

ART. XIX – *Clay drainage tile and pipe manufacture at Johnby Wythes, Greystoke c. 1851-1909.*

By E. DAVIS

**D**URING the nineteenth-century, in an area known as Johnby Wythes, adjacent to the village of Johnby in the parish of Greystoke, a substantial bed of clay was utilised to manufacture bricks and drainage tiles. The date of commencement of tile-making at Johnby is uncertain, for while it definitely took place from c.1851, the chronology of the expansion of tile manufacturing in Cumberland does suggest that future research may produce an earlier date.

The method of draining used in Cumberland, before the introduction of underdraining with tiles and pipes, was a system of hollow drains, that is trenches filled with stones, or occasionally inverted sods.<sup>1</sup> Stone, not always available where needed, was costly to transport, limiting the extent to which effective draining was carried out.

It was as a result of the lack of readily available stone for use in hollow drains on the estate of Netherby, where Sir James Graham, the owner, was anxious to make improvements, that tile draining was introduced into Cumberland in 1819. In that year, Sir James was visiting his uncle's estate, Thorpe Hall in Staffordshire, and he was so impressed by the benefits resulting from tile draining that he arranged for an experienced tile maker from Tamworth to visit Netherby. The remit of this man was to locate a bed of suitable clay, set up a manufactory, and instruct estate workers in the processes involved in producing tiles, in all of which he succeeded.<sup>2</sup>

From this inception, tile manufacturing spread during the 1820s, with works being established at Carlisle, Bowness, Langrigg and Wigton. Robert Lucock, who, having learned his trade at Netherby, was to become one of Cumberland's major tile manufacturers, founded the tilery at Langrigg in 1824. The number of sites escalated during the next ten years, with thirty-six operational by the late 1830s, and, despite this expansion, demand for tiles, seemingly kept pace with the supply.<sup>3</sup> Growth continued throughout the next decade, with one writer, who was himself a tile maker, estimating that in 1851, in East Cumberland alone, there were forty-two tileries.<sup>4</sup>

A "tile maker" made tiles by hand or machine, using processes identical with those employed by brick makers, and a "field tile maker" specialised in moulding field tiles, that is small drain pipes.<sup>5</sup> In this definition there is the synonymous use of tile and pipe which was common throughout the nineteenth-century.

The first drainage tiles manufactured in Cumberland were "horseshoe" shaped; approximately thirteen inches long and formed by shaping a flat thin sheet of clay over a mould.<sup>6</sup> Early tile-making machines mechanised part of this process, producing flat sheets of clay, but leaving the moulding as a manual operation. Machines that could extrude pipes revolutionised production; the first were introduced around 1843, and over the next decades many "improved" models were displayed at agricultural shows. These included "machines for making draining tiles or pipes for agricultural purposes" produced by John Whitehead of Preston, one of which was awarded a prize in the implement section of the Royal Agricultural Society

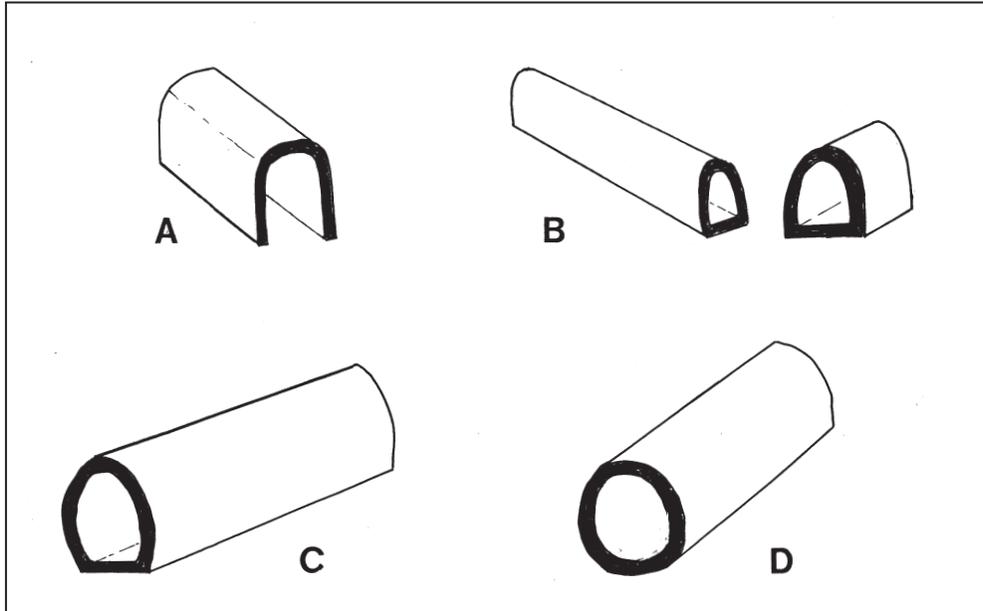


FIG. 1. The four basic drainage pipe types – (A) Horseshoe tile; (B) Pipe, with collar; (C) Pipe tile; (D) Pipe.

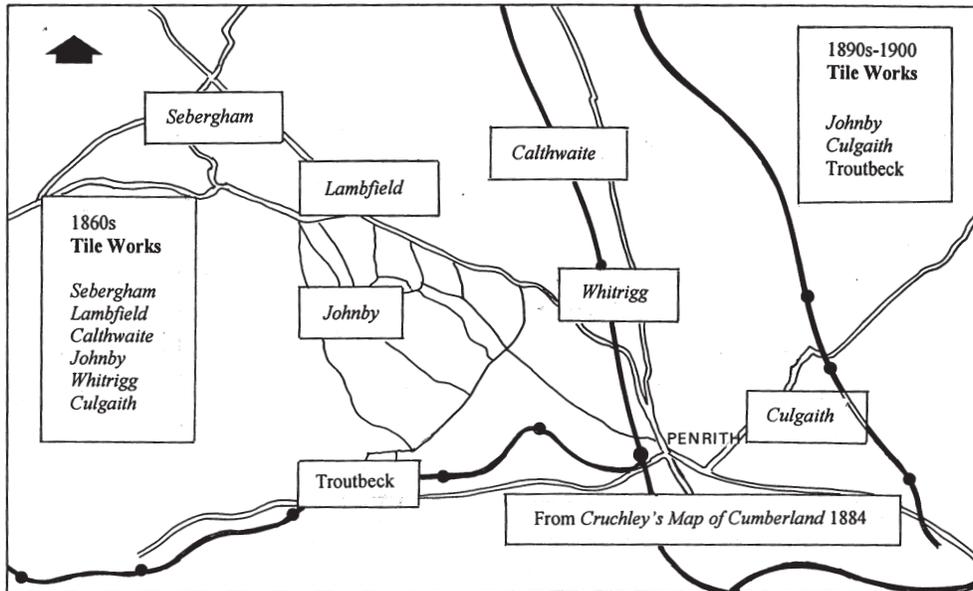


FIG. 2. Tile Works in the vicinity of Johnby.

of England Show at Carlisle in 1855.<sup>7</sup> The extruded pipes were either round, or with a slightly flattened base, the “pipe-tile”. Also manufactured were narrow gauge pipes supplied with a separate collar, used to cover the joint between two pipes to prevent silting. For the same purpose, many early horseshoe tiles were supplied with a “sole” to stand on, although often in Cumberland broken tiles were used as an alternative.

