

Brush Making in Axminster

Background

In late 1880 it was reported that James Boon had “... *let a portion of his mills at the bottom of Castle Hill to Messrs Coate, Bidwell & Co, tooth brush manufacturers of Chard and London*”¹. It was estimated at the time that about 200 persons were likely to be employed in Axminster as a consequence.

Although that contemporary report gives the impression that a single brush-maker was involved, all other sources show that Messrs Coate & Co and Bidwell Bros remained separate entities, and direct competitors (see below for details on both firms).

Their landlord, James Boon, had run a range of businesses in a cluster around the bottom of Castle Hill for some years (see a separate document for details), and it seems highly likely that he had only just had the newest of the mills (the one which was subsequently occupied by Coate & Co) built for his own use. It has the date ‘1877’ set into its south-facing gable end.

By the time Kelly’s Directory of 1889 was published, Axminster was being described as “... *known for the excellence of tooth, nail and hair brushes*”. Although the brushes made in both factories were often referred to collectively as ‘toilet brushes’, they were designed for personal grooming (i.e. ‘toilette’) rather than household cleaning.

The manufacturing process

Brushes, ranging from coarse household brooms to very fine artists’ paint brushes, had been made by hand for centuries, mainly by artisans, in a cottage-based process. Such early brushes were mostly made by binding bristles (or twigs) tightly to a straight handle.

What changed during the 19th century was the ambition to fix multiple small bunches of bristles to a shaped head, in a regular pattern or array, thereby greatly expanding the range of applications for which brushes could be used.

It was one thing to decide that individual bunches of bristles should be fixed in a regular array of holes drilled into a shaped handle, but another thing entirely to work out how to fix them securely within those holes. Before efficient glues were developed, and when brush-making was still a craft rather than an industry, hot pitch was used to fix the bristles. This was known as ‘pan-work’, but it was not suited to ‘personal care’ brushes because the pitch would get into the user’s hair, teeth etc.

Therefore the challenge became to find a reliable and hygienic method of fixing the bristles. Only when that had been achieved did tooth brushes start to take over from much simpler cleaning sticks. Early tooth brushes used wax to fix the bristles, but wax was not a very strong medium, and the search continued for a stronger and more reliable glue or alternative fixative.

Irrespective of the chosen fixative, factory-made brushes were made by drilling arrays of holes in a wood (or similar) base. Bundles of bristles were then pulled through the holes and fixed with wire (itself an industrial product not available to earlier craftsmen) and one of

¹ Source: Exeter & Plymouth Gazette, 23 November 1880.

several fixatives. Another piece of wood (or similar) was then fixed over the back, covering the knots and wires, and the bristles were trimmed.

An article written in 1910² describes the processes applied in Axminster in more detail. The wood used for hairbrush backs was typically satin wood or rose wood, imported from the East or West Indies. Tooth and nail brushes more typically had bone handles (known as 'stocks' or 'blocks' respectively). The middle bone from a bullock's leg would produce four stocks, after being sawn, shaped by machinery and finished by hand. There were then 10 more processes, including polishing, drilling and bleaching, before they were ready to be loaded with bristles.

The bristles came mostly from semi-wild Siberian hogs, which once a year would be herded into pens, and the bristles scratched from their backs by men clad in very thick leather boots. Some other bristles were collected by hand in the Black Forest from places where hogs had scratched themselves on tree branches, leaving some of their bristles behind.

These bristles were sorted and sold by merchants in Leipzig, having been loaded into casks with camphor to kill the bugs found on wild bristles.

Brush-makers would then sort the bristles by colour (black, yellow and white), and use machinery to sort them further according to length and stiffness. At this point they would be washed and bleached and cut, with the longest, stiffest bristles generally being worth the most. Tooth and nail brushes required the finest bristles.

Brush-makers such as the two in Axminster used a technique called 'drawing'. A length of wire would be passed in loops through the holes in the stocks and blocks, and bundles of bristles would then be 'drawn' through the holes, and rows at a time would be fixed in that way. To hand-draw a good hairbrush would be a day's work, and much of this part of the process was done outside the factory as piece-work by out-workers, most of them being women and girls. They would receive stocks, blocks and bundles of bristles, and the 'drawn' brushes would be collected and returned to the factory, where cement would be used to secure the bristles further.

