

The Chawley Brick and Tile Works, Cumnor

By I. C. DODSWORTH

FOR several years now the writer of this article has been collecting together whatever information he could regarding the brick and tile works which used to occupy the site between Cumnor Hurst and the A420 road at Grid Reference SU 474046.¹ The problem was made doubly difficult because few of the workers now survive, and those few are of very advanced years, and also there is every reason to believe that most of the records of the business disappeared in the salvage drive of 1940. Most of the information given below is based on the map collection of the Bodleian Library, on many interviews given by the residents of Cumnor and Botley, including key statements made by two elderly brickmakers (who wish to remain anonymous), and on fieldwork.

We first hear of brickmaking at Chawley through the local directories.^{2,3} A Mrs. Neal was making bricks in 1864, though she is not listed in 1863. There was a John Neal farming at Chawley in 1854, and she was probably his widow. She is shown in 1869 as Mrs. E. Neal, brick and tile maker, and in 1877 William Neal appears as the brick maker. At that time Chawley was a hamlet quite separate from either Cumnor or Botley Pound. Perhaps the Neals lived at Brick Kiln Farm (SU 471046) beside the road to Faringdon, for the First (6 in. scale) Edition Ordnance Survey map shows that in 1873-4 there was a small clay pit just across the road, south of this farm, and another a few yards to the east. A small kiln, about 63 feet by 10 feet, lay between. These measurements were obtained from the 25 in. to 1 mile map, of 1876.⁴ It is not possible to identify the type of kiln, but it was probably a Dutch kiln with an arched roof of brick, in which tiles and bricks were burnt together. There was also a lime kiln at this time along Chawley Hurst lane, and another clay pit was being opened on the rising ground towards the Hurst. An old worker remembered a fragment of an old kiln close to this early part of the works, with just a few feet of brick wall and a short chimney, 6-9 feet high.

The Chawley site was well suited for making bricks, tiles and lime, for the Corallian limestone outcrops in Cumnor village, near the main road, and the Hurst itself consists of some 80 feet of Kimmeridge clay, topped by the Iron Sands of the Lower Greensand. The clay was easy to dig and contained some 8% of bituminous materials which would burn during firing, making a valuable contribution to fuel costs. At the time the works ceased to make bricks it was one of the last in Britain to use this clay.⁶

¹ Ordnance Survey, 1 inch scale, Sheet 158.

² Post Office *Directory*, Berks. section, eds. of 1847, 1854, 1864, 1869.

³ Dutton, Allen & Co's *Directory*, Berks. section, 1863.

⁴ Ordnance Survey, 25 inch scale, Berkshire sheets II.13 ; VI.1. Survey of 1876-8 (1886).

⁵ Communication from J. P. M. Parry (Innes Lee Parry Associates).

⁶ National Brick Advisory Council, Papers I-V, 1947-50.

