

THE BARFORD BROTHERS' DYE AND BLEACH WORKS, NORTH STREET, LUTON

HISTORIC BUILDING REPORT

Katie Graham



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SUMMARY

The Barford Brothers' dye and bleach works was founded in 1894 by Gilbert and Ernest Barford and dyed items for the local hat industry. The building underwent a series of major developments in the early 20th century and remains in use as a dye works today - the last of its kind in the UK. Permission has been granted for the demolition and renovation of a substantial area of the site and work will begin shortly.

CONTRIBUTORS

Photography by Steve Cole.

ACKNOWLEDGEMENTS

Thanks must be given primarily to Mr John Horn and his employees for allowing access and for their help, as well as to Mr Michael Moore for sharing his memories of his time at the dye works. Dr Elizabeth Adey at Wardown Park Museum was most helpful in looking out the plans of the site and thanks also go to Hannah Waugh and Kathryn Morrison for their assistance on site.

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NMR Swindon.

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DATE OF PHOTOGRAPHY

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CONTACT DETAILS

English Heritage, Brooklands, 24 Brooklands Avenue, Cambridge, CB2 8BU
Katie Graham; 01223 582782; katie.graham@english-heritage.org.uk

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INTRODUCTION

The former Barford Brothers' dye works on North Street, Luton, is a functioning dye works producing goods for the hat trade which once dominated Luton. It is formed from a series of ranges, sheds and partially enclosed spaces which were constructed in a number of identifiable main phases with countless minor alterations and adjustments over time. The plans on the following pages (figs 3 & 4), based on the 1985 Fire Regulation Plans for the property, show the system of numbering used when describing the rooms and spaces and any doorways referred to in the description of the property are numbered as shown on the plans.¹ The complex runs in a NW-NE direction along North Street, with NW being taken as North throughout for the purpose of describing the orientation of rooms. Built primarily from Luton grey bricks with some later additions in common Fletton brick, the majority of the buildings have king posts with diagonal braces and an engaged ridge beam with two principal purlins to either side supporting a slate roof. Unless otherwise stated the brickwork is Flemish bond and the rooms on the ground floor are floored with engineering blocks whilst the first-floor rooms are floored with wooden boards. The two main ranges at the front and rear of the property lie parallel with North Street and Mussons Path respectively.

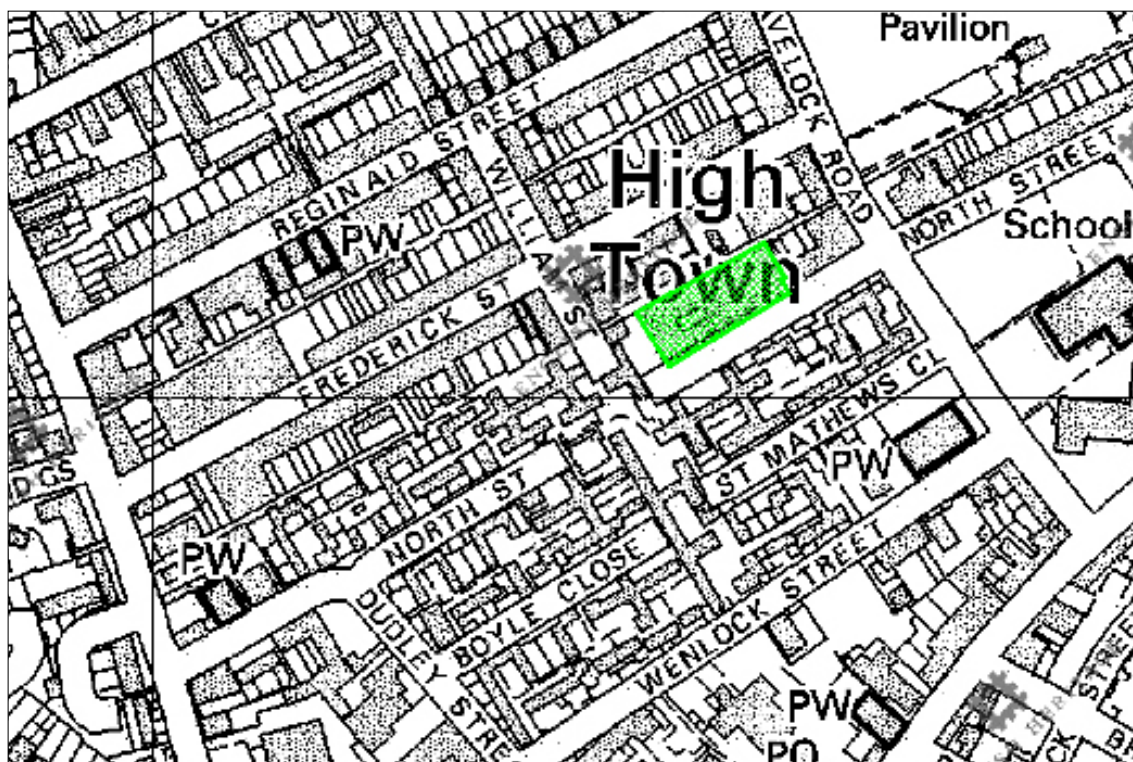


Figure 1 Site location of the Barford Brothers' dye and bleach works within the High Town area of Luton.

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The dye works are now run by Mr John Horn as part of the Baxter Hart & Abraham group. Permission has been granted by Luton Council for the demolition and redevelopment of a substantial portion of the complex which will see most of the site turned into accommodation and offices, with the dye works being retained at the eastern end of the site – albeit at a much reduced scale.

HISTORY AND SOURCES

Company History

Presently under the ownership of Baxter Hart & Abraham, the Barford Brothers' dye and bleach works on North Street was built by brothers Gilbert and Ernest Barford. They founded their company in 1894 and the business was passed on to Gilbert's sons, Rex and Lance Barford.

Examination of the 1891 census in conjunction with trade directories for Luton suggests that Gilbert and Ernest were born to Abraham (a straw hat manufacturer) and Mary Barford who lived on Bedford Road² with a business premises at no. 30 John Street.³ Ernest was born in circa 1867 and was listed as living with his parents, single, and an employer. His profession is described as 'straw plait bleacher and dyer'. His siblings were Murray (b. circa 1871); Horace (b. circa 1873) and Bertha (b. circa 1874). Gilbert is not included within the household census but a Gilbert H Barford is described as a visitor at the Hyde Mill, East Hyde – born circa 1869, an employer, born in Luton and described as a 'plait merchant'.⁴ Gilbert would later become Mayor of Luton, holding the post between 1922 and 1926, and once more in 1928.

The 1901 census shows that Ernest, now aged 34 and still described as a 'straw plait bleacher and dyer', was living on Studley Road with his wife Frances, his daughter Beryl and his sister-in-law.⁵ Gilbert Barford was living at no. 31 Park Street West with his wife, three sons and a servant.⁶ However, no mention is made of either Rex or Lance Barford as they were not yet born - Lance being born in Luton in December 1901.



*Figure 2 Gilbert Barford.
Collection of Mr John Horn.*

Rex and Lance Barford took over the running of Barford Brothers' Limited but when Lance became ill with a heart condition Rex could not manage the business alone and so, in the spring of 1955, it was bought by the Hubbard Group although it continued to be run by Rex, and when Lance recovered he returned to the company as a ribbon dyer.⁷ Barfords' were an established ladies' wool felt hood manufacturer and ribbon dyer and finishers and, following the takeover, the Hubbard's straw dying department moved to the North Street premises in June 1955. The wool felt section eventually closed due to a lack of new workers willing to replace retirees – Vauxhall was offering higher salaries for less arduous work – and most of the machinery was shipped to Taiwan.



Figure 3 Ground floor layout of the Barford Brothers' dye and bleach works, Luton.