In the case of hair brushes the brush-back would then be affixed, and the brush would be shaped, sanded, stained and polished. In the case of tooth and nail brushes the cemented brushes would be washed, polished, graded, stamped and packed ready for sale, typically in packs of a gross (144). For larger customers the brushes would be stamped with the retailer's name as well as the maker's.

According to Mr Young each brush would have gone through 70 different processes by the time it left the factory, and at that time Bidwells were selling 72 different patterns of tooth brush alone, of 12 different qualities and four different stiffnesses. They also offered 200 patterns of hair brushes. What was true for Bidwells was almost certainly equally true for Coates.

James Coate & Co (1882 to 1935)

Jame Coate was born at Membury in 1814, but as a young man he moved to London, where in 1847 he established a brush works. In the early years he had premises at 19 Marylebone Street, Picadilly³. On 9 September 1853 he was granted a patent for 'white enamelled tooth

² Source: Exeter & Plymouth Gazette, 17 March 1910, based on an interview with Mr Thomas Alexander Young, manager of the Bidwell factory at that time.

³ Source: Public Ledger & Daily Advertiser, 28 November 1860.

brushes', which directly addressed the fixing challenge outlined above, and established him as a leading brush maker.

In 1861 he moved⁴ to larger premises at 41/42 Lisle Street, near Leicester Square. Although these premises were affected by a big fire in a neighbouring building in 1865⁵ he did not have to move again as a consequence.

The 17 August 1872 issue of 'The Pharmaceutical Journal and Transactions Advertiser' carried a full-page statement-come-advertisement from James Coate & Co "... *patentees of the white enamelled tooth brushes, 41 and 42, Lisle Street, Leicester Square, London W, and Nimmer Mills, Chard, Somersetshire, manufacturing on their own premises every kind and quality of tooth, hair, and nail brushes*".

The main statement was dated 1 October 1869, but the attached testimonials were dated from 1864 to 1872, and came from retail chemists in London, Liverpool, Glasgow and Dublin as well as from provincial towns including Cheltenham, Chichester and Weymouth.

The main statement was much more densely written than any modern advertisement, but this also means that it is more informative. Selected extracts are reproduced below.

"Being fully persuaded that division of labour is essential to the attainment of the excellence required, at the present day, particularly in Tooth and Hair Brushes, we beg to assure our friends that, as heretofore, so now, we are resolved to devote our full attention to the manufacture of these articles, using only the best materials, and employing the most skilful workpeople that the trade produces, and to sell at the lowest prices possible."

"As to Samples and Patterns, we unhesitatingly say, that we have the largest and most varied collection of any house in the trade; and that our Tooth and Hair Brush productions at the present time are second to none for reasonableness of price and excellence of quality."

In relation to his patented method he stated that "... *notwithstanding the many inferior imitations of them which have appeared under the fictitious names of Pearl-cemented, Ivory-cemented, Diamond-cemented, Adamantine-cemented, Desideratum, etc. All these are base imitations, which could not be sold but that they are represented as being made like Coate's Patent, although not so made.*"

"For the last seven years we have been engaged in establishing a Branch Factory, at Chard, in Somersetshire, where we have ample water power, and in which Factory we have placed the latest improvements in machinery, and the most skilful workmen of London and Paris, in order that we may be able to meet the constantly increasing demand for our ... brushes."

"We have now applied our Patent Cement to every quality of Tooth Brush, and are enabled to supply the Patent Cemented Tooth Brushes at prices as follows." The prices then quoted range from 26 to 78 shillings per gross (144 brushes), i.e. from just under 1p per tooth brush (in decimal money) to 2.7p each "... *every Brush of which we warrant stamped 'Coate and Co, London'.*"

The factory at Nimmer Mills was due north of Chard and due west of Hornsbury Mill (which sits adjacent to the Ilminster road). Because the main text of the statement placed in 'The Pharmaceutical Journal and Transactions Advertiser' had been written in 1869, this suggests that the Nimmer Mills factory had been established in about 1862, and based on the fact that

⁴ Source: Public Ledger & Daily Advertiser, 28 November 1860; and Clerkenwell News, 9 November 1861. The second source refers (in a paid advertisement) to Coate & Coate: the only such reference.

⁵ Source: London Evening Standard, 2 March 1865.

it was published in 1872 we know that it had been established there by 1865 at the latest. Many years later, when James Coate died, the newspaper report at the time⁶ stated that he had opened the Nimmer Mills works in 1863, and the Axminster factory in 1882.