It would be simplistic to designate these three shapes, tile, tile-pipe or pipe tile, and pipe (Fig. 1), as a natural progression, because the terms are all used indiscriminately throughout the nineteenth-century. “Draining Tiles” in 1824, “pipe tiles” in 1865, “tiles” either flat bottomed or circular in 1880, “tiles” in 1893, “pipes” in 1905, and at Johnby between 1900 and 1909 “pipe-tiles”.<sup>8</sup>

The tiles and pipes were produced at manufacturing sites, which in nineteenth-century sources are termed “Tile Works” or “Tileries”, and often “Brick and Tile Works” and it will be these titles which are used throughout this paper. However, it should be noted that such sites are now designated “Clay Drainage Pipe Works” with the description “Tilery” or “Tile Works” reserved for sites producing roof, floor or decorative tiles.<sup>9</sup>

Boulder clay, the raw material used for the production of tiles and bricks in the nineteenth-century, particularly in the Carlisle area, was ubiquitous on the lower ground in Cumberland. In the Penrith locality, north-east of the Lake District and south of the Carlisle plain, boulder clay is also the most extensive of the drift deposits, being thickest in the west of this area.<sup>10</sup>

It was here, at the base of the scrubland of Johnby Wythes, described in 1889 as a remnant of the forest and mossland of the Forest of Inglewood,<sup>11</sup> mid-way between the villages of Johnby and Skelton, at what is now Tilery Farm (grid reference NY 433344), that Johnby Brick & Tile Works was situated.

The history of tile making at Johnby can be divided into three periods. Firstly, prior to 1861, about which very little is known. Secondly, the years of ownership by the Pickering family, from c.1861 until 1899, and finally, the best documented era, the Johnby Wythes Tilery Company Ltd., from 1900 to 1909.

The first indication of tile making at Johnby comes in the 1851 Census, when a William Richardson, tile maker was living at “Tile Kiln Cottage”.<sup>12</sup> Although the exact site of the cottage cannot be determined, its position on the enumerator’s route suggests Johnby Wythes as the location. Four years later the “Tilery Grounds”, owned by Greystoke Estate, was let to Wm. Stirling.<sup>13</sup> In 1851 a William Stirling, born in Scotland, was living at Skelton where he was a master tile maker, employing ten men and ten boys.<sup>14</sup>

It would seem a reasonable supposition that it was William Stirling of Skelton who was renting Johnby Tilery Grounds, and possibly employing William Richardson. Tile moulders normally worked with a boy, who brought the clay to the moulding table and removed the finished tile. Such a team was described as producing one thousand three-inch diameter tiles, in one day, this total being exceeded by brick makers, some of whom were capable of making five hundred bricks in an hour.<sup>15</sup> The number of workers employed by William Stirling was therefore sufficient to operate a single tile works, and possibly, more than one.

Not far from Johnby there were other tile works active before 1860 (Fig. 2). The nearest was Whitrigg Tile Works (NY 475359), about which nothing is known until it appears on the Ordnance Survey map of 1860, the same year that the plant was

offered for sale. Interestingly, it seems that this was a Greystoke Estate works, as particulars of the equipment for sale were available from the estate steward.<sup>16</sup> Calthwaite Tile Works (NY 464388) was operating from at least 1847, when John Potts Wells was described as a yeoman farmer and brick and tile manufacturer. The beginnings of tile manufacturing at Calthwaite may however be earlier. A letter with a postmark MA20 1830, addressed to Thomas Dixon Esq., Calthwaite, describes the size and method of construction of a kiln, and, on the reverse, specifications for drying sheds. Unfortunately there is no indication of the sender, although a Thomas Dixon Esq. is listed in an 1829 directory as residing in Calthwaite.<sup>17</sup> Other examples of tile works in the vicinity of Johnby are at Sebergham, where in 1835 there was a works, and at Lambfield where tile makers were recorded in 1841. To the east of Penrith the tile works at Culgaith (NY 603292) is listed in 1858, although an advertisement for a tile maker in 1836, suggests an earlier establishment.<sup>18</sup>

With the publication of the first edition Ordnance Survey map covering Johnby (Fig. 3), the location and extent of what is named as The Johnby Brick and Tile Works is confirmed. Among the structures depicted the kiln is captioned, as is the tramway linking the clay pits to the buildings of the Works.

A year later, in 1861, there is the first mention of the family who operated the works for the remainder of the century. The Pickering family of Johnby originated in Scotland and came to Cumberland, probably not before 1854 or later than 1858. In 1861 Jane Pickering, a widow aged 60 years was head of the household, living at the "Tile Kiln Cottage" previously occupied by William Richardson. Her occupation was given as "tile manufacturer", and her unmarried son James, age 21, the man who was to run the Works until 1905, was described as a tilemaker.<sup>19</sup> In 1871 Jane Pickering, aged 70, continued to describe herself as a tile manufacturer with James, by then married, still a tile maker.<sup>20</sup> However, James was, from the mid-1870s, listed in trade

