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THE BATTLEDOWN BRICKWORKS

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Introduction

Brickmaking is as old as civilisation itself and Babylonian bricks stamped with the names of kings as far back as 2500 BC have been found. The Romans were past masters in making bricks and tiles and they brought the skills to Britain in 44 AD. However, when the legions left for Rome, these skills were somehow lost by the Britons, who reverted to building their homes with wood, stone, wattle and daub. In the 9th Century, when King Alfred the Great came to the throne, he imported all manner of foreign artisans into the kingdom to rebuild the skills required for a thriving state. Among them were brick and tile-makers. The historian Samuel Rudder asserted in 1779 that it was Alfred, better known for burning cakes, who selected Cheltenham as a suitable place for burning bricks (1). However that may be, Cheltenham was certainly a geologically suitable place. Lower Lias clay is found throughout the district, and in particular on the slopes of Battledown, a hill rising to nearly 500 feet located in Charlton Kings on the north-east edge of Cheltenham. Such clays are normally blue in colour, though near the surface they may be yellow. In many parts superficial deposits of both gravel and sand lie on this clay, but brickmaking at Battledown was especially favoured in that there the sand lay directly on the clay. The yellow surface clays are best mixed with sand and most of the old brickworks in this area employed this method. At that time it was generally thought to be impracticable to attempt to make bricks from the deeper blue clays. Moreover, there were two major problems with the Blue clay at Battledown: firstly, it was rock-like, and not at all plastic: a former owner of the pit once said that the clay had been down there so long that, if you tried to alter its shape, it would fight you to get back to its original form (2). Secondly, it contained marine fossils, which delighted the local geologists but were a menace to brick-makers (3).

Before the 1870s brickmaking in Britain was a localised industry. Bricks were cheap to make, but expensive to transport, and clay-pits were therefore often opened up close to where building work was to take place. A field would be rented and often closed after building had been completed. Clay had to be dug out by hand, as the steam shovel was not introduced into Britain until about 1874 (4). The process was seasonal; clay was dug in the autumn, often by agricultural labourers after harvesting, and left to be broken up by the winter frosts, so that it was more amenable to handworking in the spring. The clay was then mixed with water in a pit and kneaded by the hands or feet of men or oxen, known as pugging. The horse-driven pug mill emerged in the late 17th century (5). A brickmoulder would then take the clot of clay, roll it in sand and force it into a wooden mould, removing the excess with a flat stick called a strike. The green brick would be removed by the off-bearer, left to dry for several days and then be fired for a week in a clamp, a kiln formed by the bricks themselves. The kiln would then be disassembled. Labour was provided by whole families and a strong man with his wife and children could perhaps produce 1,500 moulded bricks a day. The work was dirty and arduous and the conditions primitive. Two things changed this situation: one was the Factories Acts, which sent the children to school and the second the enormous demand for bricks associated with the expansion of factories, railways and canals. For this, only mechanisation of the industry would do.

In the Cheltenham area there were many such small brickfields operating in shallow deposits of weathered and tractable clay but by the 1880s the four major competitors were those at Folly Lane, Pilford, Leckhampton and Battledown (6). There was fierce competition and the

owners regularly spied on each other but it was Battledown (SO 960218) that finally outlived the others. When exactly the Battledown, or Coltham Fields, workings began is not known, but we do know that there was an established Brick and Tile Manufactory, Pottery and Lime Works by as early as 1812 (7). It is therefore likely that surface clay was being worked in the 18th Century. In the 1840s this field was worked by one John Hayward and his two sons, Thomas and John, and Haywards Lane provides their memorial (8). By the 1860s Somerset Tibbs, a Cheltenham dental surgeon, had inherited most of the land on which the Battledown workings stood. He retired to Brixton in 1863, selling his land to the Reverend Arthur Armitage, the Vicar of St. John's, Berkeley Street (9). Armitage, a wealthy man, the garden of whose house, Breckenborough, in Sydenham Road North, backed on to Hales Road, was always nearer his brickworks than his church. Armitage formed the Battledown Brick Company Ltd and set about a major modernisation programme. He installed a new engine from Thomas Fawcett of Leeds, introducing steam machinery, wire-cutting, a fire-heated drying shed which could hold 30,000 bricks and a Hoffmann kiln capable of producing 60,000 bricks a week (10). A spy for the Pilford Brickfield reported to his master that *"the proprietor will be beaten by his expenses and must be careful that his new patent kiln and machinery do not ruin him"* (10). In fact the reverse was true: Pilford never really modernised or made a profit and closed in 1907.

In 1890 Armitage leased part of the Brickfield at Battledown to two brothers, Harold Arthur and Roland Julian Webb. In 1894 they purchased the Company as a whole and a new era began which was to last for over 65 years. The Webb brothers were the two older sons of a family of nine children of William John Webb, born in 1821 in Greenwich. He moved to Cheltenham in 1845, where he began trading as a coal merchant in Tivoli Place. There was plenty of competition: there were 48 coal merchants in Cheltenham in 1863, but William Webb was a talented man who effectively harnessed the potential of the rapidly growing rail network to the many hungry fireplaces to be found in Cheltenham (11). His staff were a tough lot: the Company outing to Evesham in 1891 ended in drunkenness and fighting. A Police sergeant noted that they had had trips from Dudley and elsewhere but Webb's men behaved worst of all (12). William Webb died in 1892, aged 71, and left behind a flourishing coal business on which Harold and Roland could build.