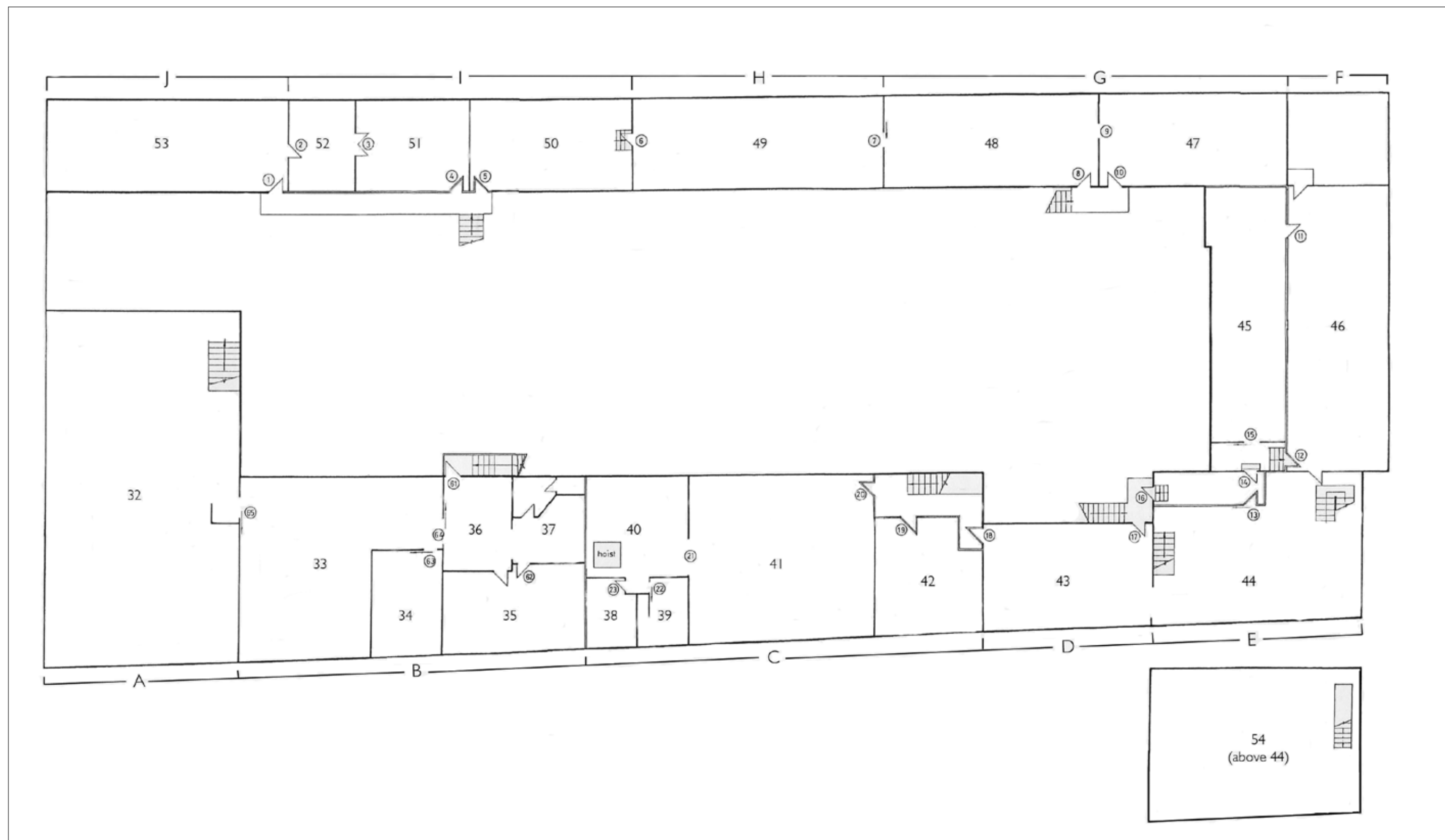


Figure 4 First floor layout of the Barford Brothers' dye and bleach works, Luton.

Around 1959/1960 Lance Barford died - he had been invited to speak at the Society of Dyers & Colourists annual conference and collapsed on stage. Rex went on to buy the company back from Hubbard's in the 1960s shortly before retiring and selling the business to George Ostler and Michael Dellar. Ostler was employed at the time as an accountant for the company whilst Dellar had moved down for the Hubbard's Dundee factory and was working as a dyer at the North Street premises. The company was amalgamated with Baxter Hart & Abraham Limited in the 1970s with Mr Dellar as a director, joined by TC Horn and JH Horn, at which point all dying operations were moved to the property on North Street. During the mid-1980s Oakley Dyers of Collingdon Road, Luton, went into liquidation and was purchased by Barford Brothers' Limited but continued to trade as a separate company called W Ribbons on Grove Road, Luton, dying seatbelt and parachute webbing.

Baxter Hart & Abraham's origins as a company may be traced in part back to George Abraham's dyeworks at nos. 36/38 Wellington Street, built in circa 1864. George was born in 1834 and is described in the 1861 census as being a 'Bleacher and Dyer' living in the Christchurch area of Luton.⁸ The business was passed on to his son John and then, in 1894, to John's son Henry. In 1933 Aubrey Charles Horn acquired the business from Henry Abraham and the dyeworks moved from their original site in Wellington Street to the corner of Charles Street and High Town Road, with a head office at 5 Barbers Lane and a felt hood factory at nos. 50/52 York Street. In 1953 the company became a limited liability company (H Abraham (Dyers) Limited) with Aubrey Charles Horn as Managing Director and his son Tony Charles Horn as Director.

in 1904 Mr Baxter Herbert Hart and Mr Edward Burgess formed Baxter Hart & Company, a straw plait bleaching company which diversified into dying in the 1920s. Baxter Hart is described in the 1891 census as living at no. 26 Bury Park Road, Luton with his wife and son (also called Baxter), employed as a 'Boot and Shoe Trade Assistant'.⁹ Edward Burgess was also living on Bury Park Road in 1891, at no. 30, and was employed as a 'Straw Plait Warehouseman'.¹⁰ Mr Hart's son Clifford trained as a dyer, and in 1925 Mr SB Snoxell joined the firm and replaced Mr Burgess when the latter retired in 1926. By this date the company was largely focused on dying, starting to dye and finish hat ribbons in 1928. By 1938 Baxter Hart & Company merged with George Carruthers Limited to become Baxter Hart & George Carruthers Limited. George Carruthers, a hat manufacturer, was born circa 1852 and at the time of the census in 1891 was living in Streatley House about 5 miles north of Luton with his wife and two young sons.¹¹

During the Second World War and the years that followed, straw was in short supply and the company began dying parachute silk for lingerie and later they dyed nylon. In 1956 Baxter Hart & George Carruthers Limited merged with H Abraham (Dyers) Limited. The directors of the newly formed Baxter Hart & Abraham Limited were BC Hart, AC Horn, TC Horn, SB Snoxell and JS Snoxell. During the 1950s Baxter Hart & Abraham Limited first formed a business associated with Barford Brothers' Limited.

The Site

The 1880 Ordnance Survey (OS) town plan of Luton and the 1880 OS map of Bedfordshire distinctly show that at the time the High Town area of Luton was surveyed Wenlock Street and Dudley Street were already well established, whilst (save for the house on the corner of North St and Havelock Rd) only the western end of North Street had been developed with the construction of terraced housing, two pubs and a Wesleyan Chapel. The same remained true in 1888, the Bedfordshire OS map clearly showing an empty site where the dye works now stand.

The firm was founded in 1894 and by 1901 the dye works are not only present but are marked on the map as 'Dye Works (Straw Plait)' and surrounded by further terraced housing. The basic layout for the works had been established, with a complete rear range along Mussons Path and buildings at either side of the site creating a U-shaped complex open to North Street. A number of small structures are shown within the yard but do not appear to form an integral part of any of the main buildings.



Figure 5 The extent of the site in 1901.

