up yet again in a hearth it was shaped in a press to give it the correct curvature. A different pattern was needed for each type of spade.

The wooden handle was then fitted into the socket or straps and secured by rivetting. The rivet heads were smoothed off with an emery wheel so that they were flush with the socket or straps. If the design had footplates (or treads) these would be rivetted on to the shoulders of the spade now.

The final process was to polish the wooden handle and possibly all or part of the metalwork. Handles were polished using an emery belt and the metalwork was polished using an emery buffing wheel. If the whole of the metalwork was polished the spades were known as 'bright's while a 'half-bright' had just its lower part polished and the upper part was painted. During the final years when Parkes owned the business the handles were supplied ready made from Birmingham. The tools were normally stamped with the letters LT or LEONARD THOMAS. The name Coaley does not appear to have been used.

Workers and Working Conditions

In 1927 Bill Yeomans, a 14 year old new employee earned 60p a week with a 5p a week good timekeeping bonus. He spent much of the time between 1927 and 1944 polishing and finishing the tools. He could do two dozen a day for which he was paid 50p a day. Most jobs were paid at piecework rates although some regular jobs such as clearing the watercourses were paid at day rates. A 48 hour week was worked in the 1930's. The normal hours were 7 am to 5 pm, Monday to Friday and from 7 am to 12 noon on Saturdays.

There was not always sufficient work for the employees and at very slack times a three day week was worked. At such times the men might receive from the firm about 75p which was half their normal wage and they would have to go Dursley to go on the dole which provided another 75p.

The men considered that their wages were good for those days but the nature of the work meant it was fully earned. Even with the hard working conditions the men interviewed considered Parkes to be good employers. The photograph shows a group of 14 workers at the works in the early 1920's.

The census records show that the premises were occupied in 1851 by Robert C Underwood and family. He is described as an edge tool manufacturer employing 35 men and boys. Only about 21 men are listed whose occupation suggests they worked at Coaley Mill. This suggests that some employees travelled in daily from nearby villages. Not surprisingly with the major employer in a small village it was common for a son to follow father employed at the ironworks. A detailed study remains to be done on the numbers of workers over the years.

As far as the former employees could remember there were about 20-25 workers at Coaley Mill in the 1930's. When the business came to close in 1944 probably through a shortage of materials and suitable labour during war time there were only about seven employees.

Concluding Remarks

Over fifty years on since the closure of Coaley Ironworks the fame of "Coaley" spades and shovels is almost forgotten. However, the fact that tools made at Coaley are still in regular use in the district is a testament to their quality and the skill of the men that made them.

When the ironworks closed the village still had its blacksmiths, wheelwrights, two shops, four pubs and Post Office. Today all of these have closed except for one pub. It is therefore all the more heartening that engineering is still carried on today at Coaley Mill.

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Gloucestershire Record Office,

Gloucester City Library (Gloucestershire Collection).



Some of the Workforce at Coaley Mill in the 1920's