This they certainly did. The Webb Brothers were extraordinary entrepreneurs. They extended the coal business into sand, gravel, turf, lime and bricks from local brickyards. They then moved into land development, including the Cotswold Hills Golf Club and the North Glos Golf Club at Leckhampton. They took on the lease of Montpellier Gardens and of the Winter Gardens and staged indoor and outdoor displays and concerts (13). In 1887 they took over the lease of the Folly Lane Brickworks, which was not well equipped and making a loss, but they ran it for five years. It was probably this experience which led them in 1890 to lease the much more efficient works at Battledown, and in 1897 to buy the freehold. They paid the Reverend Armitage between £10,000 and £20,000 for the buildings, goodwill and nearly 30 acres of land.

The Production Processes

The Webb brothers had already begun to modernise the Battledown Works by 1893, when they were still leasing them and before the purchase, and they continued to do so afterwards. In 1902 the Town Council gave them permission to build a mill, engine, generating houses and coke bunkers at the brickworks. In their modernisation, the processes they had to consider and introduce, in the light of the geological conditions at Battledown, were as follows: (2), (6), (11)

Digging and Loading the Clay**.** A gang of clay-getters was required to loosen the rock-like Blue clay, sometimes with the use of explosives, but more normally using sledgehammers and wedges. After the large lumps had been reduced by pick-axes, the raw clay was shovelled into steel wagons. These were moved by wagon-lads on the 30-inch gauge rail tracks to the tipping stage, where the contents of the pit wagon were transferred to another wagon. This was then hauled by machinery and a crucible steel wire up a steep incline to the 40-foot high four-storey building, where, on the top storey, it automatically tipped its contents into a hopper.
Grinding and Crushing. Central to the production process was the brickmaking machinery, which occupied the four-storey building sited between the sand and clay-pits. Webb Brothers installed machinery made by Wootton Brothers of Coalville; (2), however, in view of the toughness of the Battledown clay, a fourth set of rollers was introduced to the standard three normally supplied. In the hopper the clay was seized by powerful, hardened, cast-iron revolving grabber-rollers, giant steel teeth, which reduced it in size, ready to drop into the next pair of rollers called kibblers, weighing six tons. Here the clay was further reduced in size and then fell on to a huge pair of smooth crushing-rollers, three feet in diameter. The clay then passed to the fourth and last set of rollers, of similar size but more quickly revolving: the gap between these last rollers was a mere one-sixteenth of an inch (Figure 1).

Tempering and Mixing. After passing through the four sets of rollers, the clay was ready for tempering and mixing. This took place in a double-shafted horizontal mixer, the capacity of which was picturesquely, but not totally accurately, described in 1910 as "*sufficient to hold four Grenadier Guards with their busbies on",* (Guardsmen wear bearskins and not busbies). Here the clay was mixed with water and sand. The sand was dug by hand from the sandpit on the other side of Haywards Lane, loaded into tipper trucks and pushed to a bridge over the 45 degree wooden ramp leading up to the four-storey building. Here it was tipped into a larger tipper wagon, which was hauled by cable to the top of the ramp. Water came from an artificial sump pond, which drained the floor of the sandpit, and it was pumped up to the engine house to supply the boiler and the extrusion plant. Before mixing with the clay, the sand was itself mixed with the grog, a mixture of broken bricks and ashes from the kilns, all ground down to a maximum of one-sixteenth of an inch. The grog helped to aerate the clay and the ashes to burn the bricks from the inside. Thus softened by the revolving beaters, the clay went to another pair of crushing-rollers, set tightly together.

The Extrusion Plant. The fine plastic mixture of clay, sand, grog and water fell next into the Extrusion Plant, also known as the brick-machine or, using the old term, the pugmill. The mechanised pugmill had been invented in 1879: however, the Battledown extrusion plant was a kind of large sausage machine where the clay was further churned and mixed before being compressed and forced by immense revolving screws through a brick-sized aperture the size of the header, then 4½ by 3 inches, or 10 by 5 inches for tiles. The continuous column of clay then passed on to a cutting table, fitted with steel piano-wire cutters 9 inches apart, the size of the stretcher. Rams pushed a wooden board, forcing the clay forward against the wires, which automatically cut off ten bricks at a time. At its full capacity, this machine was capable of making 3,000 bricks per hour, equivalent to 30,000 per day. 150,000 per week, or 7½ million per year. The bricks were now made and said to be in the wet or green state: they would have been virgin Blue Lias clay only fifteen minutes previously. Tiles were made in the Tile Shed, where hand-makers using specially shaped metal moulds pressed the clay in, creating the nibs on the top. These were then hole-punched before the tiles were taken for drying. Land drain pipes, or drain tiles, were produced by a specialised machine, in diameters from 2 to 6 inches.

Drying the Bricks and Tiles. At this stage the water which had had to be added to make the mixture plastic now had to be removed, since wet bricks could not be burned. Three possible

drying processes were available: open air, in the summer only, as frost would damage the bricks; hot shed floor drying, heated by coal flues; and, by 1910, the patent American Woolf or Special Dryer, which was heated by steam passing through great lengths of piping fed from a large industrial boiler. All three of these could be used when the Works was going at full capacity. For the first two processes, the bricks were taken off the cutting table on pallets and placed on an open-sided wheelbarrow (10 on each pallet, and 4 pallets placed on each barrow). They were then taken to the drying place and set down, two at a time, by specially trained putters-down. Open air drying took about three weeks and artificial drying one week for Battledown clays, though in other works it could be as little as 24 hours. In the open drying racks, the bricks were stacked on wooden slats with air gaps to permit air circulation. The hot air shed dried the bricks through the floor and through channels in the walls; this method was discontinued for bricks in later years, since bricks dried so quickly that cracking occurred. It was, however, effective for drain pipes, the hollow insides of which permitted even drying. In the third process, the American Dryer, the bricks were picked off the cutting table singly and placed on a double-deck light railway car holding about 620 bricks, which conveyed them on tracks to a tempering room as preliminary to entering the Dryer. They emerged after five days as dry bricks.