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A less detailed 1902 OS map of Bedfordshire suggests that no substantial alterations had been carried out with the year. By the time of the 1924 OS map the High Town area had greatly expanded and the dye works had taken on the form we largely see today, with the enclosure of the courtyard behind a front range and the construction of substantial buildings abutting the rear range within the yard, as well as the construction of stables on William Street. The 1926 and 1938 OS maps of Bedfordshire suggest little substantial change to the site during this time.



Figure 6 The extent of the site in 1924.

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The complex underwent some restructuring after the Second World War, with the erection of two new warehouse areas within the yard and alteration to a number of doorways and windows. Overall, however, the existing layout of the site remained largely untouched, the most visible change being the demolition of the tall chimney stack in circa 1970.

Drawings and Plans

Four sets of plans and drawings by the architect BB Franklin (and a number of associates) detailing alterations to the Barford Brothers' factory have been found. The earliest dates to 5 December 1907,¹² and shows proposed alterations and additions to block E but not the full extent of the works eventually carried out. Another set is dated 4 January 1910¹³ and shows the proposed construction of area 24. A third bundle of documents includes plans showing preliminary sketches for alterations (the addition of area 24) dated 1 January 1910, and proposed schemes for a new making room (section B) dated 5 April, 14 April 1910 and 15 April 1910.¹⁴ The fourth set of plans shows three potential designs for new stabling on William Street¹⁵ – schemes A and B are both dated 16 August 1911; the third version isn't dated but incorporates changes shown on scheme B in pencil and therefore appears to be the final design which was then built as shown.

EXAMINATION

The Front Range

Block A is a two-storeyed building with brick detailing, gabled to the street. The roof covering has been replaced with asbestos cement sheeting and the windows have been boarded over. The southern elevation is symmetrical with a wide central doorway (66) flanked by single windows on the ground floor and a taking-in door on the first-floor (although there is no evidence of fixings for any form of crane), again with a window to either side. The windows and doorways have segmental heads formed from a double row of red brick headers terminating in single stretchers, with engineering brick sills to the windows. The lower position of the main doorway compared to the window heads to either side appears, from the presence of quarter-bats, to be the original height. The brickwork beneath the clearly secondary concrete sill of the taking-in doorway has been patched and repaired – probably during the replacement of the sill. Situated on a slight hill, there are two air-vents below the left-hand window on the ground floor, allowing ventilation beneath the floor. The western elevation is partly rendered, showing the position of the terraced houses which once abutted the building. This elevation is blind and whilst the lower half of the exposed section of wall is in English bond, the upper half is constructed from Flemish bond although in the same size and type of brick and with obvious no change in mortar. The rear elevation faces area 30, a covered dye yard, and has two windows - the western window is bricked up but has a segmental head of the same style as the windows to the front elevation, the eastern window has been altered with the insertion of a metal lintel and has metal glazing bars dividing the window into twelve rectangular panes with an engineering brick sill below. A support for a drive shaft has been inserted between the windows. The eastern elevation is not visible externally.



Figure 7 Block A.

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The interior of the building consists of two large, open spaces – room 1 on the ground floor and room 32 above, both with wooden floor boards. There is a heavily reinforced floor to room 32 with two steel beams running east to west towards the southern end; these are each in two sections meeting in the centre and supported on upright steel posts. There is a main north-south beam slightly to the west of centre and supported on four brick piers. Either side of this are paired secondary north-south beams which terminate on the east-west beams. Supported on these beams are heavy timber joists running east-west. In the south-western corner is a large opening in the floor with a narrow section of floor, three joists wide, against the southern wall before a gap the width of five joists. Immediately to the west of the main door, to the east of the large opening is a top opening trapdoor, three joists wide. Along the eastern wall there is a large, square headed, blocked opening to the far north which is clearly a later insertion. To the south of this is a blocked doorway with a segmental brick head formed by a single row of stretchers and a matching open doorway. Further south is an inserted sliding door to room 2 and a blocked window. The eastern wall of room 1 is obscured at the southernmost end. The staircase in the north-eastern corner is of relatively recent construction but appears to be the original position.

The roof of block A is supported by four king post trusses with three purlins to either side. There are two skylights to the western side and one to the eastern side of the roof – these appear to be contemporaneous with the addition of the asbestos cement sheeting. On the first floor there are two windows in the northern wall with segmental brick heads formed by a double row of headers terminating in stretchers; the glazing style is the same as in the windows below but with wooden glazing bars. Along the eastern wall, running from north to south, are three square headed windows with wooden glazing bars, a narrow doorway, a small square headed hatch and a large hatch with sliding door – all of which are later insertions. The support for the hoist which once ran above the trapdoor in front of the main loading doorway on the southern elevation remains; it runs from the west of the main door and connects to the first truss.

This building was used for the production of felt. A variety of felt was produced, including piece felt approximately 1 metre wide and 9 metres long which would be dyed and sold for use in clothing, toys and craftwork. Mechanical felt was also produced and was either undyed or a grey blend and used for washers, spacers, filters etc. The main work of the felt department was making the caps and cones from which felt hoods would be shaped and then dyed on site. The wool first went through several carding processes to form a web which was then wound on to a cone to form rolls of cotton wool (as seen in fig 8) – this process was almost always done by women as the fine web would catch on any hairs on the arms or hands and rip. During the forming process the wool would be cut and steamed before being pulled over blocks to create the basic hood shape (fig 10). This was very painful to do and large calluses quickly developed on the workers' hands from the heat and roughness of the felt. The actual felting process took place either in a multi-roller (fig 11) or a more aggressive bumping machine (fig 12) where the hoods would be hammered with hot water and sulphuric acid until the fibres had curled and knitted together evenly – this part of production was generally overseen by men and the bumping machines ran continuously, even when a hood would be pulled out by hand to check whether more water or acid was needed.



Figure 8 Block A, room 32 showing the carding process circa 1940.

Collection of Mr John Horn.



Figure 9 Block A, room 32 in 2010.

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Figure 10 The forming process, circa 1940 (interior of room 44, block E).

Collection of Mr John Horn.



Figure 11 A Mazzera multi roller, circa 1940. Unidentified location.

Collection of Mr John Horn.



Figure 12 Bumper machines, circa 1940. Unidentified location.

Collection of Mr John Horn.

Block B is a two storeyed building running parallel to North Street and a clearly visible building break reveals that it was built up against block A. As it stands the building has a slate roof with two louvers towards the western end – the westernmost being triangular with a slate roof, the other being square with lead. The western elevation is gabled with a central oculus below the apex. On the ground floor the doorway to the east (69) is original, whilst what were once three windows to the west of this door have been altered with the central window being converted in to a doorway (68) and that to the west being shortened and partially filled in. All four openings have brick segmental heads formed from a triple row of headers terminating in a single stretcher with a header above and have a noticeably more pronounced arch than those in building A. There are four windows to the first floor – each with two rows of headers rising to meet the eaves and with engineering brick sills. The third window from the east is much narrower than the other windows but the surrounding brickwork suggests that it is original.

Internally, the northern wall was demolished during the addition of a modern warehouse and replaced with a stud wall. The floor has been covered but appears to be of solid construction. The western wall is blind save for the doorway leading to building A. Similarly, the eastern wall is blind with the exception of a square headed blocked opening leading to the easternmost section of B. Beneath the easternmost window in the south wall is a hatch which once brought shellac in to be processed for the stiffening of certain shapes of felt hats. This process (fig 13) involved the hoods being submersed in a solution of shellac before the excess was removed and the hoods left to dry. The ceiling is made



Figure 13 Rotary proofing machines for stiffening felt hoods, circa 1940. Unidentified location. Collection of Mr John Horn.

from concrete and reinforced by bolted plates, there are two riveted beams running north-south which terminate on brick pilasters with curved edges either side of the main doorway and by iron columns to the north. Against the western wall are two square blocked openings in the ceiling. Against the eastern wall are the remains of three concrete tanks – the southern tank is circular and projects down into the room whilst the central tank has been removed but a circular scar in the ceiling is still clearly visible. The northern tank is smaller and is square in section with associated pipes still attached.