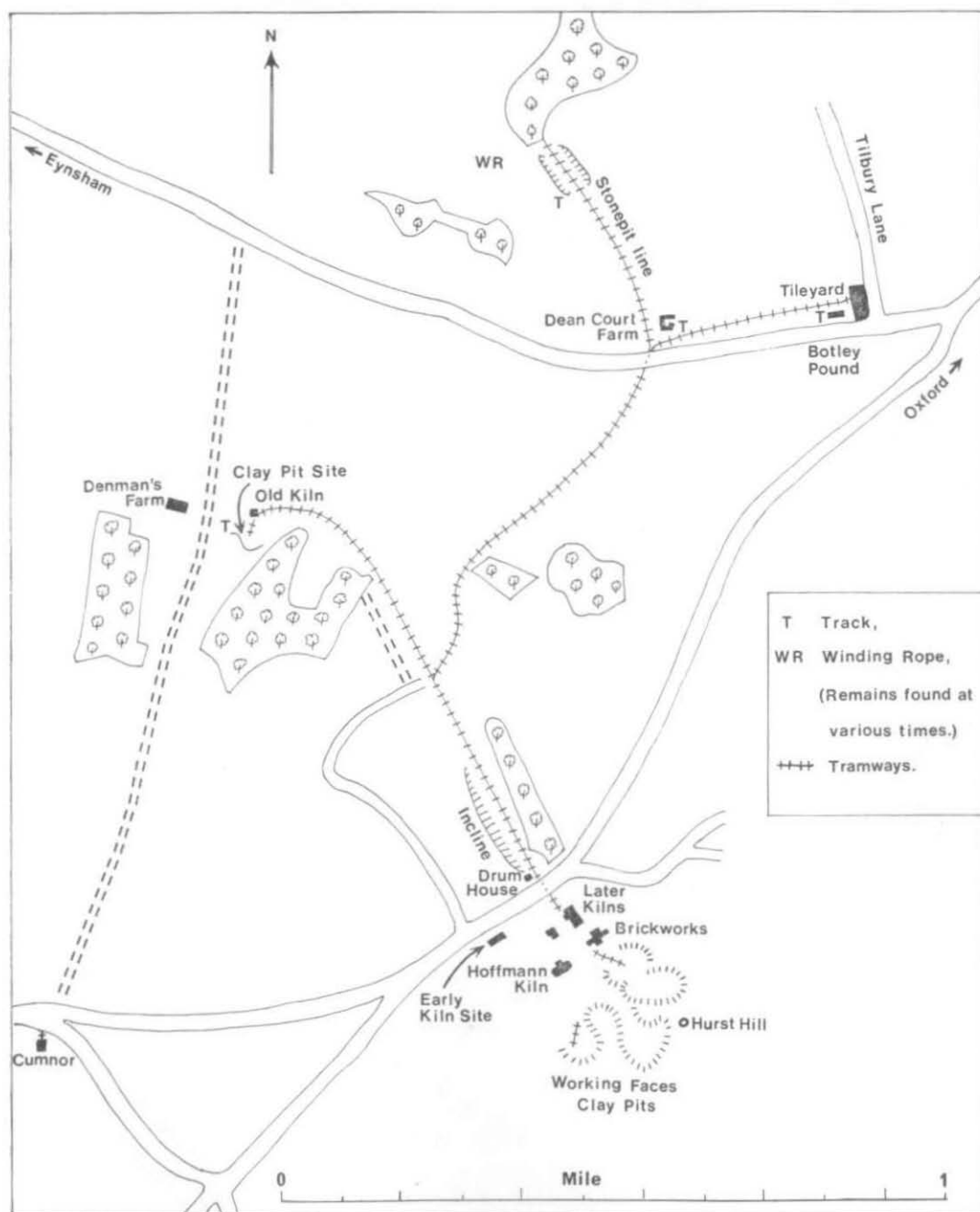


FIG. 1
Plan of the Chawley Brickworks, Cumnor.

We know that the works was expanded in 1879, for that date is said to have appeared on a plaque on the boiler house, and can be seen today, with a caricature thought to be the first Earl of Abingdon, on a pair of cottages built for workers at Botley Pound on the Eynsham Road (PL. XIII, A). In Easter of that year the quarrymen were opening up pits on the hillside (PL. XIII, B), and while driving a tunnel for rail tracks into one of them, discovered the bones of a large iguanodon, the rest of which was excavated by Prof. J. Prestwich at a point some 34 feet below the iron sands.⁷ We do not know anything about the financial side of this expansion, except that the works was thereafter owned by the Earl of Abingdon, who must have been sufficiently encouraged to make the investment by the growth of Oxford. The Neal family continued to be associated with the works, although in 1883 the manager was Ed. Smith, and the business was listed as a brick, tile & drainpipe makers, wheelwrights and steam joinery works.⁸ In later years the Neals lived at Middle Farm, now known as Bornholm. The last of them, George Neal, was a foreman carpenter at the works, and passed onto his friends some of the information given later, regarding the incline railway and the kiln near Denman's Farm.

The next edition of the 25 in. to 1 mile map of 1898⁹ shows the extent of the development of Chawley works. The original kiln had been lengthened to about 100 ft. and had been widened. A much more important feature was the presence of a Hoffman continuous kiln, recognizable by its shape and chimney position. It was rectangular, about 115 by 55 feet with rounded ends. These continuous kilns were introduced into Britain after 1856, and the early ones were round. They represented a considerable advance in fuel efficiency by using the hot gases from the firing stage to dry out and warm up the unfired bricks. An old photograph, on glass, of about this period shows the boiler house and brick making shops, a brick complex in four sections some 210 feet long. The section next to the chimney was two storeys high. Unfortunately the kilns are not shown, but the brick drying sheds can be seen lying between the main buildings and the Oxford road.

The last information about the growth of the works comes from the 1937 revision of the ordnance survey,¹⁰ the intervening revisions not being available for this area. A timber yard and saw mill had been laid out on the eastern margin of the site, some remains of which can be seen today from the road. Two new kilns had been built to the north-west of the main buildings, the eastern section of which had been demolished. One kiln was a continuous one, the other being much smaller with a chimney only about 50 feet high; this suggests a downdraught kiln, which would give better control over the degree of burning of the bricks than the old updraught type.