Burning the Bricks. From drying, the bricks were taken by the kiln gang to the kiln-setters, whose task it was to set or stack them in the kilns for the final process of burning. Every day some 30 to 40 steel rail drying cars were taken out of the Woolf Steam Dryer and pushed along the rails to the continuous kiln for setting, the empty ones being returned to the brickmaking machine for refilling. The burning took at least a week and sometimes up to three weeks, and had to be attended by day and by night. The Battledown Works had a variety of kilns: circular, rectangular or the continuous Hoffmann or German kiln (Figure 2). While clamps were considered a primitive way of burning, they could be, and were, improvised at Battledown when business was booming. The circular or cupola kilns, of which there were four or five, had domed roofs with openings in the walls for fire-holes; they were 20 to 30 feet in diameter and about 12 feet high. These kilns were built up for firing and then dismantled when the bricks were cool, after about a week. The rectangular kiln was about 40 by 15 feet, with walls 15 feet high. It had fire-holes in the sides exactly opposite each other, with narrow doorways at each end for setting and removing the bricks. Coal was loaded at one end with the green bricks and lighted when the kiln was full. The smoke was exhausted through a rectangular chimney about 40 feet high near the far end. The Hoffmann kiln, erroneously called a German invention, was actually invented in 1856 by an Austrian, Frederick Hoffmann, patented by him in 1858 and introduced to this country in 1862. There was one at the Folly Lane works when the Webb Brothers took over the site in 1887 and one had also been installed at the Battledown Works by 1885. The Hoffmann kiln was a permanent building over 100 feet long, 30 to 40 feet wide and about 30 feet high and had a capacity of about 280,000 bricks. It comprised two storeys, the lower an oval tunnel-kiln, and the upper an access floor through which coal was fed into the kiln. It was of the continuous type, in that the fire never went out except for repairs or lack of trade and might well stay alight for 50 years or more. The draught was obtained by the 120 feet high chimney and the air, passing through newly burned bricks, both cooled them down and heated itself up, ready for combustion in conjunction with the fuel introduced to the chamber of burning bricks. The products of combustion passed forward through the green dry bricks, heating them up for the fire following in their train. The fire travelled round the long oval-shaped tunnel, fed by coal poured in through small holes in the top. At the rear of the retreating fire, the bricks and tiles were cool enough to be taken away; they were extracted through ports in the six-foot thick side walls. Far in front of the fire, newly dried bricks and tiles were continually being set to be burned. Experienced burners controlled the draught by means of some 21 dampers. The gases

were themselves cooled down by this process and escaped through the chimney-stack at quite a low temperature.

Providing the Power

These processes, and in particular the grinding and mixing of the clay which was essential if Battledown was to function at all, demanded a considerable amount of power (2), (11). . The Webb brothers had three choices in this respect: a steam boiler and engine, which required a ready supply of water but which could also provide steam for drying; an electric motor, driven from the mains or a local steam engine; or a gas-engine, which could be driven by town (mains) or locally produced Dowson gas. This required a gas-producer plant, which made either pressure or suction gas by passing dry steam and air over incandescent Welsh anthracite coal, which was, of course, readily available to the Webbs through their coal business. In 1893 what was claimed to be the first gas engine to be used for brickmaking in the United Kingdom was installed at the Battledown Works. A Crossley 49.5 IHP engine, it was both large and expensive and ultimately proved unable to provide the power necessary to grind and roll the tough Blue clay without stoppages. Moreover, it used a great deal of oil and the exhaust could not be used for drying, as could steam. Fortunately, one of the younger Webb brothers, Wilfred, an engineer, was at hand to provide expert advice: he later became the Managing Director of Crossley Brothers Ltd. The ineffective machine was removed and replaced by a larger, more powerful and more reliable Crossley gas engine, and as a stand-by, a connection to the Town's gas mains was made. This engine produced 152 IHP on town gas or 137 on Dowson gas, and was in 1910 the largest single cylinder engine made by Crossleys. It drove a 36-inch wide belt; even so, it was still none too powerful to drive the brick machinery unit, which weighed 70 tons, and was the largest and heaviest in Gloucestershire. Those standing on the bridge which carried Haywards Lane over the track to the four-storey building could hear the enormous "woof" which followed the explosion of each charge of gas in the huge cylinder of this giant engine, and could see the perceptible vertical fall in the gas-holder nearby as the next breath of producer gas was drawn in.

A Brickmaking Monopoly

By 1903 the Webb brothers had effectively solved all the problems involved in mass-producing bricks and tiles at Battledown. These processes, and the machinery that went with them, remained essentially the same from then until manufacturing ceased in the 1960s. Constant too were the raw materials: the Blue clay might continue to fight its processors, but for all practical purposes there seemed to be no limit to the clay at the Battledown clay-pits. Even the clay under the sand deposit on the west side of the works was exceedingly good for brickmaking. As for the sand, it underlay the entire brickyard to the west of the kilns and extended further westward under Cheltenham. There was certainly no question of the yard being worked out. So effectively had the works been mechanised, that by 1910 it had been estimated that, if necessary, the total output of the yard could be raised to 10 million bricks per year. At the same time, the total requirements of Cheltenham and District for bricks was put at little more than half that amount. It was clear to the Webb brothers, and indeed to their competitors in Cheltenham, that only one brickworks was needed. The other brickmakers felt compelled to sell their works to Webbs, who promptly closed them down. Folly Lane had been closed by 1894; in June 1907 Webbs closed the Pilford Works, the lower works on Cemetery Lane and the Upper Works on Harp Hill. Though the Cotswold Potteries in Leckhampton continued, they were not in direct competition with Webbs, who now had a monopoly (11).