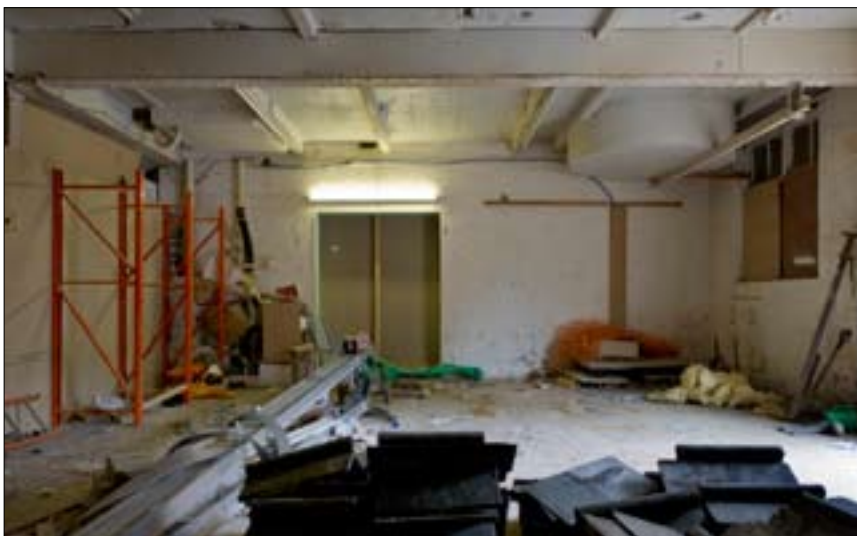


Figure 14 Block B, room 2.

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A set of plans dated April, 1910 by BB Franklin Architects show a number of proposed schemes for the construction of the building – one of which appears to have been carried out almost in its entirety.¹⁶ The exterior of this building has actually been changed very little since its construction – the louvres and first-floor windows exist as shown on the plans, whilst the three windows on the ground floor were always designed to be partially-louvred (fig 15). Internally the general arrangement of three tanks on the first floor is clearly shown, although the smaller tank was built to be square rather than circular whilst the plans suggest that at least one of the blocked openings to the west was for a staircase (fig 16). The only significant alterations are the insertion of a second doorway and the demolition of the rear wall associated with the construction of the modern warehouse. The warehouse and upper section of B (rooms 33-37) were not accessible, nor were the 'new motor house' and the 'extension of bunching room' above it as described on the plans to the immediate east.

Block C (fig 17) is slate roofed, built against block B, and incorporates the through passage leading from North Street to the central yard. All of the windows and the

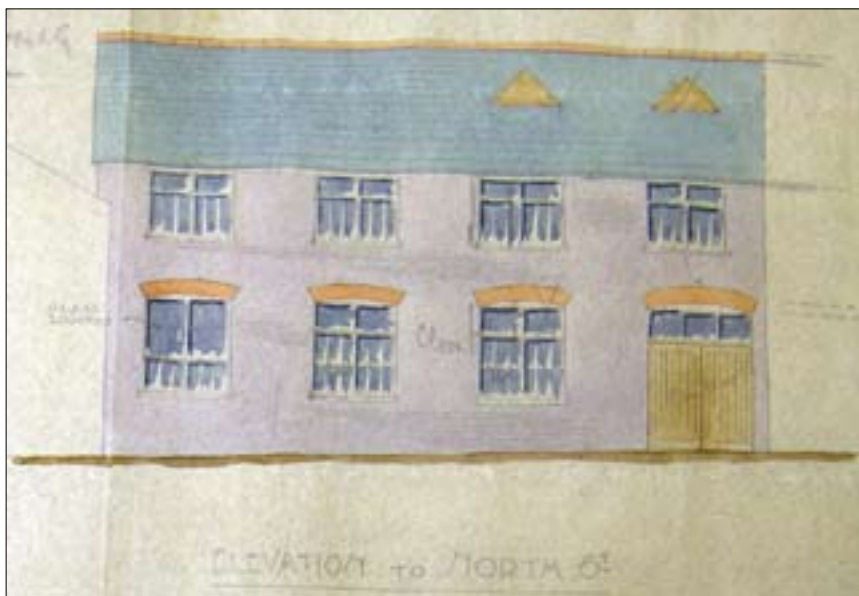


Figure 15 Detail of a design by BB Franklin, 1910.

Courtesy of Wardown Park Museum.

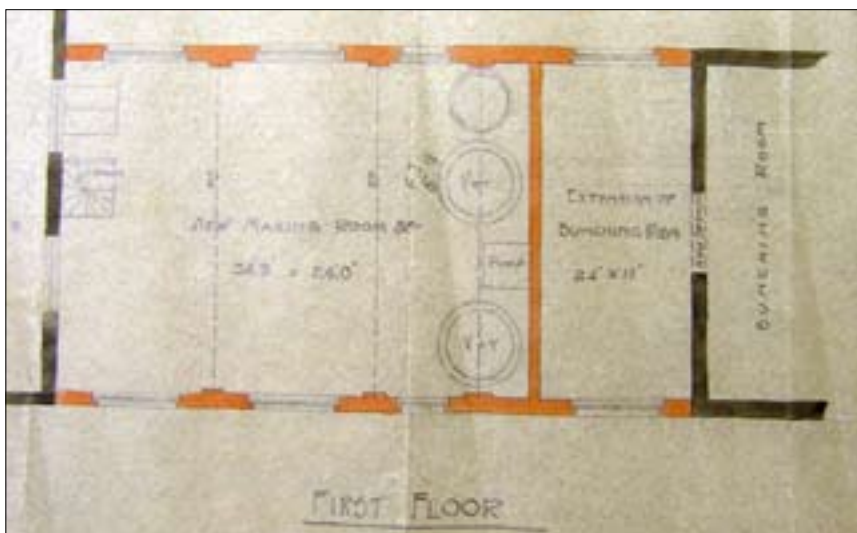


Figure 16 Detail of a design by BB Franklin, 1910.

Courtesy of Wardown Park Museum.

doorway to room three (73) on the front elevation have brick segmental heads formed by a double row of headers terminating in a single stretcher. The windows have engineering brick sills and (with the exception of those to room 42 which have been replaced with uPVC frames) have metal glazing bars dividing the window into square panes – six across and four high with a further row cut at an angle to allow for the segmental head. Beneath this row is a square pivot opening light of four panes. To the west of doorway 73 is a small window to room 3 whilst to the east is a large window to room 5. The passageway itself is formed by a wooden lintel resting on stone corbels incorporated into the surrounding brickwork, with a set of stone blocks approximately one foot further down, and a further set just above ground level. Above the passage is a wooden sign (fig 18) with a black background and gold lettering announcing the building as 'Barford Brothers Ltd. Hubbard of Luton', with the previous lettering 'Members of



Figure 17 Block C.

© English Heritage NMR DPI10762



Figure 18 Hubbards sign.

© English Heritage NMR DPI10765

the Hubbard Group' visible below.

To the east of the passageway on the ground floor are two large windows to room 7, one narrow window to room 9 and a window which was once a doorway, also to room 9. This easternmost section incorporating room 9 is physically disjointed from the rest of the structure yet this appears to reflect internal divisions rather than showing any evidence of a building break. To the west of the windows beside the passage are two decorative air vents, with three to the west of the second window and one to the east. Whilst the sills of the ground-floor windows are sloped, those to the first floor are set at a right angle. The first-floor window to the west of the passageway has a lower arch, a narrower sill and a narrower opening than the window above the passageway or the three to the east – all of which are of the same style. The eastern section has two windows on the first floor – the easternmost appears to be original, although again with a narrower sill than the windows above and to the immediate east of the passageway, whilst the other appears to have been inserted and the segmental head uses darker bricks than those seen on either side. The eastern wall of the through passageway is blind whilst the western has two original doorways (56 and 57) to room 6 and 5 respectively with

brick segmental heads formed from two rows of headers terminating in a stretcher. The square headed opening for the loading hoist between these doorways appears to be an insertion.

