



ENGLISH HERITAGE

ARCHITECTURAL SURVEY REPORT

BOORD & SON'S DISTILLERY OFFICES

115-121 TOOLEY STREET
LONDON BOROUGH OF SOUTHWARK
GREATER LONDON

NBR No: 98660
NGR: TQ 3320 8014

Surveyed: April 1999
Report by Jonathan Clarke
Photographs by Derek Kendall

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Boord & Son's Company Emblem

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SUMMARY

Boord & Son's Distillery was built in 1899-1901 to provide a consolidated, riverside location for the two previously separated branches of the firm's business. The new complex, of which only the General Office fronting Tooley Street survives, was largely designed by Aston Webb. It extended northwards from the distinctive office front in a huge, narrow swathe of distillery buildings and bonded warehouses - some pre-existing warehouses being retained and re-used - terminating at an equally striking edifice, the South Thames Wharf.

The General Office is of considerable interest, not only as one of Aston Webb's earlier, lesser known commissions, but also as an example of a turn-of-the century commercial building that exploited innovative construction and state-of-the-art service technologies. The judicious use of structural steel - in tandem with exterior loadbearing walls - enabled a large, well-lit, atrium complete with first-floor gallery. This visually impressive architectural space, clearly designed to impress visitors to the firm's prestige commercial headquarters, was dependent on the concealed steel framing and as such is illustrative of how architects of this era were exploiting the material to realize challenging formal, planning and aesthetic requirements. Similarly, from a functional perspective, the employment of a hot-water system, electric lighting, mechanical ventilation and telephones satisfied the requirements of both the clerical/administrative and industrial nature of the work conducted throughout the complex as a whole.

PREFACE

This report results from investigations undertaken by English Heritage Architectural Survey. The recording of the surviving office building at Nos.115-121 Tooley Street in April 1999 supplements a previous investigation of the site by Andrew Saint in March 1987, when other components of the distillery complex were still standing. Boord & Son's Distillery Offices survives as a Grade II Listed Building.

English Heritage is grateful to Paul Henry of Montagu Evans, and Luke Webb for facilitating access. We should also like to thank Metro Plans for sending and permitting use of recent CAD plans and sections of the building, and Ian Dungavell for providing some useful references on Aston Webb.

For English Heritage Jonathan Clarke and Colum Giles were responsible for the building recording. Jonathan Clarke also undertook limited documentary research, and was responsible for the text and layout of this report. The large-format photographs are by Derek Kendall.

All illustrations save Figs 1-3, 8, 11-13, 16, 18, 20-23, 25, the Boord & Son's logo, and those in the appendix are © copyright English Heritage. Figure 3 is © copyright Aerofilms Ltd., and the measured drawings in the appendix are © copyright Metro Plans.

HISTORY

The striking office building at Nos.115-121 Tooley Street (Fig. 1) survives as the sole remnant of a huge industrial complex that stretched northwards as far as the Thames, where it terminated at another distinctive edifice, the South Thames Wharf. This complex, largely demolished in the late 1980s, signalled the expansion and prosperity of a long-established firm of distillers, who in 1901 relocated from their two existing branches at Bartholomew Close and Allhallows Lane to take up residence in new premises built and converted to the purpose to designs by Aston Webb.¹ The firm, established in 1726² had a history of moving with the times as far as changing public demand for alcoholic beverages was concerned. By the mid-nineteenth century under the direction of Joseph Boord, it was specialising largely in the wines of the Medoc. Alongside this, it had an established hold on the Scotch spirit and gin trade, and by the 1870s it began production of whisky, then coming increasingly into vogue.³ Boord & Son were incorporated in 1888, and it seems likely that by 1 June 1901, when the two branches of the firm were united on the newly completed freehold property at Tooley Street, Sir Thomas William Boord (1838-1912)⁴ was in overall charge. The move to Tooley Street may also have been associated with a specialization in brandy and gin manufacture, since the 1902 edition of the *Kelly's Directory of the Wine and Spirit Trades* lists only these products. However, the 1908 *Kelly's Post Office Directory* describes the firm as 'distillers, whisky merchants & blenders, importers of foreign wines & spirits, methylated

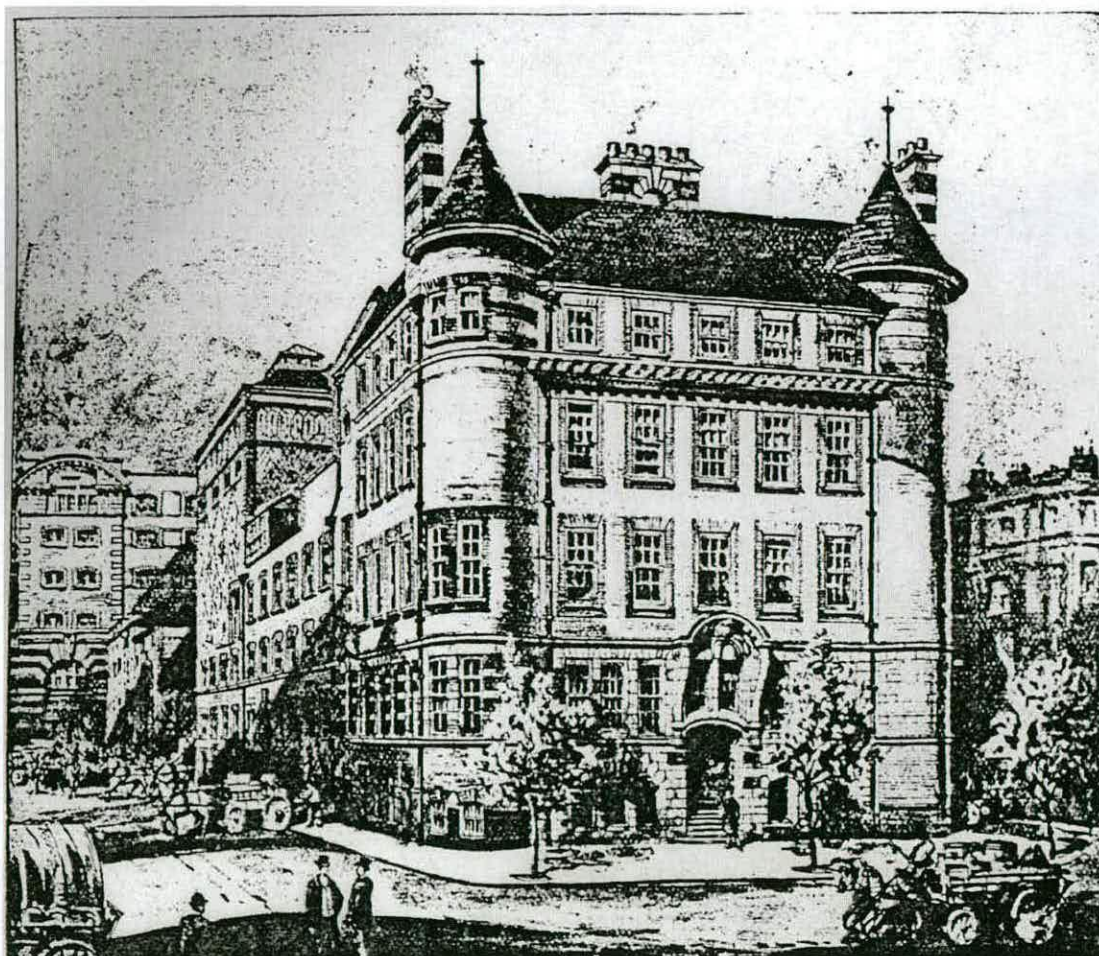


Fig. 1- The General Office fronting Tooley Street, c.1905, with Morgan's Lane on the left and the South Thames Wharf to the rear.

spirit & finish makers’.