All now seemed set fair, but it was not. The political and industrial climate of the Nation was changing, with major strikes by miners and railwaymen in 1911 and 1912. The economy plunged and in 1913 Webbs declared no dividend for the first time. In January 1914 the

Hoffmann kiln, which could burn for fifty years, was shut down and in August World War broke out. Webbs' manpower collapsed: the Board Meeting Minutes record that *"the whole of the Colonnade Office staff have left to join the colours*". While the coal business limped on, brickmaking came to a standstill, the kilns were cold, the machinery silent and the clay-pit, which in normal times had to be kept pumped out, was completely flooded, to the highest level. The only digging now was done by the military, practising entrenching**,** and the only activity was provided by the winter skaters on the biggest ice-rink for miles around. The period from 1914 to 1920 was a disaster. However, in 1920 the national economy began to pick up and the Government began a house-building programme. Webb Brothers resuscitated the brickworks, and things began to hum again (11). Perhaps the biggest impetus was the arrival on the Board of Rupert Hewitt Webb, Harold's eldest son. He had no previous experience of brickmaking but as Managing Director, he could see that new methods were needed. The first major change was in the coal business. Webbs was no longer to actually handle coal, except for local deliveries. Instead it was to be dealt with in wagonloads only, delivered from collieries by rail to the customer's nearest station - mail order coal in fact. Rupert invented a new company, which he called the Buckle Colliery Company. There was no Buckle Colliery as such: it was just the name of the coal business at Battledown. Rupert Webb saw aggressive marketing as the key to success: customers, both for coal and bricks, were bombarded with circulars and letters extolling the products. This is where King Alfred emerged from the past to help. For marketing purposes he was claimed as the direct ancestor of Webb's Brickworks. Using the statue of the King at Winchester as a model, the circulars were called King Alfred Circulars and a large cut-out figure was erected at the entrance to the works. Diversification was also on the menu: if coal mail order worked, what else could Rupert sell this way? He bought up a stock of wine from a vineyard in France and created the Barandonah Wine Company at Battledown, shipping it by rail direct, champagne a speciality. Then came the Bukalla Tea Company, motto "Straight from Ceylon to the Teapot", without ever touching Battledown, and hard tennis courts, using the crushed waste products of the Yard. His last move was David Blackstone and Co., manufacturing stationers and booksellers. Where he got all the names from is not known by anyone, but they all began with B, as did the Battledown Brickworks, of course.

The Products

The Battledown standard red common brick was strong, sound and of dependable uniformity, though it could not match pressed bricks in this last respect. It measured a nominal 3 by 9 by 4¼ inches, giving a mean base area of 39 inches, and weighed between 7.5 and 7.9 pounds. It had good resistance to crushing, at a mean 3139 pounds per square inch. Tests of porosity undertaken in 1909, involving the immersion of three bricks in water for 24 hours, indicated that each brick absorbed on average 0.483 pounds, a mean absorption of 6.26 per cent (6). Being wire-cut, each brick had sharp arrises or edges. Such common or building bricks were not specially treated for texture or manufacturing tolerances: the Battledown brick was therefore best suited as backing to exterior skins of facing or decorative bricks and was normally used as a structural or foundation brick, although it could, if desired, be sand-faced or given a rustic finish. It had no recess or frog; that is to say it had six flat surfaces, and normally bore no maker's name. This was claimed as a great advantage by Webbs, pointing out that with no frog, less mortar was used and the bond was better. Standard common bricks made up 98% of the bricks used in this country and hence there was a good market for them. It was, however, in tiles that Battledown excelled. These were hand-made, sand-faced and cambered to meet the requirements of architects. Though more expensive than their competitors, they were highly prized for their architectural merit and beauty. They were used widely locally and throughout the country, from pubs in Carlisle through Bournville, Letchworth and Welwyn Garden Cities to the barracks at South Cerney (11).

The Second World War

The demands of the Second World War were entirely different from those of the First. The economy had to be maintained and even quickened: bricks were in great demand to build factories, shadow factories and air raid shelters, and coal was also much needed. However, post-war nationalisation of major utilities, particularly coal and railways was bound to affect Webb Brothers. Many brick companies had been attached to mines; these were taken into public ownership and hence subsidised and many private brick companies were forced out of business. Despite the enterprise of the Webbs, which included supplying thousands of tons of clay to Cheltenham Racecourse to bind the sub-soil, it soon became clear that the country was sliding into recession, in which public and private building were coming to a standstill. By 1953 it was clear that a crisis was threatening the Battledown brick and tile business. This crisis had begun long ago and far away but was now catching up with them.