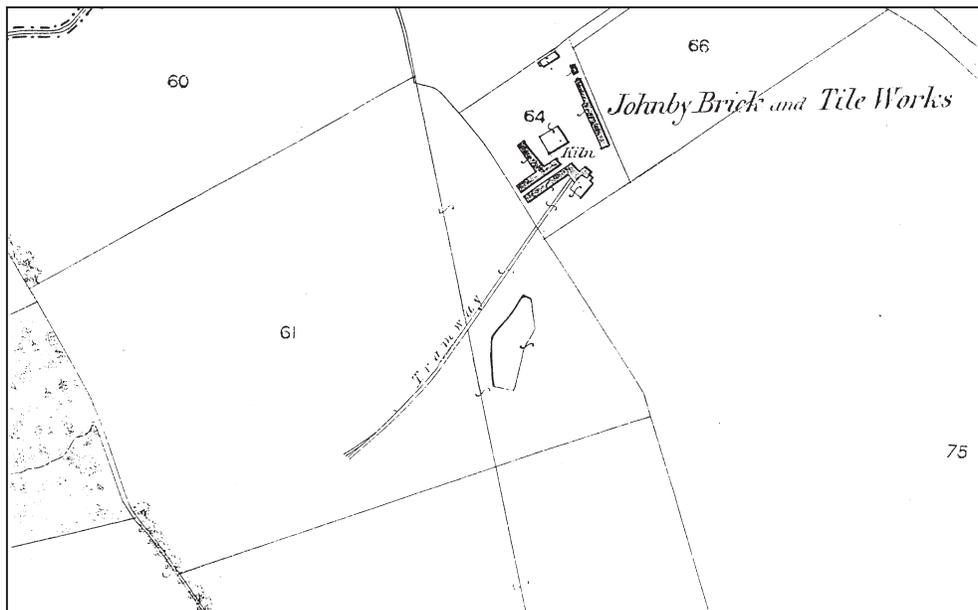


FIG. 3. Johnby Brick and Tile Works as depicted in the 1st Edition OS map.

directories as a brick and tile manufacturer, and in 1882 he added “saw mills” and timber merchant to his activities.<sup>21</sup> During the 1880s and 1890s he also classed himself as a farmer, as well as a tile manufacturer, a common combination in Cumberland throughout the first fifty years of tile making.<sup>22</sup> In 1891 Jane Pickering finally described herself as a retired tile manufacturer but continued to live at Johnby, eventually dying there in 1894, aged 94.<sup>23</sup> Three members of the Pickering family were involved in the business in 1891: James had two sons working with him, the eldest John age 30, described in the same way as his father, as a brick and tile manufacturer, and Joseph, 21 years old, as a tile maker.<sup>24</sup>

In the early years of the industry, the tile manufacturer, as owner of a tile works, would advertise for a tile maker to manufacture an agreed quantity of tiles per annum at a fixed price. Tile makers were also known as tile burners and this defined the part of the manufacturing process where most skill was required, as a kiln had to be filled and burned in a manner that produced “sound, true shaped tiles”. In the second half of the century more advertisements appeared offering tile works for sale or to let, rather than stipulating contracts to burn tiles.<sup>25</sup>

This was probably a symptom of the overall reduction in the number of tile works in north-east Cumberland, where in the late 1890s there were only twelve brick and tile works, compared with sixteen in 1884 and twenty-eight in the 1860s. Of these twelve works operating in the late 1890s all except two, one of which was Johnby, were adjacent to railways.<sup>26</sup>

Whether it was an attempt to support the tile works is not known, but in 1893 and 1894 expenditure on drainage by the Greystoke estate, presumably with tiles from Johnby, was high in comparison with the remainder of the decade. The annual expenditure fell by between twenty and forty percent during the next four years, only returning to former levels in 1899.<sup>27</sup>

Trading conditions were difficult, not only for small rural works. The Brougham estate had difficulty letting the Wetheriggs Brick and Pot Works in 1898 and again in 1908, even though on each occasion, they reduced the annual rent. At this time the works was still producing bricks and tiles, had two kilns for that purpose, and also had access to a railway siding.<sup>28</sup>

In 1899, despite the fact that his two sons were active in the business, James Pickering decided to sell his tile works. The reason for the decision is not known, but after so many years in the trade he would be aware of the problems, particularly for a concern with limited production capacity and without direct access to rail transport.<sup>29</sup>

The purchaser was The Johnby Wythes Tilery Company Limited, formed to buy the works and registered on 16 July 1900. The first meeting of the Board of Directors was held on 24 July when Henry C. Howard Esq. of Greystoke Castle was appointed chairman, not surprisingly in view of the fact that he held 276 of the 300 shares issued, providing £1,104 of the £1,200 capital of the Company. The involvement of James Pickering continued, as at the same meeting he was appointed the General Manager of the Tilery and sawing business.<sup>30</sup>

In preparation for the transaction, a valuation of the stock and plant was made on the 2 November 1899. The buildings, which were described as the masonry work and joinery work, were valued at £442.<sup>31</sup> This total was arrived at, by John Mallinson, a joiner and contractor of Greystoke, acting for Henry Howard, and William Grisenthwaite, joiner, builder and contractor of Penrith, acting for James Pickering.

James Beaty of Stanwix, perhaps the James Beaty, builder and brickmaker of Kingstown Brick and Tile Works, acted as referee.<sup>32</sup>

Alex Tweddle and Thos. Thompson executed the valuation of the machinery, the first named possibly being the manager of Sandysyke Brick and Tile Works near Longtown and the latter the Thomas Thompson, agricultural implement maker of Penrith. A value of £205 was placed on the machinery, giving a total of £647 for the business. In addition, in July 1900, James Pickering also received £236 for the stock of tiles and the “cast” clay, that is clay that had been dug the previous autumn.<sup>33</sup>

There was also a dwelling house and agricultural buildings, a byre, poultry house and piggery. These buildings and the land were the property of the Greystoke Estate, which was to receive rent for them from the new Company.<sup>34</sup>

The overall site area in 1898 (Fig. 4) was only slightly larger than in 1860, as shown in Figure 3, although the clay pits had been extended to the boundary of the site. The extent of the area of extraction is shown in Figure 5, which illustrates the situation in 2001.