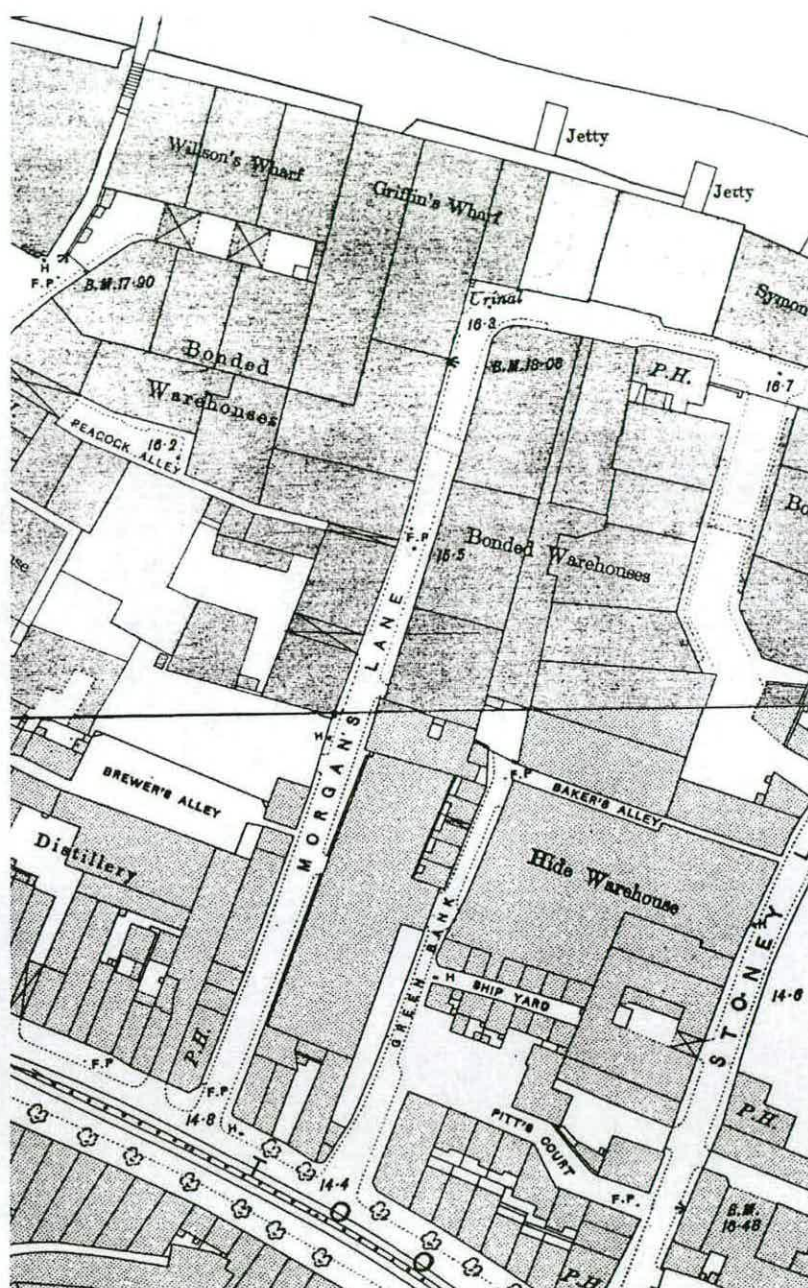


Fig. 2 – The site as depicted on the 1894-6 Ordnance Survey map shortly before Boord & Son's development of 1899-1901.

The narrow, but extremely deep site, flanked on its west side by Morgan's Lane and on its east by Braidwood Street (formerly Green Bank), had the twin advantages of existing jetties and wharves for the transhipment of bulky raw materials and finished products, and, more generally, was sited in the heart of the industrialised community of Bermondsey, an area close to London (the presumed destination of much of the wine and spirits) and a source of plentiful cheap labour. Much of London's imported foodstuffs were landed at Bermondsey's riverside wharves, and premises along Tooley Street, which included the famous Hay's Wharf Company, claimed the title of London's larder.⁵ In the 1890s the site was already densely built up with contiguous warehouses, with wharves in the northernmost part separated from these by the eastwards return of Morgan's Lane (Fig. 2). The precise function of this pre-existing complex is uncertain - one component in 1875 was a bottle warehouse⁶ - but it was possibly connected to the London Wharf Company, since Webb's preliminary plans for the Tooley Street offices were submitted to C.H. Reilly, then architect to that enterprise. Boord & Son purchased the freehold for the site

in 1896 from Magdalen College, Oxford.⁷

Boord & Son rebuilt the great majority of the site as offices, distillery and warehouses between 1899 and 1901. Those components described in a contemporary account of a visit around the premises were built to designs by Aston Webb.⁸ These included the General Office in Tooley Street, the Duty Paid Warehouse, the Cooperage, the Distillery, the Methylating House, the Wharf and Bonded Stores. However, it is probable that pre-existing warehouses in the central portion of the site, between the back

of the Wharf and Bonded Stores and the return of Morgan's Lane, were re-used, perhaps with adaptation - a prudent, economising strategy in view of their relative inconspicuousness. These buildings were replaced in the early twentieth century by a huge, apparently reinforced-concrete framed warehouse depicted in aerial photographs of the site (Fig. 3).⁹



Fig. 3 – An aerial photograph looking north showing the The Boord & Son's Distillery complex in 1957. From left to right are the Wharf and Bonded Stores, Methylating House, Cooperage, Distillery, Duty Paid Warehouse and General Office. ©copyright Aerofilms Ltd.

Webb's General Office was certainly regarded by contemporaries as contributing to the street-scape of Tooley Street, which witnessed something of a rejuvenation in Edwardian times. In 1902 one architectural commentator wrote:

A short distance westward in Tooley Street is the distillery of Messrs. Boord & Son, a building faced with picked yellow stocks and stone and red-brick dressings. The offices lie compact between circular turrets bound together by a string-course, becoming a cornice in the interval. These turrets, the entrance doorway, and the quality of the brickwork invest the structure with distinction even among bulky neighbours.¹⁰

Discussing this part of Tooley Street generally, another, late Edwardian writer, noted

South of the bonded warehouses of Symon's Wharf, Green Bank falls into Tooley Street. Until lately a miserable street of small tenements, it has recently been rebuilt on the east side with good buildings, chiefly warehouses, whilst the western side is vacant with a few of the walls of the small houses still standing. Tooley Street here changes from warehouses to shops, and at the corner of Bermondsey Street is the terminus of the Deptford and Rotherhithe Tramways.¹¹

The General Office, the only extant part of the premises, is illustrative of Webb's early, pre-1900 career, which was characterised by eclecticism and variety of styles, including 'free Arts & Crafts', 'Jacobean', 'free Tudor', 'Franco-Flemish' and 'François Premier'. This period, which is generally regarded by critics as covering his more original work,¹² saw not only the completion of famous public buildings, but of significant commercial and industrial buildings in London, including the Metropolitan Life Assurance Offices, Moorgate Street (1894), and a new grain silo for Messrs Mumford in Deptford Creek, Greenwich (1897).¹³ This latter building shares some stylistic features with the Boord & Son buildings, namely the round windows, block cornice, and corner tourelle of the General Office, and the diaper brickwork of the

Distillery. Other near-contemporary buildings by Webb include Christ's Hospital, Horsham, Sussex (1893-1902, with Ingress Bell); Britannia Royal Naval College, Dartmouth (1899, 1901); the Royal College of Science, South Kensington (1900); and the Principal Entrance of University College (1901). His phenomenal output and success (he had the largest architectural practice in the United Kingdom at the height of his career, and it was professional gossip that at any one time he never had less than £2 million of work on hand) was probably matched by his architectural influence on the Edwardian Classical Revival.¹⁴

Sir William Arthur Boord (1862-1928)¹⁵, the son of Sir Thomas William Boord, may have continued the firm's operations for a time, but the 1925 *Kelly's Post Office Directory* indicates a contraction or decline in business by that date, for two other companies, Armour & Co. Ltd., meat importers, and the Union Cold Storage Co. Ltd., were registered under the same address. It is possible that one or both of these concerns was associated with the large, apparently reinforced-concrete framed warehouse erected in the central portion of the site in the early twentieth century. The 1931 *Kelly's Post Office Directory* indicates that by that date Millington & Sheldrick Ltd., paper merchants, had supplanted Armour & Co. Ltd, whilst that for 1933 shows the arrival of another distillery company, Sir Robert Burnett & Co. Ltd. By 1940 the two distillery companies had seemingly joined forces, but had both relocated to The Distillery, Seagrave Road, Fulham, leaving the complex under sole occupation of the Union Cold Storage Co. Ltd. By 1946 Warren & Reynolds Ltd., wholesale provision merchants, were registered at Nos.115-121 Tooley Street alongside the Union Cold Storage Co. Ltd, and the Goad Fire Insurance Map shows the former occupied the General Office and Duty Paid Warehouse. By 1959 only Warren & Reynolds Ltd. were registered at the Tooley Street address, superseded by 1969 by A. Mathews & Skailes Ltd., cheese factors. The most recent Post Office directory consulted, that for 1980, lists only Borkwell & Storey Ltd., canned goods and jam importers.

THE GENERAL OFFICE

EXTERIOR

The General Office building, facing Tooley Street, formed the most conspicuous block of the complex and was accordingly clothed in the most lively architectural dress (Fig. 4). Executed in high quality



Fig. 4 – The General Office (EH 3/87)

yellow stocks with red-brick dressings and liberal use of stone for the entrance frontispiece, cornice and details, it is conceived in a Free Classical style.