The Clay that Burns

Coincident with, and paralleling, the rise of the Battledown Brickworks from the end of the 19th Century to 1939, was the growth in the number of brick companies in Huntingdonshire and the Isle of Ely, hoping to win markets by using the good railway connections with the rest of the country. Near Peterborough, and in particular in the area of the Fletton Lodge Estate, there were deposits of what was termed Lower Oxford clay; a belt of this shaley, carbonaceous clay ran across England from the north east coast, across Bedfordshire and Buckinghamshire and tapered off on the Dorset coast. It had never been considered a suitable material for brickmaking, since it did not lend itself to any then known brickmaking process. On Saturday the 23rd of June 1877, at four o'clock precisely, the Fletton Lodge Estate of over 400 acres was sold by auction at the Angel Hotel in Peterborough, and for the Battledown Brickworks, many miles away, the clock started ticking, very slowly and very softly. Brickmaking utilising soft yellow surface clay had been practised sporadically in the area for many years, as in Cheltenham, and the auction notice mentioned, almost as an afterthought, that *"there is good Brick Earth on the Estate"*. The purchasers of the various lots, who were in the main businessmen, farmers, cattle dealers and shopkeepers, were not primarily interested in brickmaking. However, by 1880, someone, probably the Hempsted Brothers of Grantham, had discovered by experimentation that Oxford shale clay could be ground to a fine powder and moulded into pressed bricks by a semi-dry process involving four pressings (the Phorpres process). Thus, unlike Battledown bricks, it did not have to have large amounts of water added to make it plastic, and neither did it then have to have the water removed by drying. This meant that bricks could be made all the year round, and that brickmaking was no longer seasonal. Moreover, the shale clay contained 10% of fuel oil, which contributed to a substantial saving in the burning process, giving rise to the phrase *"The Clay that Burns"*. Although the firing of such bricks in old-fashioned clamp kilns created noxious, oily fumes, and hence local opposition, the building of immense Hoffmann kilns not only overcame this problem but their efficiency reduced even further the amount of fuel required for firing. The gases from the clay ignited at about 400 degrees centigrade and could fire the bricks to 1,050 degrees without the addition of any fuel. Thus coal dust, which sold at one halfpenny per ton in 1900, could be used to control the firing and maintain the temperature. The bricks produced were an attractive mottled pink and yellow colour, with frogs, sharp arrises and smooth surfaces. They were also more dense than most common bricks They had some disadvantages: a Fletton immersed in water for 24 hours absorbed 20% of its own weight in water, compared with the 6% of a Battledown brick, though this porosity could be offset by cavity walls. The latter would also claim advantage in its lack of frogs. However, the Flettons were significantly cheaper to produce and in 1881 their marketing began. Although further

experimentation on processes, and the machinery to be used, continued for many years, a revolution in the British brick industry had begun (14).

Fletton bricks had a further advantage: by chance, the Great Northern Railway from Peterborough to London, 80 miles away, ran directly through the Estate and sidings to connect to it were soon constructed. In the past, brickmaking had always served local markets, because of the cost of transporting bricks in bulk. The big reductions in production costs, plus the nearness of the railway, enabled the brickmakers to compete effectively with London Stock (locally produced) bricks and to avail themselves of the huge London market. Fletton bricks were the first to achieve a substantial, non-local market. Already by 1910 Roland Webb was aware that the Peterborough brickmakers were able to put their bricks on the market at about half the price at which he could; however, he was not too concerned by this, since the effect at that time was local. As with Battledown, Fletton was not insulated from the fluctuations in the construction market: housebuilding levels fell nationally from 1876 to 1881 and reached a low point in 1886. However, from 1890 the level rose until 1895, when it began to increase dramatically.

By the end of the 1920s, in an ironic macro-echo of Webb Brothers' actions in Cheltenham in 1907, the London Brick Company had bought up most of the original companies. The cheap bricks were put into large-scale production by the Company and, in 1929, by the Marston Valley Brick Company in Bedfordshire. In 1927 The Daily Telegraph noted that imported bricks could not compete with Fletton bricks. In 1930 London Brick's Transport Department was formed, with the birth of a transport fleet specially for the delivery of bricks. In 1950 fork lift trucks were introduced for all brick-handling and in 1953 production exceeded the figure of 1,750 million bricks for the first time since the inter-war years; it moved up to 2,000 million the following year. Moreover, the growth of road transport enabled the Company to extend its markets and undercut its competitors, and for Battledown, the effect was no longer local. By 1967 the London Brick was the largest brick company in the world and the biggest producer in the British Isles of flettons, which had become so commonplace as to drop their initial capital letter. In 1971 London Brick Company took over the Marston Valley Company and The Daily Telegraph reported that nearly half of the bricks made in Britain were flettons from the bed of shale clay, and nearly half of these flettons came from the Bedfordshire brickfields (14). However much an architect might wish to prefer wire-cut bricks, the relative costs spoke for themselves, and would overrule him. Webb Brothers had already been losing the market for common and rustic facing bricks when the London Brick expanded into producing bricks which could be used for foundations. This had been an area where Battledown bricks had held an advantage over flettons, because of the latter's low crushing strength, and it was now no longer available (2).

There were other, more local, reasons why brickmaking at Battledown was facing the end. The depths reached in the clay-pit were producing high levels of fossils and lime; this caused the bricks to blow and sometimes this did not become apparent until they had been exposed to severe weather conditions. The worst case of this occurred at a new housing estate in Gloucester, where Webb Brothers had to replace, at a very high cost, all the facing bricks on about twenty houses which had almost been completed. In addition, the sandpit was becoming exhausted: by 1955 good quality sand was having to be bought from local quarries. This required washing before its use in brickmaking, another additional cost factor (2). The writing was on the wall, and it was looking indelible.