At the time of the 1881 census James and Fanny Coate were still living at Lisle Street, though James was evidently on a sales trip to Scotland on the day in question. Over the next 2 years he moved his main place of business from London to Axminster, and he and his wife, by then in their late 60s, came to live in the town. He took over a mill / factory beside the Membury Road on the town side of the level crossing at the foot of Castle Street. Once occupied by James Coate it was variously known as the London Brush Works and Messrs Coate & Co. Like its neighbouring mills, this factory had direct access to water power from the leat which draws water from the river at the site of the former town weir, passes beneath 'ducking-stool bridge', and re-joins the river some way down-stream.

James Coate, who did not have any children to inherit the business, died in 1907, and control passed to Thomas Coate Bond, his nephew. He in turn died in 1919, shortly after being appointed as one of 14 employers' representatives on the 'Trade Board for the Brush & Broom Trade in Great Britain'⁷. By 1925 the business was known as Coate & Co (Axminster) Ltd.

In 1935 it was announced⁸ that the Axminster factory was closing, with staff and manufacturing continuing at Nimmer Mills. By that time the company only had about 15 staff left in Axminster. Their Axminster out-workers were to be retained, with work being fed to them from Nimmer Mills. In 1837 Coates Brushes Ltd of Nimmer Mills acquired the remaining business of Coate & Co (Axminster) Ltd⁹.

Later the Nimmer Mills business cooperated with another brush-maker called A Simpson which specialised in shaving products, and in 1990 the businesses were formally merged, just 4 years before the combined business being wound up.

Bidwell Bros (1882 to 1889) / Bidwell, Bidwell & Co (1894 to 1955)

The other brush making business to move to Axminster was run by brothers James and Arthur Bidwell. They had been born in East London in 1841 and 1844 respectively to Thomas Bidwell and his wife Susan (née Weakley). Thomas Bidwell had started the family brush making business in Hoxton, East London in 1839, but he died in 1850, leaving Susan to run it until James and Arthur were old enough to help.

The London Gazette (issue of 18 July 1873) reported that Susan, James and Arthur Bidwell had applied for a provisional patent (No.2291) for "... *an improvement in the manufacture of tooth-brushes*", though the patent itself lapsed 3 years later when they did not pay the £50 stamp duty (London Gazette, 14 July 1876). Details of the original application, as published in America, described the manufacturing technique as being based on enabling "... *the hair or bristles to be permanently fitted and retained within the head of the brush in a more flexible and durable manner than when rigidly fixed as at present; and consists in drilling or forming the holes in the heads of the brushes with flaring mouths, so that on the hair being drawn in and fixed by wires, cement, or otherwise, in the usual manner, the said hair shall have free expansion within the countersunk flaring holes, and thereby be prevented from being broken or cut off, as in the case of the sharp or rough edges of the holes of the*

⁶ Source: Western Times, 17 January 1907.

⁷ Source: London Gazette, 8 August 1919.

⁸ Source: Western Morning News, 17 October 1935.

⁹ Source: Western Morning News, 16 October 1937.

ordinary brushes, when tightly bound, as at present. ... It is to be understood that when cement is employed there must not be sufficient to extend to the portion of the bristles in the flaring part of the holes."

The London Gazette then shows that in 1878 James and Arthur Bidwell registered a further patent (No.2373), this time for "... *an improvement applicable to nail, scrubbing and other brushes*".

They were still based in East London at the time of the 1881 census, but soon thereafter (in 1882) they moved their business to Axminster. Their factory was next door to, and upstream of, that of James Coate & Co. A directory dated 1883 records two brush factories in the town, and two households in the town, headed by James Bidwell and his mother respectively.

In 1889, claiming to have out-grown their premises in Axminster¹⁰, they moved their entire business, and their residences to the Old Silk Mill building on Mill Street, Ottery St Mary. The business continued to operate under the name of Bidwell Bros, but was converted to a limited liability company, with additional shares being issued to pay for the expansion which was planned.

Unfortunately it appears that their ambitions¹¹ outstripped their sales, and their co-investors in Ottery (almost all local residents and businessmen) began to fear the worst, appointing an independent valuer to provide a second opinion on the state of the business¹². Their concerns were not allayed, and they presented a petition for winding up the business on 3 February 1893 due its high debts, and a liquidator was appointed to run the business until a buyer could be found.