Distinction resides in the commanding rounded corner tourelles rising from ground to pointed conical slate roofs - a reference to Norman Shaws' New Scotland Yard, as well as in the brawny, banded slab chimneys, the modillion cornice below the attic and the segmental-headed entrance surmounted by an open pediment.

All this distracts from the bulk of the essentially cubic large-scale block, five storeys in height, with a mezzanine above the ground floor, a full attic storey and a sub-basement, and five bays width between the tourelles. The original double-panelled wood doors, segmental-headed tripartite ground-floor windows, and square-headed flush-framed sashes above this, all survive intact.

Street elevations, each five bays, display the same overall detailing, although the moulded stone cornice stops short of the end bay to respect the round windows which light the attic stairs. On both side elevations this bay incorporates a basement taking-in door, denoted by a keystone and above that a pedimented window. Iron hopper heads, cast with the completion date '1901' originally ran right round the building, but those attached to the rear elevation have been anachronistically re-sited onto the façade of a modern one-bay rear addition. This addition was put up following the demolition of the adjoining five-bay block (the Duty Paid Warehouse) and the other original components, in the late 1980s or early 1990s¹⁶, presumably to 'patch up' the stub walls and interior party wall that was left. It is essentially a pastiche of the earlier buildings, and respects the cornice level and bands of the office block, although the poor-quality brickwork which includes diapering, is less sympathetic.

The Morgan's Lane and Braidwood

INTERNAL STRUCTURE

In plan the general office is U-shaped, consisting of two basements, and four office storeys which 'wrap around' a large atrium placed at the rear - the only real means of providing natural light with a plan of such depth (see appendix 2; first floor plan and sections). This atrium throws light onto the ground floor and a first-floor gallery, reached by a large double-return stair. The two upper storeys, reached by back stairs in the western wing, rise above the glazed atrium roof. The provision of such 'openness' for the two principal floors was beyond the structural capabilities of loadbearing brick construction, and it appears that the superstructure of this interior area is largely reliant on the tensile and compressive strength of cast and wrought-iron or steel framing. The latter material was almost certainly employed, given the growing appreciation of its superior properties

within the architectural profession by this date; steel was extensively used in support of the basement floors, and indeed throughout the rest of the complex. Loadbearing brick was used throughout the rest of the building, and much of the load is shared by the thick exterior walls, which decrease in thickness from basement to upper floor.



Fig. 5 – General Office atrium, from the North East (EH, BB99/09034)

The pitched, glazed atrium roof is supported principally by three slender arched ribs spanning the perimeter of the gallery (Fig. 5). These arches also support wood-framed ventilation grilles aligned below the roof apex. Given their slenderness (30cm soffits) and span (7.63m), it seems likely that they are formed from curved steel members encased for aesthetic reasons in plaster and/or wood. They spring from square-section piers which support three beams arranged around the gallery perimeter in a U-shape. These beams and piers, again probably encasing steel beams and stanchions respectively, support the interior walls of the upper two storeys. They continue downwards to the floor below (and the central pair, to the basement - see technical details), either as continuous stanchions, or in two butted and spliced lengths. Groined vaults, probably brick, sited above the four corners of the gallery, and thick walls behind the front range and to the rear, accommodate the rest of the upper-floor interior loading.

The first floor itself rests on a grid of hefty (40cm soffit encasing) beams, again probably encasing steel (see Appendix 1). The primary members are arranged transversely (east-west), spanning between the exterior brick wall piers and the six interior piers. Secondary beams span between these, probably rivetted to the former by means of connection brackets as in the basement (see below), and between the primary beams and the interior cross wall and exterior rear wall respectively. The front range, which is divided by four internal brick walls is floored simply by timber joists spanning these walls.

It may be that the structural system, with its heavy reliance on steel members, had subtle, but nonetheless direct bearing on Webb's arrangement or choice of interior stylistic elements. This is perhaps most telling on the ground floor, where the dense provision of axial beams spanning between the primary beams and the interior cross wall, and the encased stanchions, imposed both order and spatial limits on



Fig. 6 – Spiral stair on east side of General Office (EH, BB99/09032).

the doorways serving the front rooms of the building, and those to the rear (Fig. 6). Aesthetically, Webb has attempted to resolve this by employing Mannerist devices: from a purist point of view the architraves appear 'squeezed in' between the pilasters, which themselves decoratively allude to their true structural nature.

The ground-floor separated the administrative and clerical functions of the upper floors from the quasi-industrial operations of the two basements. The latter, involving the movement and storage of volatile, flammable liquids, required a concrete floor to halt the spread of fire upwards. The weight of this, and of the accumulated interior loads from the upper floors, combined with the need for openness of basement plan was structurally resolved by the liberal employment of steel.

Illustrations in the contemporary account suggest that the basements were constructionally similar in some respects to the (demolished) industrial and warehousing components of the complex. Since there is no detailed written record of

these, the structure of the basement and sub basement is presented here in detail.

In the basement, three steel stanchions, arranged transversely in a line mid-way between the rear and interior cross wall support three contiguous steel beams, the outer two of which are seated in the thick exterior walls (Fig. 7). Closely spaced steel joists, arranged axially on 76cm centres span between this central support and the internal and rear walls, giving support in turn for concrete slabs. The porosity and



Fig. 7 – The basement from the south west (EH, BB99/09025).

texture of this concrete is consistent with a high proportion of coke-breeze cement - a cheap yet light and fireproof choice -, and the variability in profile of that enveloping the joist webs (tapering downwards from the upper flange, giving an overall trough-like appearance to the ceiling) suggests it was cast *in situ*, rather than being made up of proprietary pre-cast sections assembled in place. The wood-grain impression of the shuttering further corroborates this. It is not clear whether the concrete incorporates wire reinforcing.

The concrete ceiling of the front portion of the basement, which housed in either corner the caretaker's apartment and lavatories, is different, perhaps for aesthetic reasons. Steel joists span

between axial steel beams, reinforced by extra flange plates, and the external and internal walls. In the

lavatories, occupying the western corner, the concrete is smoother, painted, and rests on the lower flange of the joists, leaving only the thickness of the flanges proud of the ceiling. This arrangement is duplicated in the caretaker's apartment, but here only the faint impressions of the flanges are visible, since the concrete (or possibly a layer of plaster) was laid flush with the flange soffits to create a smooth surface.

The sub-basement was used as the bin cellar, where bottled wines and spirits were stored in brick and slate bins lining the perimeter walls in three parallel ranks in the centre of the floor (Fig. 8). Liberal provision of gangways wide enough to enable two trolleys to pass one another militated against intermediary floor upports, and accordingly the basement floor is heavily reliant upon steel (Fig.9). Examination of

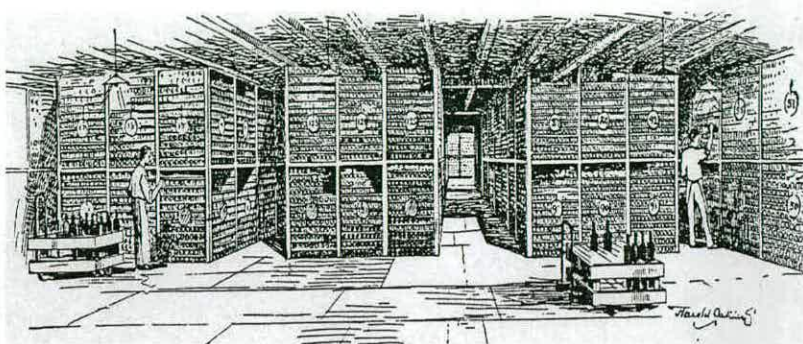


Fig. 8- The bin cellar c.1905.

this suggests two phases of development - the second phase, probably in the 1930 or 1950s, representing the insertion of additional members and supporting walls to reinforce the original.

The original superstructure is characterised by a relatively small number of rivetted, compound beams supported by brickwork, which in turn support a steel joist and concrete floor similar to that of the floor above. Like the floor above, the structural system to the north of the main internal cross wall differs slightly from that at the front of the building (the south). The



Fig. 9 – The sub-basement, from the south. (EH, BB99/09018).

latter is reliant on four large beams that span axially between the front wall and a huge girder on the same line as the cross wall, which is partially supported by it. This girder spans the gangways and rests on sections of brick wall that form both the base of the cross wall and part of the brick bins. Steel joists on 73cm centres span between these four beams and the exterior walls in a transverse arrangement. The concrete infill rests on the lower flanges of these, leaving only the flange depth visible.