The End of an Era

Clay winning and the manufacture of tiles ceased at Battledown in 1955, and the manufacture of bricks followed in 1957. The kilns continued to function until the end of 1957 and the beginning of 1958, since it took six to nine months to burn all the green bricks which had been made and were drying in the three bee-hive kilns and the continuous kiln. Full use was also made of the outside drying racks in the summer period. During the run-down of the brick and tile making, Webb Brothers continued to conduct their Coal and Coke business, with their registered office at the Battledown Tileries, an office at 44, Bath Road, and a yard at New Street. They retained the retail coal outlet in Paddington, and the business in Henley-on-Thames, and continued to market building materials, including, ironically, the fletton pressed bricks which had proved the downfall of the indigenous variety. Nevertheless, it was time for the Board to consider what sort of future this offered and whether it was not now time to close the business and to make the most of their available assets. These fell into three parts: the sandpit and buildings to the west of Haywards Lane, the clay-pit to the east, and the un-dug land on the higher slopes of Battledown, much of which lay within the boundaries of the Battledown Residential Private Estate.

The Battledown Industrial Estate

The area west of Haywards Lane was by no means a ready, saleable, green field site. It was cluttered with the industrial buildings of the now defunct brickworks, scarred by the sandpit and had no proper roads. A plan was drawn up for its development as a trading estate. The plan was approved by Cheltenham Council in October 1961, which entered into an agreement with Webb Brothers for the construction and eventual taking-over of the new access roads, which were to be named King Alfred Way, Athelney Way and Saxon Way, providing a permanent reminder of the Brickworks' historical inheritance (15). Under the plan, most of the buildings were demolished, including all the kilns and the great chimney, which fell in 1963 having dominated the landscape for so long (Figure 3). The engine room, with its Crossley single piston gas engine, was demolished and the engine dismantled and taken away. Bert Court, who had maintained, polished and cleaned it every day, was in tears as it was removed. However, three buildings remained, whether by accident or design: the four-storey building, reduced to two and a half storeys; the works manager's office, and the former stables turned vehicle maintenance shed. Webb's, like the British Cavalry, had been loth to give up their horses and kept them until 1935 (Figure 4). These three were subsequently incorporated into the new industrial buildings of the trading estate, though the works manager's office was demolished in April 2000, to be replaced by a garage made of second-hand corrugated iron. Having thus enhanced the estate, the owners closed down and moved away.

The Clay-pit

The clay-pit had naturally expanded with the march of time and the success of the brickworks. Inspection of maps and old photographs indicates its growth to have been of the following order: -

- **1903**…80 yards from the wall of Battledown Grange, to the north; 208 yards long and 52 yards wide
- **1913**…40 yards from the wall; no other measurement possible
- **1923**…34 yards from the wall; 220 yards long and 104 yards wide

- **1946**…22 yards from the wall; 220 yards long and 120 yards wide
- **1953**…22 yards from the wall; 220 yards long and 165 yards wide.

After the 1920s, expansion was mostly towards the southern boundary of the land owned. There are no reliable figures for its depth: it had various levels, but it was certainly at least 50 feet deep at the Haywards Lane end and well over 100 feet at the eastern end, as it burrowed into the hill. It was effectively an enormous impervious bucket, with steep and slippery sides, which would fill with water if not continually pumped out, as had been shown during World War I. At first sight, the hole in the ground would not appear to be a great asset; however, the reverse was true, though there were to be some lengthy and hard-fought negotiations ahead.

Tipping

By mid-1959 it was becoming clear that Cheltenham Borough Council was becoming concerned about the lack of suitable land for rubbish-tipping purposes. In June 1960 the Borough Surveyor reported that the amounts being tipped at the Marle Hill site were exceeding expectations and he was considering limiting the tipping of trade refuse. In his view, it was essential that a new site be found prior to the completion of the tip at the old Folly Lane brickworks (15). The Town Clerk had been in negotiations for land at Webbs' Brickyard but he had been unable to negotiate a suitable price with the owners. The matter had been put into the hands of the owners' agents and the District Valuer, who were endeavouring to negotiate a price suitable to both parties. The Council resolved that he endeavour to conclude the purchase of the land as expeditiously as possible. A few days later terms had been negotiated for purchase for tipping for a price of £8,750, in accordance with the District Valuer's valuation (15).

Negotiations continued and a contract was drawn up; however, it was still not signed by June 1961, a full year later, when the Borough Surveyor reported that the old clay-pit at Folly Lane would be filled, at the then rate of tipping, in two to three years. Unless the contract was received in the near future, serious consideration would have to be given to the use of compulsory purchase powers in respect of the land at Battledown Tileries. In the face of the big stick, by the beginning of October agreement had been reached. On 6 October 1961 Cheltenham Corporation had received planning consent from Gloucestershire County Council to use the land for disposal of refuse and for the construction of a vehicle access. In November 1961 it was reported that a larger area of land was to be acquired at Battledown Tileries and the purchase price of approximately £8,000 was to be raised to £9,750. Filling the great hole in the ground with the detritus of Cheltenham and, by agreement, Charlton Kings, started in 1962. Tipping continued for ten years, which for the local residents were ten years of flies, smells and complaints to the Council (15). In 1972 tipping ceased, the site was levelled and on 7 April 1978 the Queen Elizabeth II Playing Field was opened by the Mayor. The new Field had three football pitches and it seemed that the great hole in the ground had finally been put to rest.