In 1898, the 1860s tramway is not shown, and as the Valuation details the embankment, sleepers and rails separately, it may have been dismantled. It certainly required renovation in December 1901, when following a report to the Board by James Pickering on its condition, he was authorised to purchase rails of a stronger pattern and repair the structures supporting the elevating section.<sup>35</sup>

The embankment carrying the tramway leads directly from the clay pits to a group

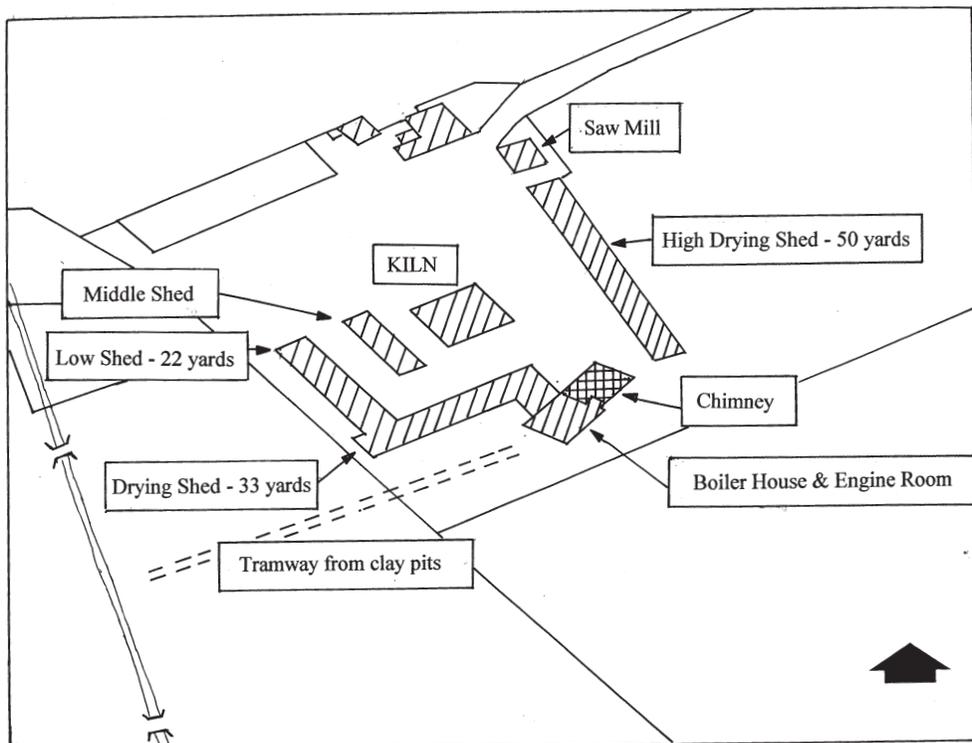


FIG. 4. The site in 1898.

of buildings, where the clay would be processed using the clay mill and pugmill. The following account, although written forty-five years earlier relating to a site in Carlisle, describes the process – “The clay in the first place is brought up an incline, to the top of the building, then passes between four rollers into a slide, which slide conducts it into the pugmill”. Any small stones in the clay will have been crushed in the clay mill and the purpose of “pugging” is to temper the clay, by adding water, as it is rotated through a series of knives in the pugmill.<sup>36</sup> After its treatment in the pugmill the clay was ready for moulding in the tile and pipe machines, here again repairs were required, also a new machine. In November 1901 the Board approved payment to Mr Thos Thompson for a new tile machine, followed by a further sum for installing it.<sup>37</sup>

The complex of buildings included the boiler house and engine shed, with a forty-five foot high engine chimney, the base of which is still visible (Fig. 5). According to a local anecdotal account, the chimney was still standing in the 1920s although not in use, and in 1923 the site was described as disused.<sup>38</sup> This area also presented the new Company with additional expenditure, as following an inspection by the Vulcan Boiler Co, the steam boiler had to be re-seated.

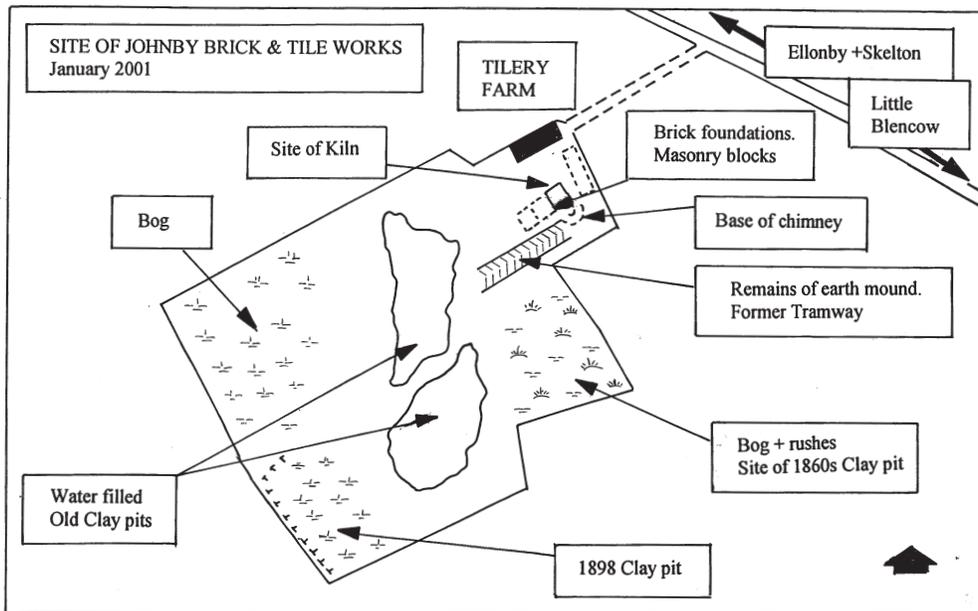


FIG. 5. The site in January 2001.

From the tile and pipe machines the pipe tiles, the term used throughout the life of the Company, were transferred to the drying sheds. Two of the four sheds detailed in the Valuation are identified as Drying Sheds, one the “High Drying Shed” was 55 yards long, the other, 33 yards long, was described as having a Welsh-slate roof. As had occurred with the tramway, the boiler and the tile machine, additional expenditure was soon required, with a new drying shed having to be built in 1903.<sup>39</sup>

Drying sheds needed to have the capacity to hold sufficient tiles to fill a kiln. A description of 1841 explained how a one hundred foot long shed, approximately

seven feet wide, should be filled. Firstly, beginning at the rear all the shelves were filled, then, again commencing at the back, the tiles, which had begun to dry, were stacked on the floor. The freshly moulded tiles went onto the shelves, thus doubling the shelf capacity, which was estimated at six thousand tiles. As early as 1828, in Cumberland, the tilery at Langrigg was advertising that it had fixed shelves able to contain 15,000 tiles.<sup>40</sup> If the linear capacity of the Johnby sheds were similar to those described they would together, be capable of holding in excess of 15,000 tiles on shelves.