The structural system to the rear (north) relies upon the same transverse girder, and another, albeit smaller-section girder parallel with this, positioned mid-way between the cross wall and the end wall. This girder also rests on thick (23cm) supporting sections of wall that also double-up as bin dividers. Steel joists on 1.15m centres span axially between the two girders and the back wall - a distance of over five metres - although a measure of intermediate support is offered at those points where the (original) brick bin dividers ran underneath.

The use of such lengths of slender steel joists in this structural context probably overtaxed their ultimate resilience and strength, for the entire floor system was subsequently comprehensively reinforced. The

slender (8cm) walls of the original brick bins, formed from frogged bricks stamped 'Eastwood' laid on their sides, were thickened a further 12cm by another tier of bricks laid conventionally (Fig. 10). These were used to support additional steel beams which spanned the gangways at right angles to the original joists which they in turn supported; the 2-3cm gap between the two filled by steel packing pieces rammed into place. The webs of the inserted beams exhibit 'Earl of Dudley Steel 6 x 4½ BSB 109', which provides a *terminus ante quem* of 1932 for their insertion.¹⁷

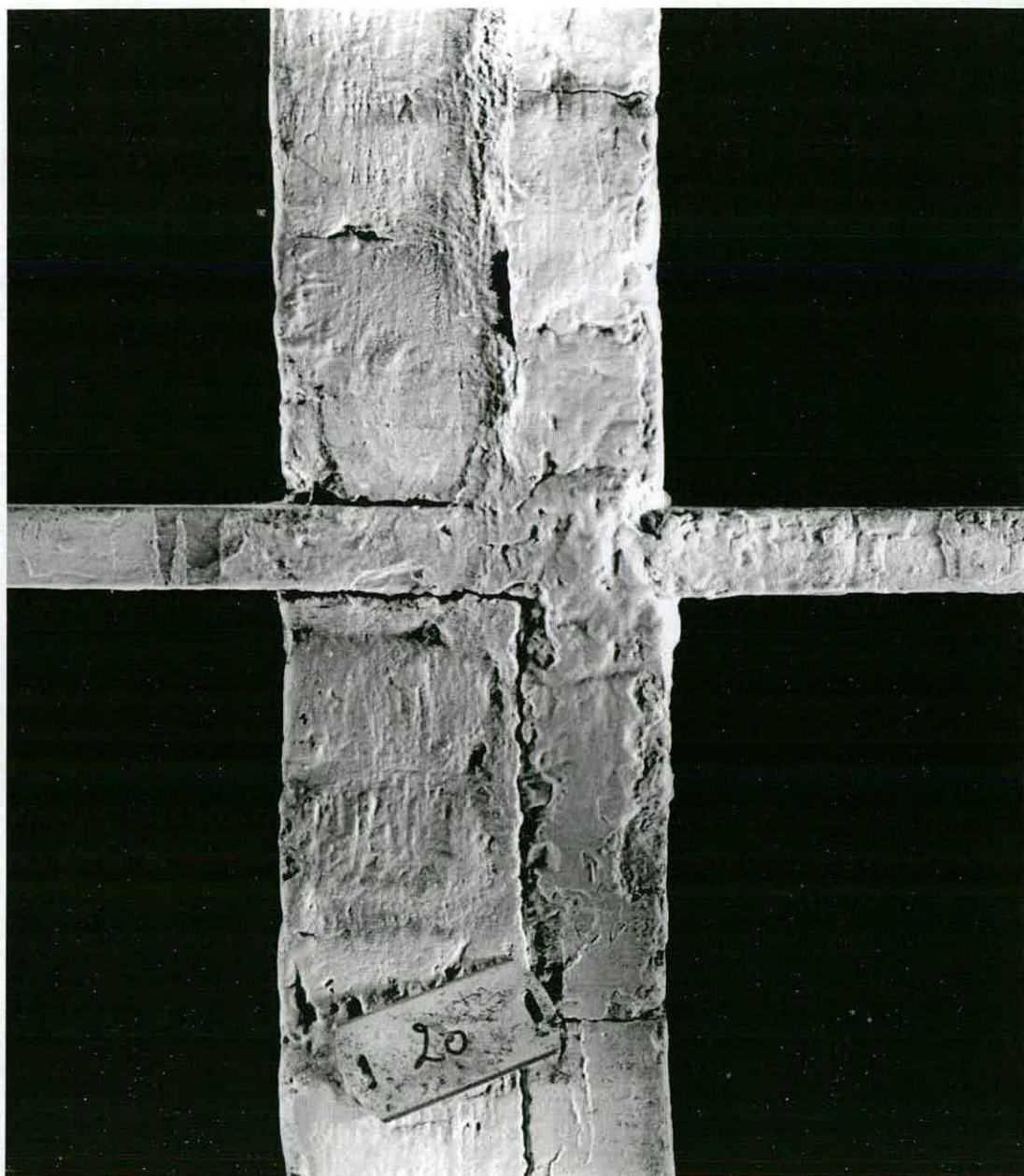


Fig. 10 – Detail of secondary brick insertion to original bin walls. (EH, BB99/09021).

INTERNAL LAYOUT AND FUNCTIONAL CONSIDERATIONS

Ground Floor

The raised ground floor is reached from the front via an entrance hall housing a short flight of freestone steps flanked by moulded hardwood handrails with scrolled ends. Natural illumination of this entrance space is via glazed upper panels in the hardwood double doors, and pale-green glazed bricks line the walls to dado height. Behind the inner doors at the top of the stairs lay the 'open plan' General Office, separated from the visitor by two surviving curved (concave) mahogany counters, their upper portion made up of opaque (ribbed) glass panels. This space, floored with herringbone pattern teak parquet over concrete, originally accommodated clerks and resounded to the 'incessant click-click of typewriters'¹⁸ (Fig. 11).

The only structural elements interrupting this space are the piers supporting the gallery, decorated with an egg and dart cornice and pulvinated frieze.

Glazed screens, inserted between the pillars underneath the east and west sides of the gallery, now divide the space. The mouldings of the wood glazing bars in these screens suggest that they were inserted in the 1920s or 1930s,

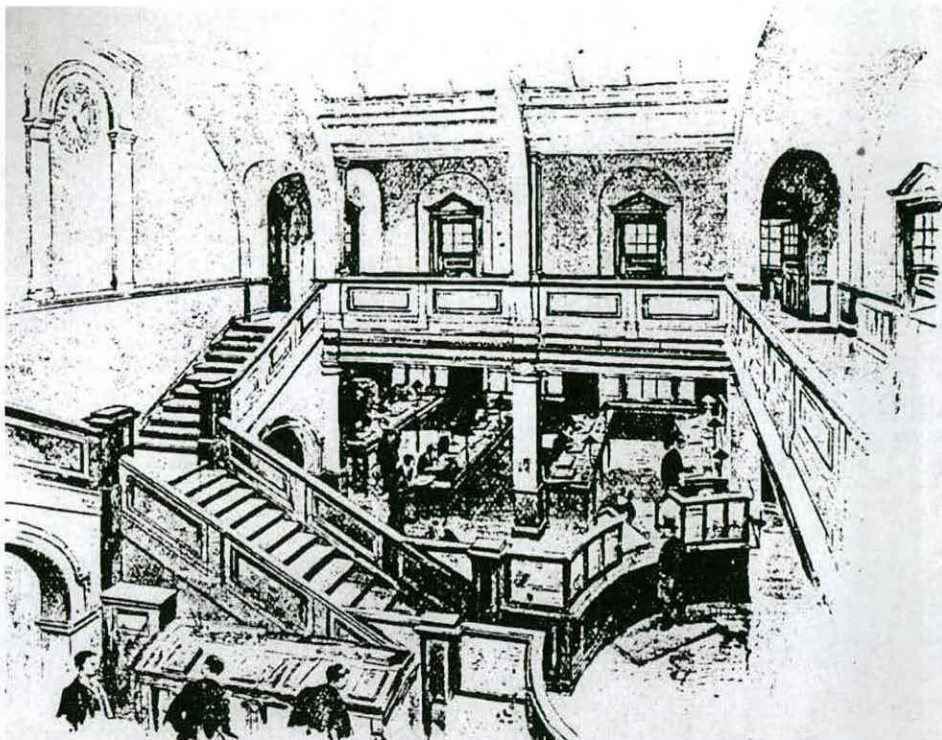


Fig. 11 – The 'open plan' General Office, c.1905.

presumably in the interests of noise isolation. Heavy cast-iron, or possibly steel, doors survive *in situ* in the north wall, reached through arches supporting either wing of the stair returns. These fireproof doors originally communicated directly with the adjoining Delivery Floor of the Duty Paid Warehouse, and although chained shut, they now lead to the modern rear addition.