Webb Brothers Ltd - The End

The process of the run-down and sale of Webb Brothers Ltd.'s assets began with the serious decline of the brick business in 1956 and terminated in the spring of 1971, when the Board took the unavoidable decision to close down the Company. It brought to an end 79 years of Webb Brothers/Webb Brothers Ltd., 126 years of Webb family social, cultural and commercial enterprise in Cheltenham and Charlton Kings, at least 140 years of brickmaking at the Battledown site, and, for those who supported the King Alfred theory, 1085 years of the brick industry in Charlton Kings. It was a sad occasion, not only for the members of the Webb family, their executive directors and their many loyal employees, but also for many local residents for whom the Battledown Brickworks had represented a permanent factor in their lives. No more would housewives in the area put the kettle on as Webbs' five o'clock knocking-off hooter sounded, and children stand on the bridge and marvel at the miniature

railway hauling its loads up to be ground by the machines. If the hole in the ground had not always been appreciated, after 10 years of tipping the residents might well have remembered it with something like affection. However, the hole in question had not yet been tamed.

Following the opening of the playing field for organised sport in September 1978, games continued to be played until the early 1990s. However, gradually the levelled surface began to lose its shape as the tipped rubbish settled and, one by one, the three pitches began to become unplayable. By 1992 the last football pitch had been removed, leaving only a lone kick-about goal post amid the rolling ups and downs. It was as well that the planned £60,000 pavilion had never been built (15). The record heavy rains in late 2000 and 2001 proved the surface drainage to be totally inadequate, as the vast, impermeable clay bucket filled up and overflowed. Sodden and rather strangely coloured areas and semi-permanent ponds began to appear on the surface: it seemed that a large lake still existed down at the bottom of the old clay-pit and that subsequent drying-out would probably increase the distortion at the surface. It appeared likely that the Queen Elizabeth II Playing Field would not see organised sport again without a great deal of financial investment. However, it remained an open space much appreciated and enjoyed for the unorganised games of the young, for budding golfers, walkers and joggers, dog-walkers and picnickers. The future of the hole in the ground certainly seemed to be more as an informal park than a playing field.

Concluding Remarks

The demise of the Battledown Brickworks and the end of the tradition of King Alfred was a by no means unique example of an old local industry being overwhelmed by new and cheaper technologies. It fought hard and long, through four generations of the enterprising Webb family and the consequences of two world wars but, in the end, it had to go. There was, of course, a legacy to Charlton Kings and Cheltenham, even if it was not quite what was expected in 1971. The transformation of the old brickworks site into the Battledown Industrial Estate has brought new skills and technologies to the area and served to replace the lost employment that brickmaking offered. Millions of cubic yards of clay and sand from the pits at Battledown had been turned into tiles, bricks and pipes and exported to all parts of the country. Many buildings in Cheltenham and Charlton Kings, large and small, municipal, residential and industrial, bear witness to the strength of the blue Battledown clay. However, since the wire-cut bricks did not proclaim their origin, as did the pressed flettons which finally drove them out of business, they remain silent witnesses, as now does the hole in the ground which spawned them.

The above article is composed of extracts taken from *"The Hole in the Ground - The Story of the Battledown Brickworks"* by David A. O'Connor, 2002. Stoate and Bishop, ISBN 0-9519451-1-4. 92 pp.

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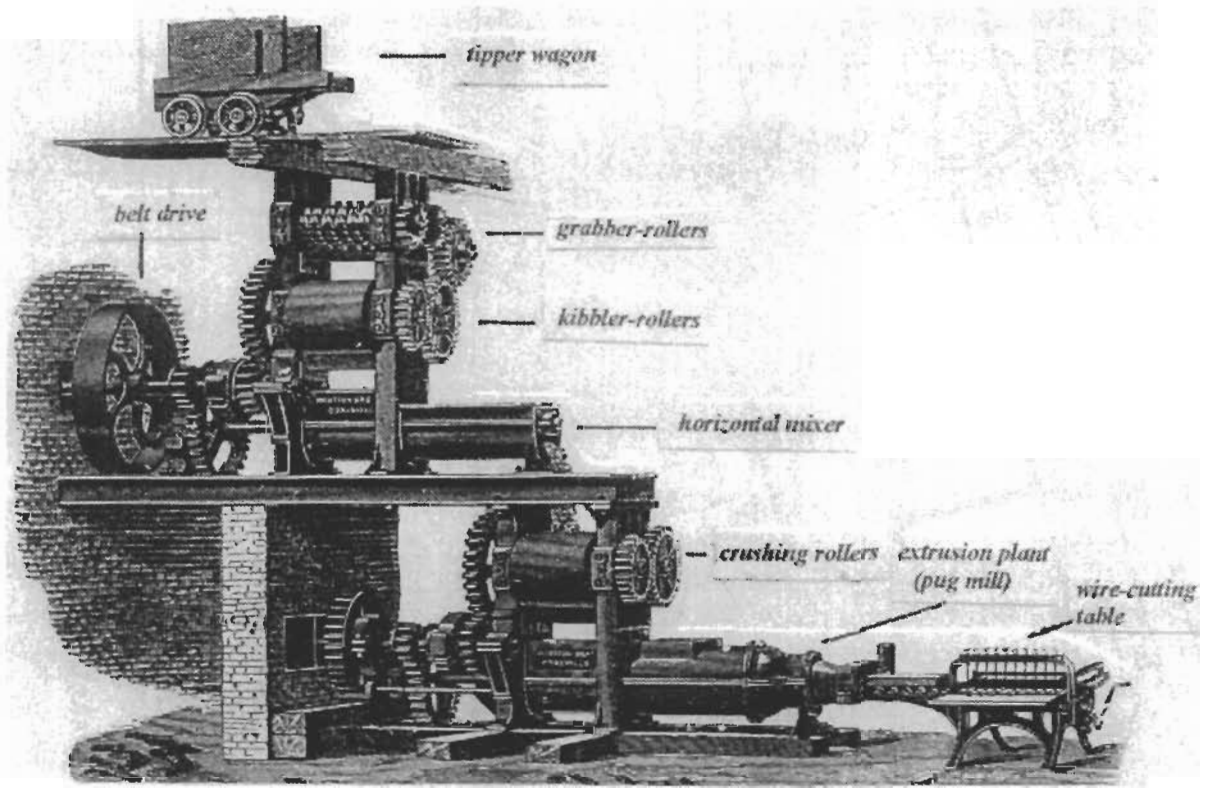