The rear elevation of rooms 4 and 6 is obscured by a new warehouse but there is partial evidence for a narrow doorway or window to room 6. The rear elevation of room 8 has an original window and an original doorway (26) – although minor adjustments to the opening have been made in order to insert a sliding door – both with brick segmental heads formed from a double row of headers terminating in a single stretcher and with a sloping engineering brick sill to the window. Between these is an inserted window with an exposed RSJ as a lintel. The rear elevation of room 9 contains an inserted doorway (24) with a concrete lintel, whilst to the side of this is an original window which has been filled in. On the first floor the headers for two windows of the same style as those to the front elevation can be seen to the far west, although they have been filled in and replaced with three smaller windows. To the east of the passageway is a filled in doorway which once provided access to an external staircase and walkway – although the lack of any lintel or door head suggests that the doorway was itself a later insertion. To the west are two windows with brick segmental heads formed from a double row of headers terminating in a single stretcher and with engineering brick sills set at a right angle.

The interior of rooms 3, 4, and 5 were not accessible. Room 6 contains the hoist which rises to room 41 and the clocking-in equipment. Room 7 contains a number of blocking machines by Boon & Lane of Tailor Street, Luton, and Weatherhead & Sons, also of Luton. The blocking of hats to a specific shape can be done by hand or by machine. The straw or felt is wetted or steamed and then quickly pulled over the crown of a block and pulled evenly on all sides before it dries. In a complicated shaped hat the brim may be made separately and attached during the finishing process. Blocking machines are essentially large presses with an upper and lower pan, each heated by gas burners. The form of the hat to be produced is inserted within these pans and then the hood (having been wetted or steamed first and treated with a stiffening agent, such as shellac) is inserted and the pans brought tightly together. If a hydraulic machine is being used then at this stage water is pumped into a rubber bag in the pan, compressing the hat tightly against the form.



Figure 19 Detail of clocking-in apparatus.
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Figure 20 Blocking machines in room 7, block C.

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The wall separating rooms 7 and 8 is a recently inserted stud wall. The western and eastern walls are blind. Room 8 has a blocked opening to room 9 in the eastern wall and a run-off channel running below the window in the southern wall. Room 9 is a drying room complete with racks. It has been reduced in size to make way for the lobby and staircase to the first-floor rooms and has an inserted ceiling and an engineering block floor. Drying rooms are where the dyed hoods are placed on pegs to dry in heat once generated by hot pipes that ran around the floor of each room. Hot steam created by the main boiler circulated under pressure around the site in a series of pipes which could be regulated by valves in each room. One important innovation was the introduction in September 1992 of a heat pump dehumidifier into the drying rooms, replacing the old system of floor-mounted steam coils to heat the room. The old system created a lot of humidity, slowing the drying process and meaning that only one room of hoods could be dried in a day. The new system, complete with microprocessor to monitor the temperature and humidity, allowed two batches of hoods to be dried in a single day.

Room 40 is a continuation of room 41 as, although the wall partly separates the two spaces, the floorboards run through without interruption. The room is open to the roof and there is a single exposed king-post truss. Partitioned sections create rooms 38 and 39 as well as the WC and sink area in the north-west corner. The hoist made by Tanove of Birmingham runs along the north side of the room from east to west and has a sign 'No 1 Hoist, load not to exceed 5CWT'. The hoist shaft is enclosed and has an attached sign stipulating 'Load not to exceed 2CWT' (fig 21). Room 38 has no ceiling, being a partitioned area, but has tongue and groove panelled walls with glazing and a hinged door (23) with bakelite handle and a linoleum floor covering. Room 39 (fig 22) again has no ceiling but has tongue and groove panelled walls with glazing and a sliding door (22) as well as built in shelving and cupboards.



Figure 21 Hoist in room 40, block C.
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Figure 22 Room 39, block C.
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Room 41 (the ribbon room) is also open to the roof, which comprises three visible king-post trusses with an engaged ridge beam and two principal purlins on either side. There are two openings in the roof – one to the extreme east of the room and one in the centre – indicating the position of the louvres. The centre of the room is occupied by wooden frames for drying ribbons – complete with adjustable spindles for sorting hanks of ribbon (fig 23). The eastern wall has a doorway (20) which appears to be original; the northern wall shows evidence for the blocked doorway as well as evidence for further ribbon frames. The room (fig 24) has changed very little since a black and white photograph of the room was taken in circa 1940 (fig 25).



Figure 23 Hanks of ribbon.
© English Heritage NMR DPI10750



Figure 24 Room 40, block C, in 2010.

© English Heritage NMR DPI10749



Figure 24 Room 40, block C, in circa 1940.

Collection of Mr John Horn.

Block D has a single doorway (30), probably original, on the ground floor of the southern elevation with a dark red brick segmental head formed from a double row of headers terminating in single stretchers. On the first floor are three square headed windows with wooden lintels just below the eaves and engineering brick sills set at a right angle. The fenestration is formed from two lights side by side, each light being divided by metal glazing bars into six panes - the upper two of which open on a pivot. The rear elevation is partially obscured by the addition of an extension – room 15 – but has two large openings on the ground floor with RSJ lintels resting on pad stones. The easternmost of these openings is in use as a doorway (33) with sidelights and overlights, some of which have been boarded over. The western opening has been partially filled in and a window inserted between the two openings. A staircase in yard 14 provides access to the first floor with doorways to room 11 (17) and room 12 in block E (16). The rear elevation is blind save for doorway 17 which is a later insertion, and a small loading door to the west which appears to be original.

Room 10 is an undistinguished space used for storage which opens on to room 11, the northern wall of which contains double doors and a ramp, to the west of which is a brick pier. Area 14 contains a wooden staircase providing access to rooms 43 and 44. Area 15 is a recently added extension in corrugated iron housing a boiler.

Room 43 has two visible kingposts. The west wall contains a wide, filled in archway beside which, in the north-west corner, is an inserted doorway (36). The northern wall shows possible evidence for drying racks beside the doorway in the north-east corner and the east wall has been altered to create the large opening through to room 44. The room is currently used for the winding of ribbons into rolls (fig 25).



Figure 25 Room 43, Block D.

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Block E (fig 26) is a three-storey building with two windows and a loading door to each floor. The ground floor and first-floor windows have segmental heads formed from three rows of headers terminating in a stretcher with a header above, as does the first-floor loading doorway. The second-floor windows have square heads beneath the eaves, whilst the second-floor and ground-floor doorways have wooden lintels. All the windows have engineering brick sills, those on the ground floor being sloped and those on the first and second floors being set at a right angle. The fenestration is very similar in style to that seen in block C but with plain square heads even where the window heads themselves are segmental. Between the doorway and the easternmost window and again between the windows on the ground and first floors are large metal ties with additional straps below those on the first floor. Each of the windows on the ground and first floor has a set of air vents to either side, with an additional one to the east of the last window on the ground floor and an additional two on the first floor.



Figure 26 Block E and 113 North Street.
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No. 113 North Street, to the east of block E, appears to have been built as part of the same building – there is no building break in the brickwork and the treatment of the window heads appears to be the same. A plan detailing proposed additions and alterations by Anscombe & Franklin Architects, dated 5 December 1907,¹⁷ shows two separate buildings occupying the footprint of block E (fig 27). The westernmost building was part of the dye works, with a store and dye house on the ground floor and a converted drying house above. No. 111 North Street appears to have been a house (described on the plans as a converted carpenters' shop) shown with proposals to remove the chimney breasts and staircase and to insert a sliding door and a window to the front elevation on both the ground and first floor. A new dye house (the westernmost half of room 17) was constructed behind no. 111, infringing on the garden of no. 113 North Street. Consequently, the scullery of no. 113 was rebuilt as part of the proposed works – suggesting that the factory also owned this house. Clearly, the works proposed in this plan were not carried out as shown – the building is of three storeys and there are two windows beside the taking-in doors rather than just the one. Given that there is no evidence of a building break between the factory building and no. 113 North Street, it seems likely that the conversion was carried out much as planned but with the addition of an extra storey and the change in fenestration. This theory is reinforced by the faint change in the brickwork between the first and second floor of block E.