To the front or south, flanking the entrance hall, lay two reception rooms, and flanking these, two private offices, each with distinctively curved outer walls. All of these rooms communicated directly with the General Office via doorways through the main cross wall, but both reception rooms were also directly accessible from the entrance hall. Either reception room was originally heated by fireplaces set in the chimney breasts that rise the full height of the east and west walls.

First Floor

The first floor is reached by the grand central staircase, the lower flight of which is set between the counters. This staircase, with closed string, solid panelled sides, moulded handrail and teak treads, divides left and right at a landing, either flight leading to the first-floor gallery. Set above the landing in

the back wall, and immediately visible upon entering the General Office, is an aedicule with garland fruit and foliage motifs. This originally framed a clock, now gone (Fig. 10). The gallery, which passes around three sides of the first floor at a height of about twenty feet, is floored in hardwood and was seemingly always uncarpeted. The cross wall along the south side of the gallery incorporates the opening of a small hoisting and lowering mechanism, presumably for the movement of samples or documents. The head of the frame and pulley wheels remain *in situ* a few feet above this opening, indicating that it only served this floor and those below, although corresponding openings were not identified on the floors below.

On the west side, according to the contemporary account¹⁹, were sited the Travellers' Common Room and Tasting Rooms. Although this is now divided into three rooms by two partitions, each reached by original architraved doors, the continuous cornice suggests this was in fact one large office originally.

The principal room on the south side, occupying the central three bays, was the Board Room (Fig. 12). It was reached only via the private office and small lobby adjoining, to the east and west respectively. It was heated by a (removed) fireplace set in the cross wall, and was decoratively distinguished by an egg and dart cornice. The Board Room was originally adorned with paintings, including a portrait of one of the founders of the business, Thomas Coare (1725-1791), and a watercolour by William Simpson, R.I., depicting a monastery scene in Tibet where the veneration of Boord's Gin occurred in 1861.²⁰



Fig. 12 – The Board Room, c.1905

Either side of the Board Room were private offices, both reached through the small lobby. On the west side was a single bay office, and beyond that a larger office occupying the southwest corner. Like the private office on the floor below, it is lit by three windows and heated by a fireplace set in the chimney breast of the west wall. It also opens into a small room immediately to the north, via a door set in the cross wall. The original function of this room is unclear; in the late twentieth century it was fitted with a bath and toilet, but it is unlikely that it originally served as a private bathroom to the adjoining office since it was always independently accessible from the gallery. The contemporary account refers to 'several smaller but none the less useful rooms where quiet work can at any time be effected' on the west side, and this may have been one of them. Alternatively it may have been a reception area, occupied by the secretary of a senior figure in the firm. To the north of this, reached by two doors off the gallery, is a larger, two-bay room, presumably fulfilling the same function. The provision of two separate doors for this room, like the provision on the east side of three doors for the Travellers' Common Room and Tasting Rooms - which according to the cornice evidence was one large room originally - may account for discrepancy in room numbers between that provided by the contemporary account and that attested to architecturally. The writers of the account, on their 'whistle stop' tour, probably did not enter all the rooms, simply reaching conclusions on the basis of number of doors opening onto the gallery.

In the northwest corner a dog-leg stair, accessible from the gallery, rises to the second floor. It has thick, closely-spaced square-section balusters with heavy newels, and is lit by a sash window of identical form to those used throughout the building.

Second Floor

The second and third floors exhibit a marked step-down in quality compared to the rest of the building, both in terms of the diminished floor heights and the degree of embellishment, with simple panel doors, simpler architraves and no cornices throughout. Both floors were of a resolutely utilitarian character whose functions were more linked to the actual products than the associated paperwork. The second floor is compartmentalised into three large rooms flanking the east, south and west sides of the atrium roof, reached from the back stairs via a narrow corridor flanking the west room. This corridor is the only space on this floor to 'borrow' light from the light well above the atrium roof, via three sash windows.

The front room, occupying the full width of the building to the south of the cross wall, was the Sample Room (Fig. 13). Nothing survives of the original timber-framed shelving but a large porcelain sink and mahogany draining board remain *in situ* in the northeast corner. This was presumably used to rinse out

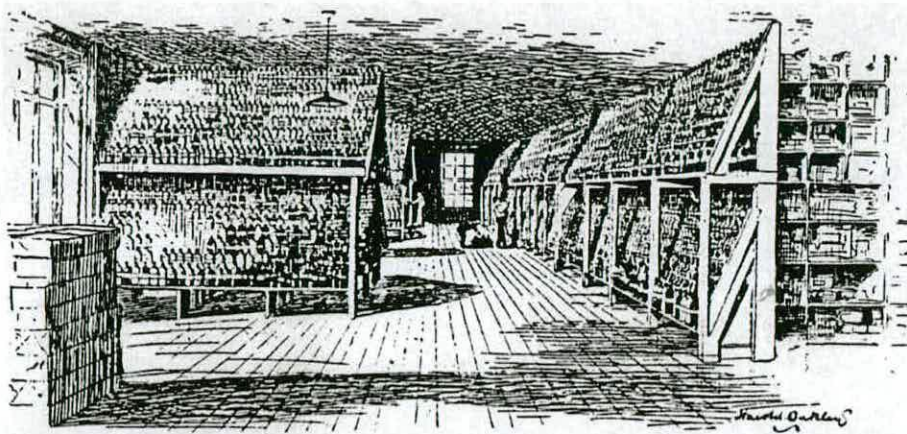


Fig. 13 – The Sample Room, c.1905, looking west.

the glass sample vessels. The original function of two blocked openings in the cross wall is unclear. Each has a segmental head, formed by a double row of header bricks, and both are set very low. The eastern one, which is set slightly higher, within the chimney breast, is probably a blocked fireplace. In the mid-to-late twentieth century, this room may have been converted to be a canteen, and the western end bay a kitchen, the two divided by a thin partition fitted with a steel shuttered serving hatch. The latter still retains a large smoke extraction funnel and gas burners.

The function of the east and west rooms is unclear, but may have related to His Majesty's Customs Office. The east room, extending the full four bays to the north of the cross wall, communicated with the Duty Paid Warehouse via a fireproof steel door set in the north (party) wall. This is embossed 'Haywards Ltd London SE1 Oct 1959', but probably forms a replacement to a similar, original door given the surrounding closer brickwork.

Third Floor

The uppermost floor was reached by a continuation of the back stair, lit at this level by the round window with cross glazing. It was not provided with a corridor in a corresponding position to the second floor, the stairs leading directly to a three-bay room occupying the west wing. The function of this room, and indeed the floor as a whole is uncertain, the contemporary account stating that, with the exception of the Sample Room, 'the upper floors are perhaps of little interest to the visitor'.²¹ The Goad Map, dated 1942,

denotes the entire front of this floor as 'Billiards'. Both rooms occupying the front corners were provided originally with fireplaces set in the stacks; that in the southeast room has been replaced by a range by 'Carter Aynsley Ltd London'. A corridor in the east wing, lit from the light well, opens onto three small rooms. This level did not directly communicate at all with the Duty Paid Warehouse, suggesting a clerical as opposed to goods handling function. It may have been where the Record and Stationery Rooms were located, somewhere in the upper two floors according to the contemporary account.

Basement

The basement is reached from the ground floor by two attractive cast-iron spiral stairs situated immediately north of either private office, next to the east and west exterior walls. The eastern stair led to the caretaker's apartment and the main storage part of the basement, whilst the other reached only the toilets, which seemingly served the entire workforce of the building, presumably all male as there is no evidence to suggest that female toilets were originally provided.

The caretaker's apartment (Fig. 14) was relatively well appointed, with a parquet floor identical to that in the General Office, plastered walls (partly removed in recent years), a large fireplace with glazed tiles and a neo-classical surround, and four casement windows. The toilet block, lined with green glazed brick (now painted white), was fitted with a urinal, occupying the curve of the tourelle, and three w/c's which bear the letters 'Bolding Vedas London' on the cisterns. A metal coat rack, affixed to the concrete ceiling, survives *in-situ*.

The boiler room (not inspected), serving the hot water system throughout the building, was positioned between the caretaker's apartment and the toilets. The only access point to it is a door set in the front wall.



Fig. 14 – The caretaker's apartment, looking south.,
(EH, BB99/09028)

The rest of the basement, to the north of the cross wall, served as storage space and was presumably originally fitted with some form of racking, although no obvious evidence for this survives. Bottles were brought in from the Duty Paid Warehouse via two openings in the north wall. These openings, now blocked, have segmental relieving arches composed of three header courses, and are of sufficient width to have originally been provided with double fireproof doors. Probably in the mid or later-part of the twentieth century, the northwest window was replaced by a taking-in door to enable direct receipt of goods from Morgans Lane, via a wide concrete ramp.