There were no discussions at Board meetings regarding the kiln, and no invoices for repairs, suggesting its condition was good. It is named on the 1860s Ordnance Survey map, and shown in the same position, but not captioned on the 1898 edition. The only other reference is in the Valuation, where it is described as “burning kiln complete with storm shelters on each side”. From this limited information, identifying the type of kiln is highly speculative, however storm shelters on the sides would mean fireholes on the sides, possibly indicating a “Scotch kiln”. This type of small intermittent updraught kiln was common in rural tile works, and it is unlikely that with the small quantities of tiles being burned that it would be an intermittent downdraught kiln. The other type of kiln, known to have been in use in Cumberland, was the horizontal-draught “Newcastle kiln”, which had fire holes at the front, and can therefore be ruled out.<sup>41</sup>

In an attempt to assess the capacity of drying sheds and kiln, annual sales figures have been extracted and are detailed in Table 1.

TABLE 1. Annual Sales by product (Trading Year ending 25 March)  
Johnby Wythes Tilery Company Limited<sup>42</sup>

Pipetiles	1900/01	1901/02	1902/03	1903/04	1904/05	1905/06	1906/07	1907/08
2½"	25,740	66,735	31,345	96,740	58,175	19,675	55,466	60,145
3"	47,080	68,370	19,420	33,875	41,570	27,740	24,847	10,270
4"	10,271	10,398	6,220	12,860	12,960	7,091	5,941	5,973
6"	864	5,938	1,733	3,355	2,570	2,624	214	3,157
9"	442	92	230	1	19	4	500	
Bricks	3,550	17,930	26,705	16,230	15,470	19,290	1,130	
Totals	87,947	163,525	85,653	163,061	130,764	76,424	88,098	79,545

These figures have been used, together with the total quantities of each product in stock at the year end stocktaking shown in Table 2, to calculate annual production.

TABLE 2. Stocktaking, quantities at 25 March<sup>43</sup>

Pipetiles	1901	1902	1903	1904	1905	1906	1907
2½"	100,000	54,800	65,900	19,180	80,600	127,900	58,000
3"	15,750	56,000	56,160	38,270	36,780	38,620	11,600
4"	2,910	10,000	6,580	2,480	8,710	1,480	7,780
6"	4,950	2,100	3,220	1,360	3,370	4,490	4,020
9"	380	273	380	540	530	526	
Bricks	10,416	6,840	2,925	6,480	8,250	1,150	
Totals	134,406	130,013	135,165	68,310	138,240	186,866	81,400

The results of these computations are shown in Table 3, as are the number of kilns "burned" in the years for which this information is known.

TABLE 3. Estimated production quantities, calculated from Tables 1 and 2<sup>44</sup>

Pipetiles	1901/02	1902/03	1903/04	1904/05	1905/06
2 <sup>1</sup> / <sub>2</sub> "	21,535	42,445	50,020	119,595	66,975
3"	108,620	19,580	15,985	40,080	29,580
4"	17,488	2,800	8,760	19,190	12,561
6"	3,088	2,853	1,495	4,580	3,744
9"		337	161	9	
Bricks	14,354	22,790	19,785	17,240	12,190
Totals	165,085	90,805	96,206	200,694	125,050
Kilns			8	15	10

These totals are of course imperfect, as they cannot take into account such anomalies as incorrect counting or the number of damaged pipetiles. However, they do give some indication of the quantities being manufactured. When the total number of units is divided by the number of kilns, the results of 12,000 per kiln in 1903, 13,300 in 1904 and 12,500 in 1905 do seem realistic estimates.

The only products manufactured by the Company were the five sizes of pipetiles and the bricks. Only one type of brick, a perforated brick, was produced. As can be seen in Table 1, the 2<sup>1</sup>/<sub>2</sub>" was the most popular size pipetile, selling 414,021 between 1900 and 1908 followed by the 3" with sales of 273,172: these figures include the 1908 auction sales. The 4" pipe would be used for the main drain in a field, into which the water from the 2<sup>1</sup>/<sub>2</sub>" or 3" pipe flowed. The 6" and 9" pipes, many purchased by the local Council, were mainly to be used for buildings or roads.

Tile making and field drainage were both governed by the seasons; clay was dug in the autumn, to lay exposed to the elements over the winter months. The manufacture of tiles, as is shown by the dates of the firing of kilns, was carried out during the late spring and summer. While most drainage, as can be seen by analysing monthly sales figures of tiles, took place during the months of September through to March, this varied dependent on the weather, and other unknown factors. This meant that stocks of tiles on the 25 March of any year as shown in Table 2, together with the quantities produced that season, had to be sufficient to meet demand until April or May the following year.

The overall operation of the Works to achieve this, is illustrated by the terms under which James Pickering was appointed Manager, conditions of employment, which throughout the short operating period of the Company, were subject to constant renegotiations.

The initial agreement prepared in July 1900 allowed James Pickering the house, barn, thirteen acres of land, and the clay pits rent free, also free coal. He was to effect sales of tiles and bricks on behalf of the Company and to receive a commission of three pounds percent on money collected. In addition he was to have the sum of twenty pounds per annum for horse work in connection with the operation of the company.<sup>45</sup>

The agreement was drawn up by the Company solicitor and handed to James Pickering in November for perusal. Under the agreement he was to deposit a £200

security with the Company's banker, in his own and the Company's names, with him benefiting from the interest.

Although accepted by the Board, the agreement had not been signed by February 1901, as James was questioning the sum allowed for horse work. With his younger son's occupation given as carter in the 1901 Census, perhaps it was his interest James was trying to promote. Both parties finally signed the agreement in June 1901, with the sum allowed for horse work unchanged, James still protesting and the Board promising to review it when the Company was in a better financial position.<sup>46</sup>

The financial position was already of particular concern to the Board at the end of the first trading period, 25 March 1901, as, on sales of £210, a loss of £114 was incurred. In the Director's Report this was blamed on a scarcity of labour, resulting in very little draining taking place, together with the high cost of both labour and coal; not an exaggeration, as labour costs were £184 and the account for coal was £111.<sup>47</sup>

In December 1902 James was placing another proposal before the board, suggesting that from the 25 March 1903 he was to cast clay, manufacture the tiles, burn the kiln and load tiles into carts, find coal and labour, and be responsible for all money. In return he would pay to the Company five pounds per annum for the use of the engine and saw bench, but would occupy the house and land rent-free. Sales would be subject to an allowance of approximately twenty-five per cent on the selling price of all tiles. The Company to bear the cost of all repairs and pay James £15 for every kiln as filled and emptied during the process.<sup>48</sup>

The matter was deferred until February for consideration by the Board, when amendments were proposed, including charging £32 per annum rent. James refused to accept the alterations. The Board submitted to some of his demands with slight variations, one of which was that the Directors would instruct the manager on the number of kilns to burn each season. In June 1903 this part was put into effect when they resolved that eight kilns should be burnt that year. It was also decided that either party, giving the other six months written notice in a September, could terminate the agreement.<sup>49</sup>

In September 1903 James agreed to paying rent and both parties accepted that the present agreement terminate on the 25 March 1904, then to be renewed for one year, ending 25 March 1905.