Figure 27 Details of a design by BB Franklin, 1907.

Courtesy of Wardown Park Museum.

The western elevation of block E is gabled with a central oculus below the apex and a square headed window with a wooden lintel and brick sill towards the northern end of the second floor. Below this window is a small bricked-up rectangular opening with a segmental head formed from two rows of headers terminating in a single stretcher. Doorway 16, providing access from the external staircase in yard 14, is a later insertion with a concrete lintel which cuts into the top row of the header of doorway 36 below. This doorway was originally a tall window with a segmental head formed from three rows of headers terminating in a stretcher with a header above. The rest of this elevation at ground level is seen from inside room 11 but has been heavily whitewashed so no further features may be discerned. The northern elevation has two square headed windows just below the eaves, the larger of the two windows lying approximately in the centre of the wall, the narrower window being towards the eastern end. Both have sloping engineering brick sills. Below and slightly further to the west of this window is a small bricked-up rectangular opening of the same style as that seen on the western elevation. The eastern gable wall is blind.

Room 12 is a largely disused workshop with a riveted beam running north-south and terminating on brick pilasters with curved edges. A staircase against the western wall provides access to room 44. The floor is a combination of concrete and brick. Room 13 has two floor levels – the western half being 24cm lower than the eastern half. At the point of change in floor level on both the north and south walls is a brick pier with curved corners which support a riveted iron beam. The window on the south wall also has curved bricks to the surround whereas the two brick piers on the east wall have

a curve to the outer corners only. The west wall is an insertion and the north-west corner is set back further than the rest of the wall. Running from this wall are wooden beams which terminate at the riveted beam. The ceiling is primarily concrete with a small wooden section directly above the piers on the east wall, the join between the two materials being reinforced by iron supports. Rooms 12 and 13 appear to have been built as one room and later subdivided.



Figure 28 Room 12, block E.
© English Heritage NMR DPI10724



Figure 29 A delivery in room 13, block E.
© English Heritage NMR DPI10726

Room 44 has a largely concrete floor, although it changes to a wood at the base of the stairs to room 54. The west wall has the remains of an arched opening which was later filled in and cut through to create the opening to room 43 (this can be seen in fig 10). Above this opening are two supports for drive shafts. To the south of the opening is a small cut-through in the wall to room 43. On the south wall between the windows are a brick pier with curved corners and a stone corbel supporting a riveted beam running across to a matching pier on the north wall and a similar pier and beam combination between the loading door and the first window. On the east wall are two piers the same as those seen in room 13 with a curve to the outer corners only. The north-western corner of the room has been sectioned off for use as a corridor by the insertion of a wall, whilst the eastern section of the north wall has an inserted doorway through to room 46 and a support for a drive shaft in the corner.

Room 54 contains a large water tank and has the same arrangement of piers as seen in room 44 and 13. Above the stair-head is a smaller water tank, beneath which is a pulley. The king post roof has an opening in the centre for a louvre and the floor is concrete.

The Central Section

The central section consists of areas 24, 16 and 17 with 45 and 46 above.

Room 24 is a former dye house which is now used as a storage area. Although a single storeyed structure at present, plans drawn up on 4 January 1910 by BB Franklin for its construction suggest that it was originally built as a two-storey structure with a drying room and press room above (fig 30) – a fact supported by the physical evidence which remains. If the plans were carried out then originally there were three windows in the eastern wall, although the northern third of the wall has since been pulled down and re-built. The east wall is gabled and the upper section has clearly been rebuilt whilst the lower half has undergone a number of alterations – at present there is a doorway to the north with two windows to the south (all with concrete lintels) but it appears that prior to this there was a doorway where the southernmost window is, and a doorway where the second window is. The south wall has been almost entirely rebuilt, with the opening to the west being reduced in size and a window inserted, whilst the opening to the east has been completely infilled over a number of phases. The rebuilding seems to suggest that this section was originally built as shown on the 1910 plan. The western wall demonstrates substantial rebuilding in Fletton brick, breeze blocks and corrugated iron with only the corners constructed in Luton grey bricks appearing to be original.

Room 24 has a king post roof with a raised ridge section which is open at the sides – although the height of the king posts indicates that this is not the original roof

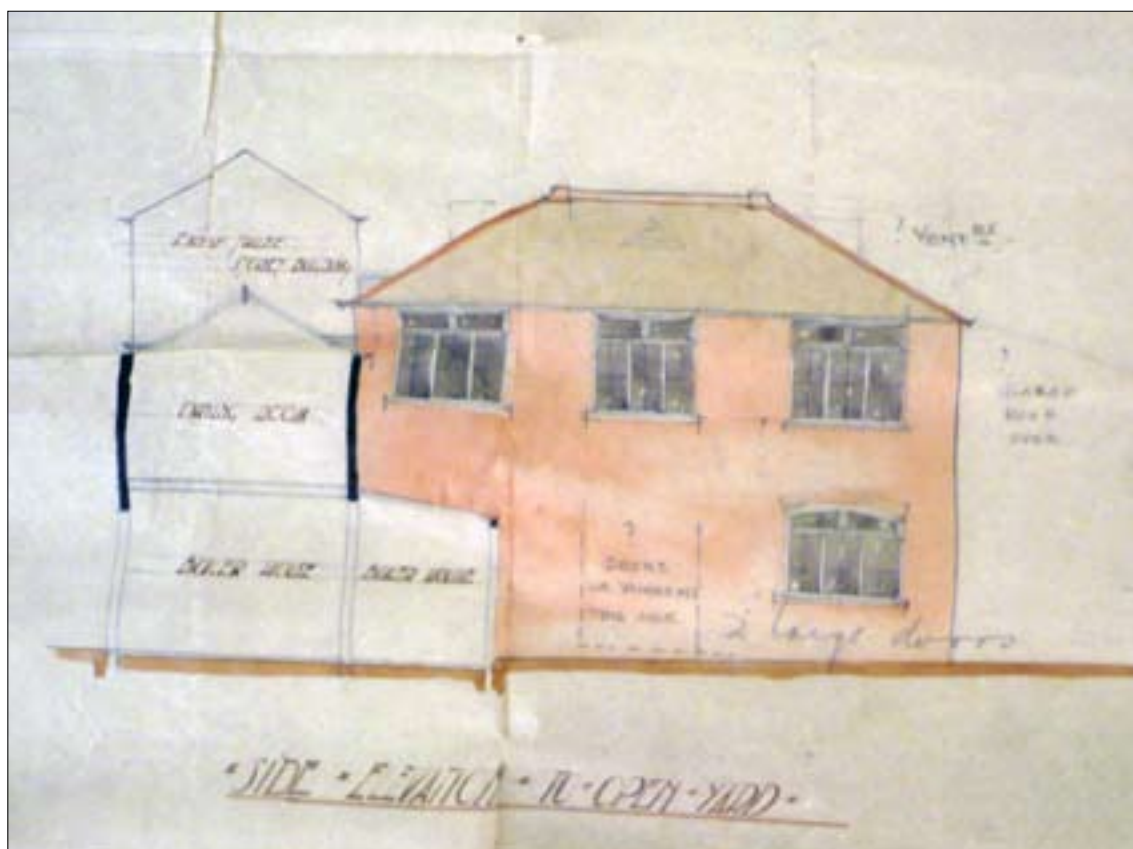


Figure 30 Detail from a design by BB Franklin, 1910.