The basement was seemingly unheated, although the bases for the first-floor stacks project from the centre of the cross wall. The larger, west stack has a damper for draught control. Two large electric fans of mid-twentieth century appearance, mounted on wooden frames positioned by the north wall, may represent later, more sophisticated attempts at air temperature control. An electrically powered cold air unit, manufactured by 'Frigidaire Division, General Motors Corporation, Dayton, Ohio' presumably fulfilled

a similar purpose. It is of early twentieth century appearance and rests on a welded tubular-steel frame.

In the late twentieth century, breeze-block partitions were erected to provide, on the west side, a small compartmentalised space, and on the east side, a female toilet and shower. The fittings for the later still survive, and affixed to the outer face of the partition wall are stickers denoting the location of particular drinks, their vintage and their provenance *vis-à-vis* the bins of the sub-basement. The modern appearance of the stickers suggests a resurrection of the original function, which is at odds with the later use of the building as evidenced in the directories. Perhaps this was a relatively short-lived episode in the building's history, one not 'picked up' by the documentary evidence.

Sub-basement

The sub basement was reached from the basement by a single flight of iron or steel stairs, screened behind a fireproof door. It originally communicated with the Duty Paid Warehouse by four openings, although two of these, in analogous positions to two blocked openings in the basement, have also been blocked.

The other two, set between these, comprise double-leaf double doors, of heavy iron or steel construction, affixed to the inner and outer faces of the wall to increase the heat insulation between. The concrete floor immediately in front of these openings is heavily worn and pitted, scoured by the wheels of trolleys which transported the bottles from the Duty Paid Warehouse. It has been suggested that the brick and slate bins may have served as storage for cheese,²² and this may correspond to the period when A. Mathews & Skales Ltd., cheese factors, occupied the building.

LATE VICTORIAN SERVICE TECHNOLOGIES: HEATING, LIGHTING, VENTILATION AND COMMUNICATION

The upper floors of the General Office, caretaker's apartment and w/cs were warmed by a low pressure hot-water supply system fed by a boiler located in the basement, this in addition to the fireplaces that served the principal rooms, possibly of social as much as thermal value. Elegant, cast-iron radiators (Fig. 15) distributed heat to most of the rooms and the gallery, but large-bore cast-iron pipes were employed in those rooms less publicly visible or lower down the social hierarchy - that is, the caretaker's apartment, the basements, and the central front room on the third floor for example.

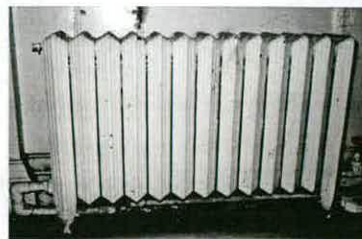


Fig. 15 – Decorative radiator

The survival of some original fittings on the ceilings of some rooms, and on the soffit of the atrium arches, suggests the widespread use of electric lighting throughout the building; though the contemporary account only mentions that electric lighting was used in the sub-basement and elsewhere in the complex.

Artificial lighting of this form, with its appreciably lower fire risk compared to gas, would have been imperative during the winter months to enable employees to work a full day.

The outer rooms of the building seem only to have been ventilated via the sash windows and the circulatory effect of the hot-water system, but the large, open interior of the General Office was ideally suited to the Plenum system of mechanical ventilation. This system, which was increasingly adopted through the late Victorian period, especially for large interior spaces of public buildings, relied on fresh air being introduced at slight pressure into the rooms at a high level, the descent of which effectively forced out the old or 'vitiating' air through low-set openings or gaps in door or window openings. The wood-framed ventilation grilles set in the glazed atrium roof appear to be the inlets for fresh air, and turning devices attached to the atrium arches seemingly controlled the flow. These turning devices, hand-operated by metal cranks, bear the maker's plate 'Cree & Co. Engineers London N.W.'

Perhaps the most 'cutting-edge' technology serving the complex was the telephone. Although introduced some twenty years after the appearance of the first exchange in England, its novelty was conveyed by the writer of the contemporary account:

The mention of the telephone reminds us that the whole of the Tooley Street establishment is connected at a dozen points by private telephone to four receivers situated in the partners' and managers' rooms, and, through the Delivery Office, the Wharf is also connected with the General Office. This elaborate system of communication is, in times of pressure, truly the nerves of the business, and by the elimination of distance enables transactions at first sight formidable to be easily and effectively accomplished.²³

THE DISTILLERY BUILDINGS (DEMOLISHED)

Duty Paid Warehouse

The Duty Paid Warehouse originally extended as a three-storey, five-bay rectangular block to the north of the General Office. It was executed in plain brickwork with handsome side doorways towards Morgan's Lane and Braidwood Street.²⁴ Only the ground-floor first bay (incorporated into the modern rear addition), and the east and west walls of the sub-basement survive. Internally, this block was served by four hydraulic lifts which transported the casks and cases to the first floor - the Delivery Floor. Town deliveries were made in the early morning, and those to the provinces were conducted towards nightfall. The basement functioned as the wine cellar, with casks supported on steel sections occupying the centre of the floor, and bottles stored in brick and slate bins lining the walls. The sub-basement seemingly performed a similar function to that of the General Office, albeit on a larger scale. The turnaround of this duty-paid stock, comprising wine, whisky, brandy and rum, was rapid, being continuously replenished from the firm's overseas stocks where storage was a less expensive premium. The depth of this floor and the thickness of the foundations and walls ensured a fairly even annual temperature (ranging from 65° F in July to 55° in January) although in cold weather gas flames were employed to ameliorate the temperature. Self-registering thermometers recorded the temperature, which was noted on a daily basis. Both floors were lit artificially by electric lights of eight and sixteen-candlepower.

Structurally the lower floors appear similar to those of the General Office, but in the basement cylindrical columns arranged in three axial ranks provided intermediary support to the heavy fireproof floor (Fig.16). These were possibly of cast-iron,²⁵ since they are depicted with integral (presumably cast) radial feathers to accommodate bending strains exerted by the main girders, formed from rolled-steel joists strengthened with angles and flange plates.



Fig. 16 – The Basement of the Duty Paid Warehouse, c.1905 – The Wine Cellar

The uppermost, or second floor was well lit by two raised skylights and was used chiefly as stowage for cased goods and materials since it experienced the greatest variation in temperature. The first floor, which could also be reached by an enclosed stairway, served as the Spirit Bottling Floor.

The northern four bays of the Duty Paid Warehouse were raised by two storeys to create smoking chambers²⁶, indicating an expansion of the Whisky distilling aspect of the firm's operations probably in the early-twentieth century - certainly before 1950²⁷

The Distillery

The five-bay distillery block adjoined to the north of the Duty Paid Warehouse and its north elevation was distinguished by diaper brickwork and circular windows.²⁸ Unlike the firm's former distillery at Bartholomew Close, where manual labour was extensively employed in the horizontal movement of products, this seventy-foot tall tower was designed to exploit gravity as an aid to the manufacturing process. A high-level tank, holding some 25,000 gallons of cold water, positioned on the roof was used to cool the condensers of the galleried Still House, rising through the lower floors. The water was collected in a low-level tank sited on the flat roof of the Duty Paid Warehouse, whereupon it was pumped to the high-level tank. Similarly, gravity was employed in the processing of the distillate: the condensed or 'rectified' spirit was transferred to 'safes' from which copper pipes conveyed it into vats or 'backs'. The plant was steam powered by two large Scotch compound boilers. The lower floors comprised the Filling Floor, where the casks were filled from pipes leading from the vats above, and the Package Floor. The illustration in the contemporary account shows that the Filling Floor at least was provided with a concrete, fireproof ceiling similar to those in the basements of the General Office. More recent interior photographs suggest that the upper floors were formed by unprotected timber joists, braced by cross bridging, resting on rolled-steel joists strengthened with angles and flange plates (Fig. 17). Iron columns, cast with ribs provided intermediary support for the steel members.