At the meeting in May 1904, the Directors decided to give notice to James in the September, terminating his services on the 25 March 1905, and at that time to let the Tile Works. This action was confirmed in August when it was agreed to give written notice signed by two directors.

In November 1904, James made a counter proposal offering to take the land and Tilery on a yearly lease at a rent of sixty pounds but the Directors considered this unacceptable. However in December they reversed their earlier decision and after discussions with James, they decided to continue with his services until March 1906, under the existing terms, with him, paying £20 rent.<sup>50</sup>

Firm decisions on the future of the Works were finally taken in June 1905, when the Secretary, Mr H. Walker, the Greystoke Estate steward, resigned. The new secretary was Mr Charles P. Lawrence of Penrith, who in 1910 would be appointed Liquidator of the Company. James was duly given notice that his employment would be terminated on 25 March 1906, and at the same meeting it was agreed that the

Registered Office of the Company be transferred from the Tilery to the office of the Secretary in Penrith.<sup>51</sup>

At the Directors meeting on the 12 December 1905, it was considered that the present stock was sufficient for 1906 without producing more, and it was decided seek a tenant for the farm, who would act as a caretaker and sell the existing stock in return for a small remuneration. This duly occurred and from March 1906 until March 1907 Mr Thomas Watson carried out these duties, paying £26 rent and receiving £6 remuneration. A directory of 1906 lists John [*sic*] Watson as a tile maker at Johnby, not an accurate reflection of his position.<sup>52</sup>

Following discussions on the future of the Company at the Directors Meeting in February 1907, the Tilery house, land and machinery were advertised "to be let". Presumably no suitable offers were received, since at the March meeting Mr Howard proposed that he take the house and buildings and provide a caretaker, an offer accepted by the Board. In August it was decided to advertise the plant and machinery, with Mr Howard buying the Drying Sheds. An advertisement appeared in August offering the plant and machinery for sale. This included tank boiler, horizontal and vertical engines, clay mill, two brick and tile machines, also tram wagons and rails.<sup>53</sup>

In March 1908 the Chairman advised the Board that Mrs Popham had offered to take all of the buildings, including those reported as sold to Mr Howard, and it was resolved to accept this offer. She also wished to purchase the bank of cast clay, the agreed price being £6, despite the fact that Company had paid James Pickering £40 for it when his employment was terminated. The meeting also agreed that Mr Howard should offer Mrs Popham the stock on hand. Presumably this was not accepted as the remaining stock was auctioned in December.<sup>54</sup>

In May 1910, at a General Meeting of shareholders, a special resolution that the Company be wound up was carried. The final meeting was held in July when the closing accounts were submitted and approved and the books and papers were lodged with the Company Solicitors, and subsequently in Carlisle Record Office.

The intentions of Mrs Popham with regard to the works are not known, although in 1910 a directory lists Johnby Brick Tile and Pottery Works, the last located mention of the site until 1923 when it is shown as disused.<sup>55</sup>

Throughout its long life Johnby was typical of a small rural brick and tile works, with a single kiln, and the tile making combined with farming and in this instance also a sawmill. How important the income from the sawmill was in the early years it is impossible to say, certainly its contribution in the last years was very small, with sales in 1901 of £23 and in 1902 only £5. However, the fact that the timber was obtained from the Greystoke Estate may account for the existence of the sawmill.<sup>56</sup>

As has been shown, by 1899-1900 when the Johnby Wythes Tilery Company was founded, the majority of this type of rural business in Cumberland had already closed. Possibly support from Greystoke Estate had helped keep Johnby open, the culmination of this support being the setting up of the new Company to purchase the Works.

Henry Howard and the Greystoke Estate received very little in return for the outlay. The rent from the Company was only £10 per annum more than James Pickering had paid. The Estate paid the same price as other customers for the

pipetiles, despite purchasing a substantial proportion of the production, ranging from 30% in 1903/04 to 55% in 1900/01. In that year, of the 47,000 three inch pipetiles sold, Greystoke Estate purchased 43,000. The price charged for three inch tiles at Johnby, two pounds five shillings per thousand, was identical to that charged at Wetheriggs Pottery and Tillery in 1905.<sup>57</sup>

A desire to have tiles available locally, at a price the same as charged elsewhere, may be the key to the continuing support of the Estate for a local tile works. However, losses in every year except one (Table 4), resulting in the entire share capital being dissipated, were too large a price to pay.

Alterations to the terms under which James Pickering was employed made no real difference to the situation. During the first three trading years the Company paid, in addition to other expenses, the manufacturing costs, which were wages to James Pickering, and the coal account. Under the revised contract, payment was for working expenses, largely the cost of each kiln burned.

With fluctuations in turnover, to obtain a comparison, the manufacturing costs have to be expressed as a percentage of sales. These show that in the year ending 25 March 1903 expenses were approximately 100% of sales, compared with 106% in 1905, and 113% in 1906, both of the latter years under the new scheme. Costs fell dramatically to 43% in 1904, but this was only because fewer tiles were made, reducing the stock from £293 at the beginning of the year to £138 at the end. The only year that produced a profit was 1901/02, which also at £424 had the highest annual sales of its existence, and virtually no increase in stock between the beginning and end of year.<sup>59</sup>

The futility of the situation was acknowledged by the Directors in the Report to the Shareholders Meeting on 18 June 1907. In this they stated that, "as owing to the slackness of demand, the distance from a railway, and the cost of making, we see no prospect of being able to make the business pay".<sup>60</sup>

The last act was on the 15 February 1909 when Henry Howard Esq. wrote a cheque for £49 1s. 8d. to clear the final deficit of The Johnby Wythes Tillery

TABLE 4. Extracted from Profit and Loss Accounts & Balance Sheets 1901-1906.<sup>58</sup>

Profit & Loss [Year end 25 March]	1901	1902	1903	1904	1905	1906
Sales £	210	424	211	367	284	173
Rent receivable						20
Stock on hand 25 March	291	296	293	138	260	347
Loss	114		153	70	9	48
Total correct shillings/pence ignored	616	720	658	576	555	590
Opening stock	236	291	296	293	138	260
Wages [Paid to James Pickering]	184	184	100	3		
Coal	111	121	79			
Working expenses				139	287	189
Rent & Rates etc.	42	43	42	39	39	43
Commission on sales		12	6	16	14	8
Carting account	22	24	25	3		
Other expenses	18	26	45	37	35	62
Depreciation			62	41	39	25
Profit		14				
Total correct shillings/pence ignored	616	720	658	576	555	590
Repairs & new Plant & Buildings	111	58	26	67		32

Company Limited.