What followed was an unusual legal case¹³. The assets of the business were purchased by Simeon Edward Keetch and Robert Scowcroft Howarth, trading as Keetch & Co on 1 September 1893. The new owners then accused James and Arthur Bidwell of having stolen two hair brushes from the factory's agreed inventory, and the two brothers were duly convicted of that offence at Ottery Petty Sessions in October 1893, and fined £2 each, plus costs. At their solicitor's request the fines were then increased to £5, since this allowed them to mount an appeal. As the 'Chemist & Druggist' journal reported in 1894 they were both granted free pardons by the Home Secretary. A year later, in 1895, Keetch & Co was in turn declared bankrupt.

One branch of the Bidwell family had continued to live in Ottery St Mary after the business there collapsed, and there was further litigation about this¹⁴.

The brothers evidently decided to return to Axminster, which they did in about 1894, trading under the name Bidwell, Bidwell & Co¹⁵. Their 'flagship' product was the 'Gloria' tooth brush, but they also made hair, clothes and nail brushes plus some other minority products.

¹⁰ Source: Exeter & Plymouth Gazette, 3 September 1889.

¹¹ Source: Exeter & Plymouth Gazette, 6 December 1889; and Western Morning News, 5 January 1891.

¹² Source: Exeter & Plymouth Gazette, 7 September 1892.

¹³ Source: Western Times, 29 September 1893.

¹⁴ Source: Western Times, 10 November 1894; and same newspaper 18 July 1895.

¹⁵ Notwithstanding the change in name, a report in the Exeter & Plymouth Gazette of 19 October 1894 refers to Bidwell Bros of Axminster.

In 1901 the brothers, together with Thomas Alexander Young, one of their managers (and James Bidwells' son-in-law), were awarded a further patent (No.26,551) for a refinement to the manufacturing process¹⁶.

By 1910¹⁷ Bidwell, Bidwell & Co was shipping up to 100 gross brushes (i.e. 14,400 brushes) a week, and claimed to have about 300 workers, including out-workers. Following the death of James Bidwell (which occurred in 1910), in 1912 the company was converted to a Limited Company, and Thomas Alexander Young acted as the principal manager.

The company remained active, and in 1933 was one of the exhibitors at the British Industrial Fair at Olympia¹⁸.

Although Arthur Bidwell lived to the age of 90 (he died on 10 February 1935 at Lyme Regis, as reported in 'The Chemist & Druggist' of 16 February that year), he had by then handed control to his two sons, Henry and Percy, and to professional (non-family) managers.

The following year, in 1936, Thomas Alexander Young also died¹⁹.

In April 1942 there was a serious fire at the factory in the area used for cutting, shaping, finishing and drilling bone²⁰, caused by a circular saw overheating. The fire broke out on the middle floor, fortunately at a time when there were only about six men in that particular building instead of the usual fifteen. Nevertheless, two men had to escape from the top floor through the smoke before the roof collapsed. Thanks to the efforts of the Fire Brigade the fire did not spread to the main factory building next door. The total number of employees at that time was reported to be 75.

A petition to wind up the business was filed in 1955, and the process was completed by 1958.

The workforce in 1911

Both firms brought some of their skilled workers with them, but created many jobs for local people. At their peak they probably employed about 300 people between them, mostly women, in their factories and as home workers. Indeed in 1910 (as reported above) Bidwell, Bidwell & Co claimed to employ about 300 people.

However, a review of the evidence which is available from the 1911 census does not confirm this, inasmuch as a count of local residents from Axminster and the surrounding parishes whose job description includes a reference to brushes only finds 189 persons. Part of the discrepancy is likely to have arisen because some employees who worked in the factories described themselves as a 'worker in a factory' or as a 'labourer in a works', or by means of some other alternative description which does not allow them to be linked to the brush works. Similarly, some of the out-workers may have been described simply as a 'labourer's wife' (or daughter) without any reference to brush-making piece-work. Nevertheless, given the common use of the word brush in so many worker's census returns, 300 (which would not take any account of Coate & Co's workforce) does look like an overstatement.

Of the 189 individuals who have been identified, 173 lived in Axminster parish, with the other 16 being from Musbury (4), Kilmington (3), Membury, Dalwood, Cotleigh and Seaton (2

¹⁶ Source: Dartmouth & South Hams Chronicle, 1 February 1901.