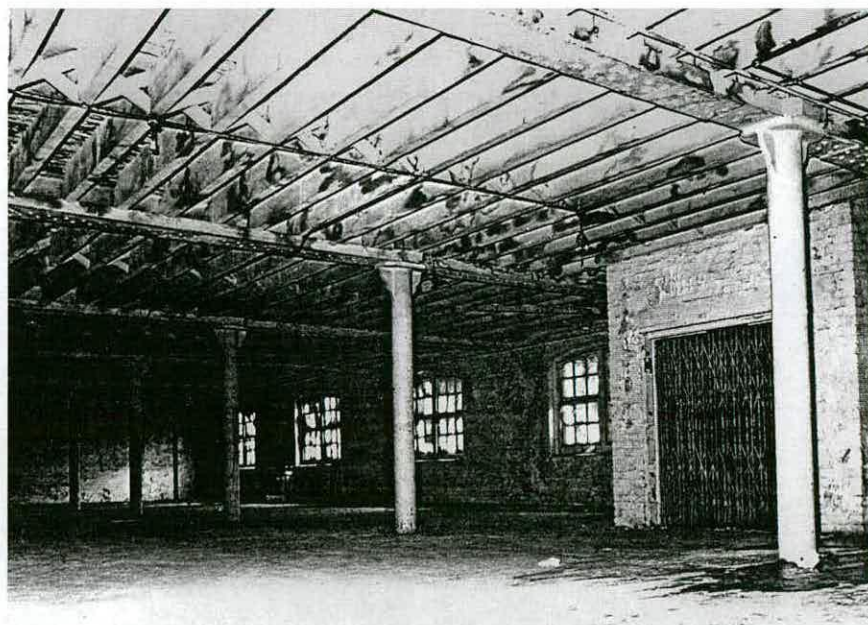


Fig. 17 – An upper floor of the distillery block (EH 3/87).

The Cooperage

This comprised a single-storey, U-shaped range extending northwards from the distillery block (Fig.18). The gabled roof spans were supported by steel trusses, and the lower part of the Morgan's Lane elevation was formed by iron roll shutters which, when opened, provided ease of loading and unloading of vans and lorries.



Fig. 18 – The Cooperage c.1905.

The Methylating House



This three-storey, flat roofed block was sited in the angle of the cooperage buildings (Fig. 19). Presumably distilled alcohol was treated here to make it unfit for drinking, and so exempt from duty.

*Fig. 19 – The east elevation of the Methylating House.
(EH 3/87).*

The Wharf and Bonded Stores

The Thames frontage of the Bonded Stores, although hemmed in on either side by warehouses, provided Webb with an even more prominent opportunity for architectural display than that given by the Tooley Street frontage (Fig.20). The rear of this building appears to have been similarly detailed; before the construction of the new warehouse in the early twentieth century (see below) it was visible from Tooley Street (Fig. 1). Crates of wines and spirits were moved between the stores and river vessels by a large

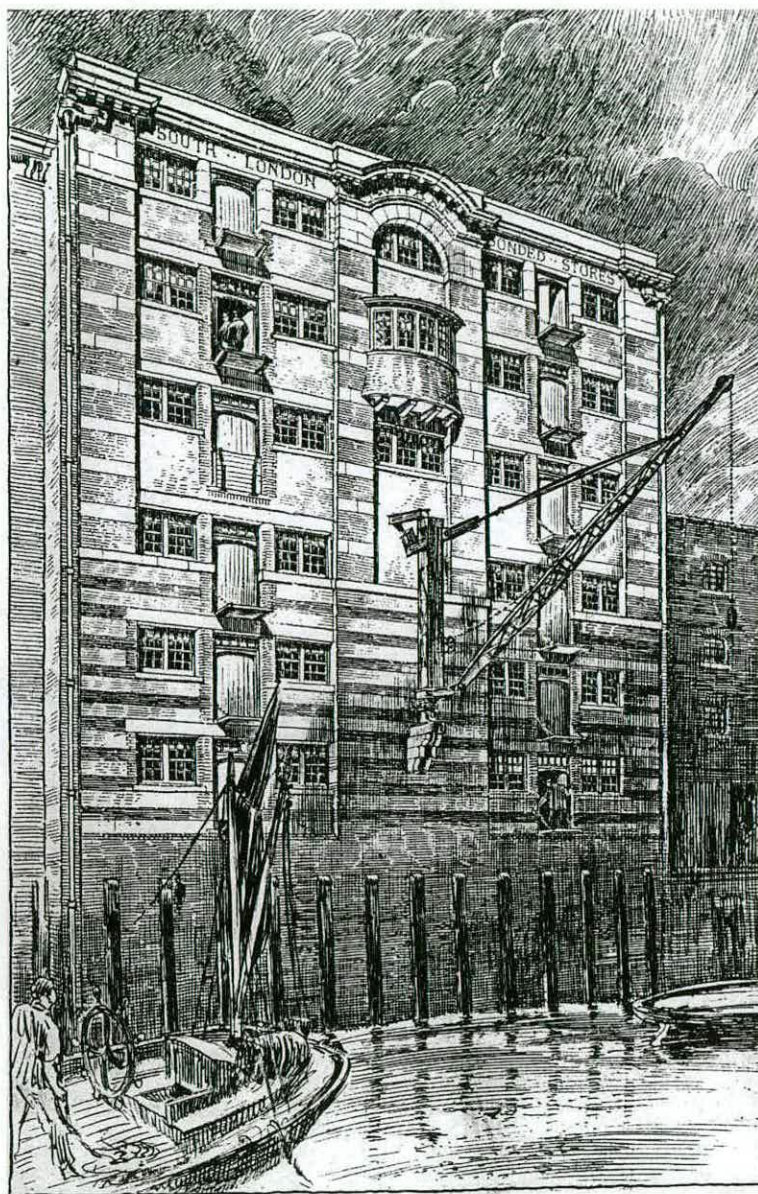


Fig. 20 – The Thames frontage of Boord & Son's distillery complex, c.1905.

hydraulic jib crane mounted on the central wall panel of the Thames façade. An operator seated in a curved lookum cum oriel window above this controlled the movement of the jib via three levers, transferring cases - forty being packed in a 'cage' at a time - between the twelve loopholes and the vessels. All the floors of this large building, which included an examination floor, a Custom's office, a vat floor, an export bottling floor and cellarage deep underground, were divided in two by a cross wall.

All floors were served by a

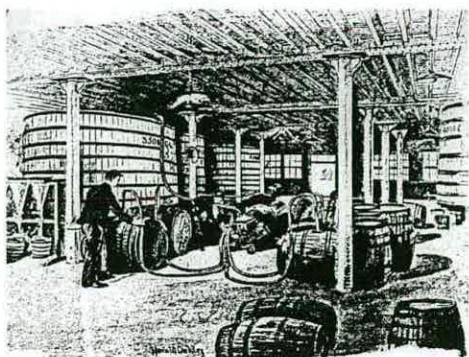


Fig. 21 – The vat floor

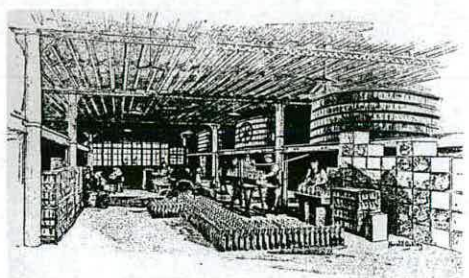


Fig. 22 – The bottling floor

hydraulic lift. The illustration in the contemporary account (Fig.21) shows that the vat floor at least was provided with a concrete fireproof ceiling similar to those in the basements of the General Office and the filling floor of the Distillery. Fire was presumably less of a threat on the bottling floor (Fig. 22), for here unprotected timber joists are depicted. Rolled-steel joists are also shown, spanning between circular lugs cast on the columns, providing support for the 2,000 gallon vats 'in such a manner that the floor space is kept clear'.²⁹

The block to the south of this - the largest single component of the complex - was physically separate, at least in its (visible) upper storeys. It may have been of reinforced-concrete frame construction, apparently having brick infill panels between the structural members, pillars and beams. This construction and its outward form suggest it was put up slightly later, perhaps in the 1910s or 1920s, as a larger replacement of pre-Webb buildings.

The contemporary account corroborates this, referring to 'the tiled roofs of several sprawling old warehouses belonging to the firm' between the Cooperage Yard and the South Thames Wharf.³⁰ Given that it replaced existing, outmoded warehouses, it seems likely that it too fulfilled the same function.