This article is part of ongoing research into the clay drainage tile and pipe industry and its manufacturing sites in nineteenth-century Cumberland and Westmorland. Sites are located on first edition Ordnance Survey maps, and the information collated with details from trade directories, contemporary newspapers and census returns. Using this data a gazetteer is being compiled, giving the name, location and known active period of the sites. It will then be possible, having established the existence of a works, to seek other archive material.

To date, the information gathered is suggesting that the majority of small rural sites were no longer operating by the late 1860s. From then onwards the supply of pipe tiles was concentrated in a limited number of large brick and tile works with several kilns and access to a railway. As has been shown above, Johnby Wythes was an exception to this pattern.

Unfortunately very little remains of most tile works, other than a pool or boggy area on the site of the clay pits, and occasionally a place-name such as “Tile Cottage” or “Tile kiln wood”. This is an insubstantial legacy of what was one of the most important nineteenth-century rural industries.

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### Notes and References

- <sup>1</sup> J. Bailey and G. Culley, *General View of the Agriculture of the County of Cumberland* (1805) (facsimile 3rd edition Graham, Newcastle, 1972), 238.
- <sup>2</sup> J. Yule, “An Account of the Mode of Draining, by means of tiles as practised on the Estate of Netherby, in Cumberland, the property of Sir James Graham, Bart MP”, *Transactions of the Highland Society of Scotland* (1829) New Series Vol. 1, 389-90. John Yule “who was to help make Netherby a great agricultural estate, a model of good farming” was appointed steward at Netherby in the early 1820s. D. Spring, “A great agricultural estate: Netherby under Sir James Graham 1820-45”, *Agricultural History* (USA, 1955), Vol. 29, 73-81. The tile maker from Tamworth is believed to be Thomas Guy Patrick, who subsequently owned the Linstock Tile Works, near Carlisle, Parson & White, *History, Directory & Gazetteer of Cumberland* (Leeds, 1829), 445. H. Lonsdale, *Sir J. R. G. Graham, Bart of Netherby: The Worthies of Cumberland* (Routledge, London, 1868), 37-38.
- <sup>3</sup> *Carlisle Journal*, 31 January 1824; H. Lonsdale (1868) *op. cit.*, 39, footnote. Practical Agriculturalist, “Agriculture of Cumberland” *The Farmers Magazine* (1838), 332-335. The spread of tile making in the early 1820s may have been inhibited by the tax on bricks, which was also levied on tiles. However in 1826 tiles used for the sole purpose of draining, were exempted from the tax, provided they were marked “DRAIN”. In 1850 all taxes on bricks and tiles were removed, in theory therefore, tiles stamped “DRAIN” date from between 1826 and 1850, N. Harvey, *The Industrial Archaeology of Farming* (Batsford, London, 1980), 81.
- <sup>4</sup> W. Dickinson, *Essay on the Agriculture of East Cumberland* (Thurnam, Carlisle, 1853), 22. Mr William Dickinson “who has one of his extensive tile works in the parish” Mannix & Whellan (1847), *History Gazetteer and Directory of Cumberland* (Johnson, Beverley, Moon, Beckermest, 1974), 313. From the mid-1840s drainage was encouraged nationally by cheap loans made available to landowners. These loans were made by both the government under the Public Money Drainage Act and by private