Figure 1. Advertisement produced by the makers, Wootton Bros. of Coalville, showing brickmaking machinery similar to that used at Battledown Brickworks except at Battledown four sets of rollers were employed.

(Picture from "The Clay that Burns" London Brick Co. Ltd.)

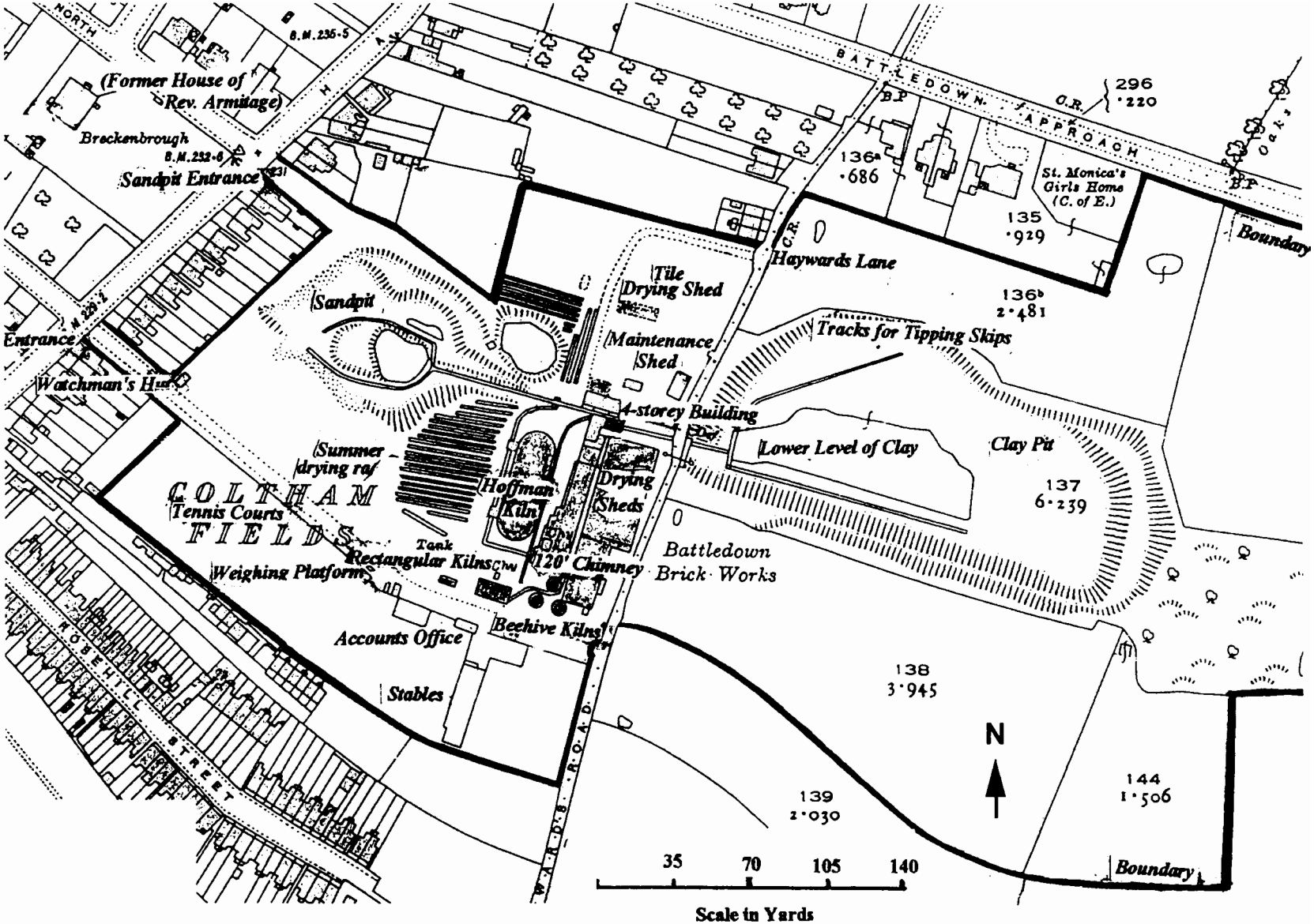

Figure 1 The Battledown Works in 1923

(A)

Figure 3. 1963

(A) The 120 foot high Battledown chimney. The Hoffmann kiln to the left has lost its roof and the vegetation growing on it testifies to its five years of disuse.

(B) Rupert Hewitt Webb, the last Managing Director, supervises the demolition of the chimney.

(B)

Figure 4. The two surviving original buildings of the Brickyard.

(A) The four storey building which housed the brickmaking machinery, of which only two and half storeys remain.

(B) The old stables which in 1936 were adapted to house the motor vehicles.

(A)

(B)