There was a rail track running from the works into the quarry on the west side of the face. Few such lines are shown on the various maps. The clay workings were by this time very extensive, and the available reserves were approaching exhaustion.

It has been possible to obtain details of the way the works was run from three

⁷ Prestwich, *J. Geol. Mag.*, New Series, vi (May 1879); *Q. J. Geol. Soc.*, xxxvi (1880), 430.

⁸ Kelly's *Directory of Berks.*, 1883.

⁹ Ordnance Survey, 25 inch scale, revision of 1898 (1899).

¹⁰ Ordnance Survey, 25 inch scale, revision 1937 (1938).

former workers, whose accounts agree well. The process used was the full-plastic one. During the winter the clay was dug by hand using 18 in. long grafts, and was taken by rail skip to weathering heaps near the works. The extended weathering meant that the bricks kept better shape during the firing stage. During the period 1925-32 the diggers were paid only 4½d. to 5d. per cubic yard. They often kept clay fossils for sale to visiting parties of geological students.

After wetting and passing through two sets of clay rollers, the clay was compacted in a pugging mill, and then extruded into brick form and cut off by wires. There were three sets of shaping and cutting machines, driven by a steam engine, said to be by Aveling and Porter. Bricks were then air dried in the yard, and also in surrounding fields. After 18 days or so the bricks were loaded into the continuous kilns. These had twelve chambers each, taking some 200,000 bricks. One kiln was said to be newer than the other and must have been built before 1920. Apparently a lot of bricks were made in 1919-20, but could not be sold, so production ceased until they had been disposed of. No-one has mentioned anything about kiln construction during the 1920s.

The firing cycle was rather long - one month. This was probably because of the need to avoid overburning with the high bitumen content of the clay. It may be compared with the 28-day cycle used for making hard red Warwickshire bricks at that time. A temperature of about 950°C was needed, the dull red glow being judged at night. These kilns were fired from the top with small coal. Their tall chimneys remained standing until 1956.¹¹ The small kiln was fired from below with large coal, and was used for making sand-stock bricks, taking about 15,000.

It is claimed (with bitterness, even now) that at this time a team of three men was paid 1s. 6d. per thousand bricks for setting in the kiln, 1s. for emptying the chamber, per thousand, and 2s. 6d. for loading a lorry, probably 3000 bricks, although some steam waggons took 5000. Some workers left around 1932 to go to other works such as that at Wheatley, for better wages. About 85 men were employed at Chawley, and bricks were delivered to the district using two teams of horses (stabled at Brick Kiln Farm), while traction engines pulling two trailers and steam road waggons were used. Clayton, Burrell, Fowler, Garratt and Sentinel machines were all in use at the works during the period 1920-39.

Chawley bricks were very hard, water resistant, and of a pleasing orange colour. It has not proved possible to find out who the main customers were, but they are said to have been used in the construction of the Morris works at Cowley, and at RAF Abingdon. During the period that Chawley was active there were brickworks in and around Oxford at Wolvercote (Kingerlee's), Shotover (Taylor & Phillips), Summertown (Webb's), Littlemore (Benfield's, dated 1900), Cowley Road, and one at Culham, near Abingdon. North Leigh was an important centre for lime-burning and clamp-burned bricks were made there as well, by the Breakspear family.¹² Mr. William Breakspear told the writer that when his family's works ceased in 1905 their brick-buying customers in the Eynsham area would have gone to Chawley instead.

¹¹ *Oxford Mail*, 29 June 1956.

¹² *Ibid.*, 3 Oct. 1975.

Little is known about the tiles that were made at Chawley. The old workers felt that production had gone on during the first half of the life of the works, probably using the old kiln sited near the present filling station. Hard red tiles were made, such as those on the barn at Chawley Farm, and also so-called 'treacle tiles'. These had a bluish glazed appearance. They can be seen on the old works manager's house beside the filling station, and on the two cottages at Botley Pound (PL. XIII, A). A pan of treacle or molasses was placed above the tiles in the kiln, which burned and produced a reducing atmosphere at the right stage of firing, while the air supply was also restricted. Chemical changes resulted in the formation of low-melting fayalite, which coated the tiles and gave them the bluish colour.¹³ It seems that these tiles are not made today.