- companies under the Private Money Drainage Act. J. B. Denton, "On Land Drainage and Improvement by Loans from Government or Public Companies", *Journal of the Royal Agricultural Society of England* (1868) Second Series Vol. 4, 123-143. The impact of the availability of these loans in Cumberland has not yet been investigated. Although one small estate offered for sale in the north of the county in 1860 was advertised as having been drained "during the last ten years under government inspection", *Carlisle Journal*, 6 January 1860.
- <sup>5</sup> OSFACH Research Group, *A Dictionary of Occupational Terms* (Open University, 1998), CDR0088.
- <sup>6</sup> J. Yule, *op. cit.*, 391-392.
- <sup>7</sup> R. Beart, "On the Economical Manufacture of Draining Tiles and Soles", *Journal of the Royal Agricultural Society of England* (1841) Vol. 2, 93-104. Royal Agricultural Society of England, *A Catalogue of the Various Agricultural Implements, Machines and other articles for farm purposes, Exhibited at the Society's Show at Carlisle* (1855), Carlisle Library, Jackson Library, N 4/14. This may have been the same model as the Whitehead's Tile Making Machine included in the auction of the plant of Maryport Brick & Tile Works in 1865, *Carlisle Journal*, 5 May 1865.
- <sup>8</sup> *Carlisle Journal*, 21 August 1824, *Carlisle Journal*, 15 May 1865, P. J. Jackson, *Postal Address Directory of the City of Carlisle* (Jackson, Newcastle, 1880), advert. 2. Sandysykes Brick & Tile Works, Billhead. Wetheriggs Pottery & Tilery, Billhead CRO(C) DB5529/2/3.
- <sup>9</sup> RCHME (2000), *Thesaurus Class List-Industrial*, www.gov.uk/thesaurus/mon-types/c/9 149, 20.
- <sup>10</sup> B. J. Taylor, *et al.*, *British Regional Geology: Northern England* (4th ed. HMSO, 1971), 93. R. S. Arthurton and A. J. Wadge, *Geology of the country around Penrith* (HMSO, 1981).
- <sup>11</sup> M. W. Taylor, "Some Manorial Halls in the Barony of Greystoke", *CWI*, xi, 8.
- <sup>12</sup> Census, 1851, HO107/2426, Johnby Sch. 59.
- <sup>13</sup> CRO(C) D/HG 270
- <sup>14</sup> Census, 1851, HO107/2426, Skelton Sch. 41.
- <sup>15</sup> J. Yule, *op. cit.*, 392. F. Celoria, "Edward Dobson's A Rudimentary Treatise on the Manufacture of Bricks and Tiles 1850", *Journal of Ceramic History* (1971), Vol. 5, 2/24.
- <sup>16</sup> OS 6" Sheet XLIX, surveyed 1860. *Carlisle Journal*, 21 December 1860.
- <sup>17</sup> Mannix & Whellan (1847), *op. cit.*, 272, CRO(W) D/Lec/119 [Drawn to my attention by Ian Caruana], W. Parson and W. White (1829) *History, Directory and Gazetteer of Cumberland and Westmorland* (Leeds, reprint Moon, Beckermest, 1976).
- <sup>18</sup> *Carlisle Journal*, 31 January 1835, Census 1841, HO107/0172, Castle Sowerby. Kelly, *Post Office Directory of Cumberland & Westmorland* (London, 1858), 179-180. *Carlisle Journal*, 23 January 1836. The first OS map to show Troutbeck Brick & Tile Works is the second edition (1898). In 1901 the owner of Troutbeck Works was Samuel Taylor, who also owned Culgaith Tile Works. Bulmer, *History, Topography & Directory of Cumberland* (Preston, 1901), 383, 357.
- <sup>19</sup> Census 1861, RG9/3902, Johnby Sch. 18. Jane was also known by the diminutive Janet in some records.
- <sup>20</sup> Census 1971, RGI0/5204 Johnby Sch. 16.
- <sup>21</sup> Slater, *Royal National Commercial Directory of Cumberland and Westmorland* (Manchester, 1876/7), 92 and (1879), 100/1. F. Porter, *Postal Directory of Cumberland* (London, 1882), 431.
- <sup>22</sup> T. F. Bulmer, *History, Topography and Directory of East Cumberland* (Manchester, 1884), 563. Kelly, *Directory of Durham, Northumberland, Cumberland and Westmorland* (1894), 154.
- <sup>23</sup> Census 1881, RG11/5144, Census 1891, RG12/4277, Greystoke Churchyard Memorial.
- <sup>24</sup> Census 1891, RO12/4277, Johnby Sch. 86.
- <sup>25</sup> *Carlisle Journal*, 23 January 1836, "hard true shaped tiles" *Carlisle Journal*, 1 March 1878, "well burned tiles", *Carlisle Journal*, 3 February 1865, "sold or let" *Carlisle Journal*, 8 February 1878, "for sale".
- <sup>26</sup> OS 6" maps first edition, 1860s, Bulmer (1884) *op. cit.* Bulmer (1901) *op. cit.* OS 6" maps, second editions, 1890s.
- <sup>27</sup> CRO(C) D/HG/214.
- <sup>28</sup> B. Blenkinship, *Wetheriggs Pottery* (Kendal, 1998), 21, 23-24.
- <sup>29</sup> Census 1901, RG13/4856/41/18.
- <sup>30</sup> CRO(C) DBS529/1/3; CRO DBS529/1/4.
- <sup>31</sup> CRO(C) DBS529/2/1.
- <sup>32</sup> T. Bulmer (1901) *op. cit.*, 382, 459, 245.
- <sup>33</sup> CRO(C) DBS529/2/5.
- <sup>34</sup> CRO(C) D/HG/214.

- <sup>35</sup> CRO(C) DBS529/1/4, 22.
- <sup>36</sup> CRO(C) DX1648/2. E. Dobson and A. B. Searle, *A Rudimentary Treatise on the Manufacture of Bricks and Tiles* (14th edition, Technical Press, London, 1936), 42-44.
- <sup>37</sup> CRO(C) DBS529/1/4, 11, 13, 14.
- <sup>38</sup> OS 6" map Sheet XLIX-SW, revised 1923.
- <sup>39</sup> CRO(C) DBS529/2/1. CRO(C) DBS529/1/4, 46.
- <sup>40</sup> R. Beart (1841), *op. cit.*, *Journal of the Royal Agricultural Society of England*, Vol. 2, 93-104. *Carlisle Journal*, 15 April 1828.
- <sup>41</sup> CRO(C) DBS529/2/1, M. D. P. Hammond, "Brick Kilns: An Illustrated Survey", *Industrial Archaeology Review* (1977) Vol. 1 No. 2 (Oxford University Press with the AIA), 171-192, T. Keates, "Reake Wood Tile Kiln", *The Cumbrian Industrialist* (1998), Vol. 1, Cumbria Industrial History Society. A Newcastle kiln still stands on the site of a tile works in north-eastern Cumbria.
- <sup>42</sup> CRO(C) DBS529/2/3 Sales Journal.
- <sup>43</sup> CRO(C) DBS529/2/1.
- <sup>44</sup> CRO(C) DBS529/1/4.
- <sup>45</sup> CRO(C) DBS529/1/4/5.
- <sup>46</sup> CRO(C) DBS529/1/4, 11, 16, 17.
- <sup>47</sup> CRO(C) DBS529/1/5.
- <sup>48</sup> CRO(C) DBS529/1/4, 35-36.
- <sup>49</sup> CRO(C) DBS529/1/4, 35-38, 40, 44.
- <sup>50</sup> CRO(C) DBS529/1/4, 53, 56-58.
- <sup>51</sup> CRO(C) DBS529/1/4, 60, 62. Bulmer (1901), *op. cit.*, 382.
- <sup>52</sup> CRO(C) DBS529/1/4, 68, Kelly, *Directory of Cumberland and Westmorland* (London, 1906), 158.
- <sup>53</sup> CRO(C) DBS529/1/4, 72-3, 75. *Penrith Observer*, 13 August 1907.
- <sup>54</sup> CRO(C) DBS529/1/1 Mrs Popham of Johnby Hall held a single share in the Company. CRO(C) DBS529/1/4, 78, 70; CRO(C) DBS529/2/3.
- <sup>55</sup> Kelly, *Directory of Cumberland and Westmorland* (London, 1910), 162; OS Map Sheet XLIX-SW, revised 1923.
- <sup>56</sup> CRO(C) DBS529/2/5.
- <sup>57</sup> CRO(C) DBS529/2/2; CRO(C) DBS529/2/3. Billhead in *Wetheriggs Country Pottery*.
- <sup>58</sup> CRO(C) DBS529/1/5.
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