Courtesy of Wardown Park Museum.

configuration. The floor is formed from engineering blocks. The south wall has a brick pier between trusses two and three (as numbered from west to east), whilst the north wall has three piers – one to the west of truss one, one between trusses one and two and one between trusses two and three – these appear to correlate with the brick sections between the windows which would once have looked in to room 25 (the boiler house on the 1910 plan). In the south-west corner is a brick built, roofed room with a sliding door, concrete floor and glazing to the north (looking into room 24).



Figure 31 Interior of room 24.

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Shed 16 is a modern construction of breeze block and a corrugated iron roof with open struts supporting a raised ridge piece and glass lights along either side.

Room 17 consists of two spaces either side of a central spine wall. The western wall (seen from shed 17) has been cut away on the ground floor whilst there are three blocked windows on the first floor, each with a single row of headers forming the segmental head. The eastern wall has three windows on the ground floor, each with brick segmental heads formed from a double row of headers terminating in a single stretcher, above these on the first floor are three blocked up windows with square heads to room 46. The northern wall has a blocked first-floor window and doorway with segmental heads as seen on the ground floor. The spine wall is heavily painted in places and the northern end has been rebuilt on the western face whilst the lower half of the eastern face has been rendered. The floor is made from engineering bricks and has run-off channels for water. The interior sills of the windows along the eastern wall have been removed leaving only rubble. This space is still in use as a dye yard (fig 32) – stainless steel tanks line the side of the rooms and are fed by hot water pipes, dye pigments are

mixed up by hand and added to the water into which hoods or ribbons are added and stirred regularly. The colour of the product is judged by eye and the colour adjusted as necessary – the quantities of dye used are very precise and lighter colours will be completely absorbed by the ribbon or hoods leaving the water clear.



Figure 32 Room 17 - the dye yard.

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Room 45 has a simple A frame roof and wooden floorboards. The upper section of the northern gable has wooden cladding, the west wall has a window in the north-west corner which has been partially infilled and opposite, on the eastern wall, is an inserted doorway (11) to room 46.



Figure 33 Stored hoods in room 45.

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NMR DPI10759

Room 46 is a drying room with long rows of drying racks and a system of steam heated pipes around the room at floor level. The doorway in the south-west corner (12) is a later insertion – the 1910 plan for this phase of construction indicates that the doorway was inserted at this date, whilst the doorway in the southern wall to room 44 appears to have been a window which was converted for use as a doorway when room 46 was built.



Figure 33 Drying racks in room 46.

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The Rear Range

The rear range runs parallel to Musson's Path and can be divided into five blocks with F to the east and J to the west. Block G (rooms 19 – 21 on the ground floor and 47 and 48 on the first floor) appears to be the earliest, with H (rooms 25 – 27 on the ground floor and room 49 above), I (rooms 28 and 29 on the ground floor and rooms 50 – 52 on the first floor) and J (part of yard 30 and room 31 on the ground floor and room 53 on the first floor) then being built in sequential order, with yard 30 connecting the ground-floor rooms in I and J. Section F is a modern building built to fill the open space between rooms 17 and 18.

Block F replaces an earlier structure, the roof scars of which are still clearly visible, and is a single-storey structure constructed from Fletton brick in Flemish bond with a mono-pitch corrugated roof and a steel chimney flue. Room 18 is a modern addition with a concrete floor containing a boiler.

Block G has a blind gable to the east. To the far east of the southern elevation is an

opening from room 17 to room 19; the brickwork to the east of this opening appears to be older than that to the west, suggesting that the western wall of room 19 may be a later addition. The first-floor section of wall above room 19 is not visible. The external section of the southern elevation opens onto yard 22. The first floor has a blocked window, four replacement windows to room 48, two doorways (46 and 45) and two further replacement windows to room 47; all with segmental heads formed from a double row of headers terminating in single stretchers. As seen from inside room 26 the ground floor has three windows – the western having been filled in, the central converted into an archway and the eastern altered in size and a modern replacement window inserted. From yard 22 a replacement window and a boarded over window to room 21 are visible as are two doorways (8 and 10) and two further replacement windows to room 20; although slightly wider than those on the first floor they have the same style heads. Set into the wall are eight rectangular stones on the first floor, evenly spaced, with seven on the ground floor – in each case they are set at approximately ceiling height. Rising from yard 22, which is paved with engineering blocks, is a timber staircase providing access to rooms 47 and 48.

At the eastern end of the north wall, on the ground floor, is a single window to room 19; this window has a segmental head formed from a single row of headers and wooden glazing bars with a wooden sill. The elevation has a matching arrangement of rectangular stones set into the wall on the ground and first floor as seen on the southern elevation (fig 34). Towards the western end of the wall are two small openings with segmental heads formed from a single row of headers set just below ceiling level on the ground floor; the western one has been filled in and the eastern one has a wooden sill. Between these is an inserted window (boarded over) with a wooden sill. To the west of these openings, very close to the building break at floor level is a small, bricked up, rectangular opening with a segmental head formed by a double row of headers (fig 35).



Figure 34 Two stones set into the northern wall of block G.
Hannah Waugh.



Figure 35 A blocked opening in the northern wall of block G.
Hannah Waugh.

It is interesting to note that the 1910 plan showing the construction proposal for room 24 in the central courtyard (fig 30) also shows the western end of block G, which is clearly shown and noted as being three storeys in height (at least at this far end) with a louvered upper floor. Given that the building as it stands is only two storeys high this implies that

the upper storey was either removed or that the entire building was replaced after 1910. Given that the two westernmost windows on the ground floor of the southern wall are made redundant by their position looking into area 26 it seems highly unlikely that block G is a later replacement and it instead would appear that a wooden upper storey was removed leaving few traces.

The entrance to room 19 appears to be an enlarged window or doorway and the eastern wall is stepped at the top, projecting into the room. Room 20 has a blocked doorway in the east wall to room 19, whilst the west wall is stepped out at the top.



Figure 36 Room 19, showing the stepped eastern wall.

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Room 21 has a blocked archway to room 20 and the east wall is stepped at the top as in room 20. The west wall is an insertion/replacement in wood. The room is used as a drying room and is therefore fitted with rows of drying rack and has steam pipes running around the room at floor level.

Room 47 has alternating tie beams and king post trusses, with the main upright king post element of these being made from a metal rod rather than timber and there is one louvre towards the southern side of the roof. The room is once again a drying room with racks and steam pipes. The west wall has a central doorway flanked by small, bricked-up openings. The east wall is stepped at the top.

Room 48 has the same style of king posts as seen in 47, with wooden cladding to the upper gable section of the east wall, suggesting that rooms 48 and 47 were not always separate. The west wall is stepped at the top and contains a sliding door to room 49. As a drying room, the steam pipes are once more present as is a brick structure in the north-west corner which appears to have formed part of the heating system.

The ground floor of the southern elevation of block H is visible within room 25 and has a wide opening to the west to room 27 with a RSJ lintel set within a partially in-filled segmental opening with a double row of headers. As this is wider than the window heads seen on this elevation it suggests that it was an earlier doorway or archway rather than a converted window. To the east of this opening are three blocked up windows with segmental heads. The first floor has six blocked windows to room 49.

The first floor of the northern elevation is blind and the ground floor contains two small windows with segmental heads formed from a double row of headers terminating in a single stretcher. The metal frames and style of glazing is a smaller version of the style seen in blocks B and C and the windows have sloped engineering brick sills. To the east of the western window, at floor level, is another small, bricked up, rectangular opening with a segmental head formed from a double row of headers although slightly narrower than that in block G. To the far west is a modern door set within a larger opening with a RSJ lintel which has been mostly filled-in. As the wider opening is itself an insertion it is difficult to know whether there was an earlier doorway or window in this position.

Room 27 is largely empty save for a number of very large heating pipes. Room 49 has a concrete floor but is unsafe to enter. Rooms 25 and 26 have engineering block floors with raised platforms where water-tanks and a boiler once stood.