The making of tiles required a great deal more care than did brickmaking. The tiles had to be dried in several stages, finally being stacked in a special way with air spaces. Otherwise there was too much wastage during firing. It is at this point that the greatest puzzle about Chawley works appears. It concerns the narrow gauge railway which ran from the works to Botley Pound *via* a descent of 120 feet on an incline situated in the field next to Chawley Farm at SU 473046. It then ran across Shoulder of Mutton field, skirted the bottom of Hid's Break and Copse, to Dean Court, where it crossed the Eynsham road, ending behind the two Chawley cottages by Tilbury Lane. Here, according to the daughter of a Mr. Cheshire, a waggon driver at the works, was a tile-drying yard, with the special roofed 'gallies' for stacking the tiles. Cheshire took the yard site as an allotment when the yard was disused in about 1908. The incline had two tracks, and there is a persistent report that the gauge was wider than 2 feet. Waggons were controlled, under gravity, *via* a pair of brake wheels (called windlasses!) set on brick foundations in a pit, housed in a wooden building about 12 feet square. This building was demolished fairly recently and its orange tiles were used again at Chawley Farm. The foundations were removed in 1968. The incline had shallow cuttings that were partially infilled in 1946.

The working of the railway was clearly remembered by several people in the area, one of whom rode on it as a boy. It seems to have ceased work in 1913, after having been cut back to Dean Court. Waggons were worked down to there with a man riding, using a brake-stick. Rails from the line are preserved in a garden at Botley Pound, and weigh some 45 lb. per yard. Track was unearthed in 1932 when No. 96, Eynsham Road was being built. The track on the incline was still there in 1925, and the remains of ballast can be found today, especially after ploughing.

Even more interesting is the fact that another kiln existed near Denman's Farm at SU 466055, whose sole remains, a chimney, are shown on the six-inch map of 1911, revised in 1938, in Kiln Field. This was just a ruin in the 1920s. Probably it was built at the time of the Neals, and George Neal once stated to Mr. Tyrrel of Chawley that the incline had been used to lower clay to this kiln. The writer has found several pieces of evidence to suggest that a rail line ran from the incline foot, across two fields, to this kiln. The Gee brothers discovered rail tracks in 1926

¹³ A. B. Searle, *Manufacture of Bricks and Tiles* (1936), 120. Extensive details of early methods of brick and tile making are given by E. Dobson in his *Rudimentary treatise on the manufacture of bricks and tiles*, editions of 1850 and 1893.

during ploughing, but these ran northwards for a short way to a pit sunk on the Oxford Clay, which the Gees filled in as they restored the field. The recent excavations for the Cumnor by-pass have exposed more of the supposed rail-route to the old kiln, in the form of a 2 feet wide layer of iron sand with pieces of brick, coal and cinder abundantly spread along it, whose bearings connect with an old footpath to Kiln field which was ploughed out in 1968, and was also spread with brick and coal pieces. The new road has also cut across a limestone-based road, which is believed to be the continuation of Hurst Lane, through Chawley Farm, down to the vicinity of the old kiln.

Those people of Cumnor who remember anything about the railways think that the incline was used to lower bricks down to run to Dean Court, where they would be picked up by local buyers. However Mr. Barnett of Tilbury Farm has pointed out that there was probably another incline running from Dean Court to Wytham Hill. A section of very old portable track, of 16½ in. gauge, and 9 lb. per yard rail, was found in the hedge above a cutting near Higgins Copse. Some steel winding rope was found at the top of the slope, grown into mature trees—obviously used as a fence when the trees were saplings, decades ago.

The trucks used on these lines were of three types. Photographs show that wooden rectangular clay cars, and steel tipping skips were used in the pits at the Hurst. One of the latter (body only) was found in a barn, in use as a trough. The trucks on the incline were probably similar to Koppel's brick cars, which were supplied in 2 foot gauge, with 42 inch wheelbase, and with roller bearings; they cost £6 in 1911.

The end of the works at Chawley remains as uncertain as the rest of the story. The last manager was a Mr. Tipping, and his daughter, the book-keeper, stated that wartime restrictions on the coal supply forced the works to cease in 1940, although the timber operations carried on until the sale in 1949-50. No-one however seems to remember any bricks being made at that time. A little clay was still supplied to a foundry customer in the Midlands for moulding.

Few traces remain today. At one time a popular site for geologists, the clay pits today are overgrown and the working faces obscured. The site has been re-developed as a timber importing business. The incline can still be traced beside Long Copse and specimens of Chawley bricks and tiles can be seen in house and garden walls around Cumnor and Botley.

PLATE XIII



A. Nos. 24-6, Eynsham Road, Botley Pound. Built of Chawley brick, and roofed in treacle tiles. The bust is of the 1st Earl of Abingdon.

Ph.: I.C.D.

B. View of the quarry, Chawley works, in the late nineteenth century.

Ph.: University Museum, Oxford