¹⁷ Source: Exeter & Plymouth Gazette, 17 March 1910.

¹⁸ Source: Western Morning News, 21 February 1933.

¹⁹ Source: Western Times, 21 August 1936.

²⁰ Source: Exeter & Plymouth Gazette, 24 April 1942.

each), and Chardstock (1). Some of these out-workers may have worked for other brush-makers (including Coate's works at Nimmer Mills), and no account has been taken here of a small number of brush workers who lived in Colyton, where there does appear to have been another small brush maker specialising in artist's brushes.

All of the residents of outlying parishes who described themselves as working at home were female, and most described themselves as brush drawers. Two of the Kilminster residents appear to have worked in one of the factories, and both of the Seaton residents did (one being a manager in Bidwell's works).

Of the 36 workers who described themselves as out-workers only one was male, and 24 were from Axminster parish and 12 (see above) from nearby parishes. All but two of the Axminster-based out-workers lived in the town itself. One described herself as a toothbrush stamper, 22 were brush drawers, and the remaining 13 did not specify any particular function. On balance, though, it is likely that most if not all of them were drawers.

Of these 36 two were heads-of-household, 22 were wives, 19 were children still living with their parents and the other two were a housekeeper and a boarder. Eleven were aged under 20, and another 11 were in their 20s. Seventeen of the 36 had been born in Axminster, 6 had been born in Membury or Musbury, and 9 were from no further away than Stockland, leaving just 4 from 10 miles away or more.

The overall picture of out-workers is therefore of mostly young women who were born locally and lived locally, mostly in the town itself.

Turning now to the 153 workers who did not describe themselves as out-workers, 102 were male and 51 female, and as stated above, they were almost all resident in Axminster.

Of the 153 53 were heads-of-household, 8 were wives, and 77 were living in households headed by a family member. Almost all of the other 15 were boarding or lodging in the town. Forty seven were aged under 20, and another 43 were in their 20s.

In relation to their places of birth the factory workers were much more diverse than the out-workers. Although 70 had been born in Axminster or very nearby, with 16 more born within 10 miles of the town, 34 had been born in London, and 15 had been born a comparable distance from Devon (mostly in England, but including 2 from Scotland). Most (but not all) of those 11 employees who can be identified as having some management, supervisory or clerical function came from London or similarly far away.

Of the remaining 142 factory-based employees, 80 had a specified 'craft' task, and 62 did not. Of those 62 one was a warehouseman, one a carpenter and a third was off sick. In most respects the remaining 59 were broadly similar (in terms of their ages and where they had been born) to the 80 whose crafts we know. Those 80 comprised: one bristle-dresser, 19 fashioners and a profiler, 6 drillers, 6 polishers, one wire-layer, 11 drawers, 6 finishers, 4 trimmers, 8 stampers and a numberer, 3 sorters, 10 packers and three others whose function is not entirely clear (a boiler-out, a drubber, and one more that is illegible).

The finishers were almost all London-born men and heads-of-household, while most of the fashioners, drillers, drawers, polishers, sorters and packers were locally-born, with the first two of these categories being all male, and the others much more likely to be female.

We can conclude from this that whereas the brush factories certainly created jobs for local people, they also drew in skilled workers from far and wide, many of whom in all probability worked for one of the two companies in London prior to 1881, or came from a family with previous connections to brush making.

As to where the brush workers lived, over half lived very close to the factories: 27 on North Street or Willhay Lane, 25 on Castle Hill, 12 on Castle Street / Phoenix Lane, 19 on Gas Lane, and 9 not far beyond the level crossing. Most of the others were spread around the town, with 26 on Musbury Road (several of them in the recently-built houses of Hillhead Terrace), 5 on Widepost Lane, 9 on the recently-built Alexandra Road, 5 on South Street, 17 on Lyme Street or Road, 8 on Chard Street. The other 11 who lived in Axminster parish were distributed between other parts of town, Smallridge and Westwater.

Cook's Kilmingon Brush Factory

From 1929 to 1960 Henry Thomas Cook ran a brush-making business on Shute Road, Kilmingon, just down-hill from the old Baptist chapel, where Apple Tree Cottage and Broadhalfpenny are now located.

Henry Thomas Cook had been a manager at Bidwell, Bidwell & Co, and like them he made tooth brushes, as well as nail, cosmetic and shaving brushes. There is more information about this business on the Kilmingon Village website.