Block I opens onto yard 30 to the south (fig 37), with area 28 being separated from the main yard by two supporting piers to room 50 above. The southern wall of room 29 has two segmental windows and one doorway (50) with double row headers terminating in stretchers and with wooden sills; the same arrangement is seen on the first floor. Whilst the upper windows are boarded over and the eastern window on the ground floor has been shortened, it appears that they had the same style of glazing as seen on the southern elevation of block E. The upper doorway (4) is accessed by an external wooden staircase to yard 30 which also provides access to room 50 which has a king post roof and wooden louvres along its southern elevation (fig 38).

The northern elevation has cladding (added circa 2000) to the first floor along the eastern half of the wall, whilst a change in brick several courses below this shows how far the wooden louvres of this section once extended. Below this are two windows with brick segmental heads formed from a single row of headers, probably original. The eastern window has a tile sill, whilst the western window has a wooden sill. Above the eastern window is a large air vent. The western half of the wall at first-floor level is contemporary with the ground floor and has a square headed inserted window on the first floor, with an original segmental headed window formed from a double row of headers terminating in a single stretcher on the ground floor flanked by an inserted square headed window with wooden lintels on either side.

Room 28 has a number of steam pipes running around the room, an engineering block floor and wooden trusses supporting the floor above. Room 29 has engineering-block floors and steam heated radiators around the room. Rooms 50 and 51 are unsafe to enter.



Figure 37 Yard 30.

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Figure 38 Wooden louvres on the southern elevation of room 50.

Hannah Waugh.



*Figure 39 Southern elevation of block J.
Hannah Waugh.*

Block J was constructed in two phases, originally being only a single-storey building. The southern elevation has three segmental headed windows on the ground floor to room 31 with brick segmental heads formed from a double row of headers terminating in stretchers. Two of these windows are filled in and partially obscured by the addition of later pilasters constructed to support the external walkway above; the westernmost window has been converted into a doorway (51). The first floor is a later addition with two square headed windows and one doorway to room 53 (door 1, accessed via the walkway). The area to the east of room 31 is open to the yard on the ground floor. The first floor is unsafe to enter but has a concrete floor with iron supports and two wooden trusses. There is a doorway opening in to the room from yard 30 and, to the east of this is a blocked window.

The northern elevation has been keyed in to block I at the first-floor level but has a vertical building break at ground-floor level. There are three square headed windows to the first floor with heads which meet the wooden eaves band and sloping tile sills. The ground floor has had a series of repairs and alterations, with an inserted segmental-headed window formed from a double row of headers terminating in a single stretcher flanked by tall, square headed windows – all three of which have had their sills removed and been filled in. To the east of both the central window and the eastern window is a small, square headed opening (now filled in) with wooden lintel. The eastern gable wall is blind save for a single inserted ventilation grill.

Area 30 has an engineering block floor with drainage channels and recent areas of concrete infill. Pipes for steam injection of the dye tanks are supported at first-floor level on struts which run below the level of the wooden walkway. There are two large pits – the smaller of the two to the east formed the base for a large tank to be dropped into and the larger one to the west in front of the northern wall of block A was a collection pool for waste water. Rooms 31 and 53 are unsafe to enter.

CONCLUSION

When considered together, the plans, drawings, map evidence and the building breaks visible on the structure suggest that blocks A and the earlier part of E were built during an initial phase of construction between 1888 and 1901 along with the piecemeal construction of the rear range. Block D is a later building, although whether it was built/rebuilt at the same time as block E is not clear, whilst blocks B and C appear to be the final phases of construction/alteration along North Street. Blocks B and E exhibit a number of matching features, namely the same style window heads (three rows of headers terminating in a single stretcher with a header above) and the use of riveted beams supported on curved brick pilasters. Therefore, it seems likely that although plans were drawn up for alterations to E in 1907 the work was not in fact carried out until 1910 alongside the work on block B, especially when it is noted that these matching features are not seen elsewhere. The rear range (with the exception of block F which is a modern construction) seems to have been built in largely chronological order with G as the earliest structure and J as the latest.

As previously mentioned, the OS maps show a clear pattern of development from 1894 onwards, starting with a U-shaped complex consisting of the rear range and the eastern and western blocks. By 1924 the dye works had expanded with the enclosure of the courtyard behind a front range and the construction of substantial buildings abutting the rear range within the yard, as well as the construction of stables on William Street. This arrangement is largely extant today, with the exception of some post-war alterations, and the development of the site is clearly visible. Plans for the redevelopment of the Barford's site were approved in October 2009.¹⁸ The planning application states that the redevelopment will see the commercial premises reduced in size by 2179 square meters, and the addition of 14 residential units (9 one bedroom houses, 2 two bedroom houses and 3 two bedroom flats). Approximately half of the existing buildings will be demolished - most of the rear range (the western half of block G and all of blocks H, I and J), the central buildings (2, 24 and 16) and block A at the front of the premises. Of the remaining buildings, all of block C is being converted for use as offices and flats; the only parts of the site to remain in use will be part of section G, section F, room 17, section E and section D (in an altered form).

The future of the Barford Brothers' dye works remains uncertain – the demand for hats has steadily declined over the past thirty or so years, and cheaper foreign competition (notably China) has gained much of the market. The employment records for Barford's demonstrate the decline of the industry – in the 1950s the factory employed around 100 workers, by 1978 this number had dropped to 56, 42 by 1982, and now there are only 4 full time employees. The Barford Brothers' dye works is the last of its kind in the UK – although prices for overseas goods are no longer as competitive as they once were (the result of tighter industry regulation and the current poor exchange rate), the potential for the hat industry to return to the UK is low given that the knowledge and skills have been lost by all but a very few individuals. The hat and ribbon dying industry is too small to have attracted investment into new or improved processing methods in recent years, with the result that many of the techniques have remained unchanged – many of the machines and processes on display at the Museum of Hatting in Stockport are still in use today at Barford's. As it stands the dye works is an example of a building

type which although not architecturally distinctive or particularly innovative is nonetheless an important example of a regional tradition. The earlier phases of building work seen on the site trace the rising importance of Luton as a centre of the hatting industry, whilst the latest proposals reflect the contraction and decline of the sector.

ENDNOTES

1. Collection of Mr John Horn.
2. The National Archives RG12/I271/68
3. Kelly, Kelly's Directory of Bedfordshire, Huntingdonshire and Northamptonshire (1903) p. 246.
4. The National Archives RG12/I271/I4
5. The National Archives RG13/I515/I57
6. The National Archives RG13/I515/24
7. Much of the information regarding the history of the company and the processes carried out at the site comes courtesy of Mr Michael Moore, an ex employee, and the current owner Mr John Horn.
8. The National Archives RG9/I014/61
9. The National Archives RG12/I271/I04
10. The National Archives RG12/I271/I04
11. The National Archives RG12/I271
12. Wardown Park Museum. Bundle 248, North Street Luton, proposed additions and alterations to dye works. Anscombe & Franklin Architects, Luton Dec 5 1907.
13. Wardown Park Museum. Bundle 240, North Street Luton, proposed additions to a straw hat dye works Messrs. Barford Bros. BB Franklin FSI Arch. & Surveyor, Luton Jan 4 1910.
14. Wardown Park Museum. Bundle 878, Various plans showing Barford Bros. Dyeworks, Including preliminary sketch for alterations, proposed new Making Room, dimensions, William Street and right of way. Messrs. Barford Bros. BB Franklin FSI Architect, Luton 1910.
15. Wardown Park Museum. Bundle 482, proposed stabling – block plan and ground floor plans, Messrs Barford Brothers. BB Franklin FSI Architect, Luton 1911.
16. Wardown Park Museum. Bundle 878, Various plans showing Barford Bros. Dyeworks, Including preliminary sketch for alterations, proposed new Making Room, dimensions, William Street and right of way. Messrs. Barford Bros. BB Franklin FSI Architect, Luton 1910.
17. Wardown Park Museum. Bundle 248, North Street Luton, proposed additions and alterations to dye works. Anscombe & Franklin Architects, Luton Dec 5 1907.
18. Luton Planning Portal reference number 09/00852/FUL