TECHNICAL DETAILS

THE BASEMENT: INTERNAL STRUCTURE

Stanchions

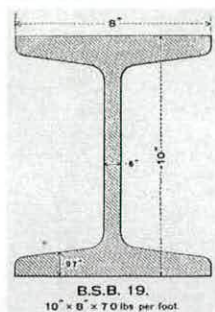
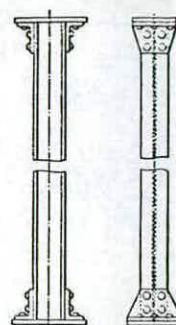


Fig. 23 – Dorman Long beam c.1900

The three steel stanchions used in the basement are all I-section beams, rolled by Dorman Long & Co. Typically, they all have taper flanges and are rounded at toe and root. Because they pre-date British Standard 4 which was first issued in 1903, their sectional dimensions would not necessarily be expected to correspond to British Standard Sections. Architects, and other customers, typically selected sections (which were conveniently provided with corresponding design properties and safe loads) from the company's handbook, first published in 1887 and subsequently in editions of 1890, 1895, 1900 and at further intervals throughout this century. Interestingly, the two larger-section stanchions, which flank the central one have web-flange dimensions of 10in.by 8in., which corresponds to B.S.B. 19. (10in. by 8in., Fig. 23). Dorman Long & Co were rolling British Standard Sections in advance of the 1903 edict - perhaps in anticipation of their blanket adoption - and their 1900 edition handbook listed all the sections (B.S.B.'s 1 to 30) which became the norm. The more slender (6in. by 5in.) central stanchion, which simply provided intermediary support to the beam spanning between the two main stanchions, corresponds exactly to one of the beam sizes listed in the 1887 edition, and which was still listed in the edition of 1900. It is seated directly on the concrete floor (Fig. 24) rooted and stabilised via a tapered base suitable 'for small I beams' (Fig. 25). The two larger ones however pass through the concrete floor (although concealed) and sit on the substantial cross girder to the north of the main one, which in turn rests on the brick walls.



Fig. 24 – Stanchion connection details: left: base; right: cap.



FOR SMALL I BEAMS.

Fig. 25 - Dorman Long stanchion c.1900

The employment of two larger-section stanchions flanking a smaller one is structurally anomalous in the context of purely supporting the ground floor, given that the loading is evenly distributed, but makes sense in the context of the upper floors. These members are in positions corresponding exactly to the central two pillars of the ground floor and first floor (which also bear some of the thrust of the atrium

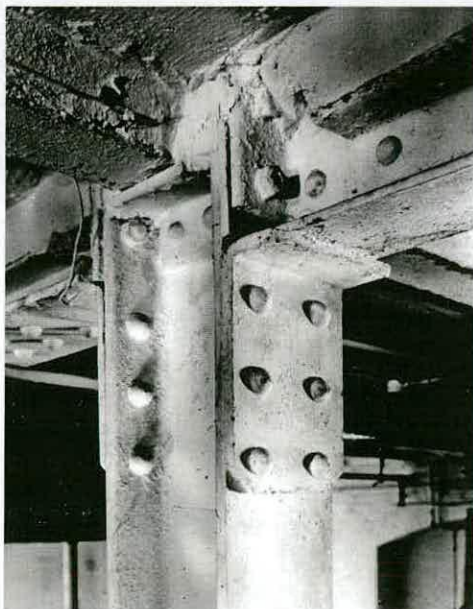


Fig. 26 - Stanchion, beam and rolled-steel joist connection (EH, BB99/09026).

arches). Each of these are probably formed from one, or possibly two spliced and butted lengths of section, passing right through the ground floor to a height of c.9.5m (31ft.). It seems probable also that the four stanchions concealed within the ground-floor and first-floor pillars are of identical section to these.

Beams and Connections

Three lengths of beams, stamped 'CONSET (Co. Durham)' on the web, span the three stanchions. The two spanning between either wall and the main stanchions are compound girders, formed from an I beam strengthened with plates chain rivetted to the upper and lower (visible) flanges. They are attached to the stanchions by simple angle stools, side and (presumably) top cleats, although the latter are concealed by the concrete. These connections are all rivetted, with the exception of the side cleats which are partially bolted for ease of erection. The central beam is formed by a deep section I beam with a 6in. flange - identical to those used in the flanking compound girders. It is connected to the two main stanchions in identical fashion, by angle stools, side and top cleats, but because it rests directly on the top of the central stanchion, a cap assemblage similar to the base is employed, bolted to the lower flange (Fig. 26).

Rolled-Steel Joists

The rolled-steel joists spanning between the beams and either wall on 30in. centres rest not on the flanges, but on lengths of unequal angles rivetted roughly midway to the web of the beams (Fig.27).

These act as shelf brackets, and run in three lengths corresponding to the three lengths of beams. Those four rolled-steel joists spanning between the main stanchions and either wall rest on simple angle cleats rivetted to the stanchion webs. All joists have 4in. (exposed) lower flanges. They appear to rest directly on the brickwork at their other ends - presumably the closeness of spacing spread the load sufficiently without the need for stone templates.

THE SUB-BASEMENT: INTERNAL STRUCTURE

Compound Girders

The largest girder, running transversely on the line of the cross wall, is made up of two or more lengths of I-section beams arranged side by side, connected via 24in. wide plates rivetted (staggered) to their upper (concealed) and lower flanges. The four axial beams to the north of this, each formed by I-section beams strengthened by 12in.-thick top and bottom plates, are connected to it by angle stools, side and (presumably) top cleats. The secondary transverse beam to the north of the main one, appears similar in form and dimensions to the four axial ones. The manufacturer of these heavy structural members was not visible on the webs, but it seems likely that they too were rolled by Dorman Long & Co.

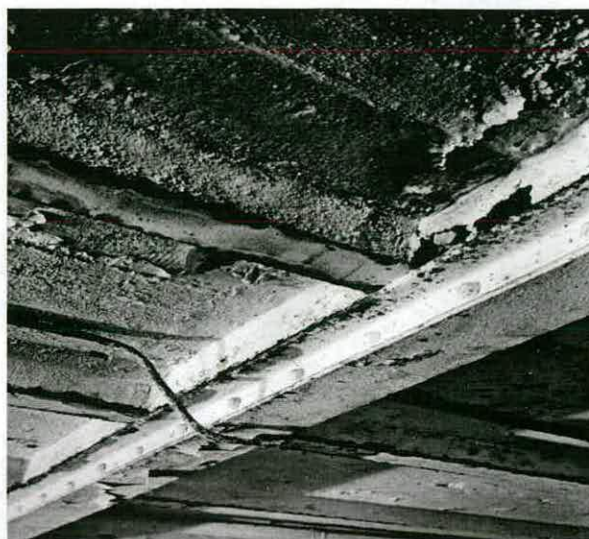


Fig. 27 – rolled-steel joist/beam connections (EH, BB99/09027).

Rolled-Steel Joists

The rolled-steel joists spanning between the beams and either wall are of similar form to those employed in the basement, and they are connected in identical fashion, resting on lengths of unequal angles rivetted in the lower part of the web of the beams. The principal difference appears to be their degree of spacing: 45in. as opposed to 30in.

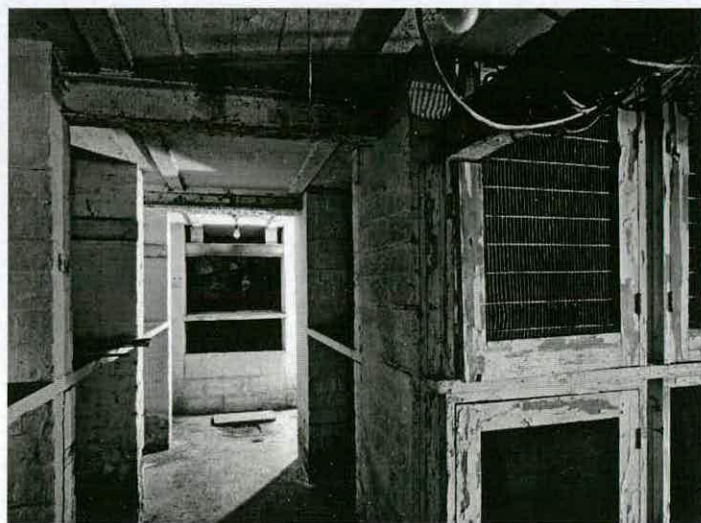


Fig. 28 – View from west along east-west passage of sub-basement. Inserted British Standard Beams provide additional support to the original rolled steel joists. (EH, BB99/09020).

Later inserted beams

The inserted British Standard Beams have a nominal web-flange dimension of 6 by 4½ in., which is stamped on the web, as well as the manufacturer, 'Earl of Dudley'. Characteristically, they exhibit much less rounding of the toe and toot, and the flange taper is diminished, and the metal is thinner (Fig. 24).

They are spaced on centres averaging 160cm (63in.), a distance dictated by the existing walls of the brick bins.

NOTES

1. EH, London Region Historian's File, Report by Andrew Saint, '115-121 Tooley Street, London Borough of Southwark', March 1987.
2. *Kelly's Post Office Directory* (1908), 160.
3. 'A Visit to A Famous Distillery: Being An Account Founded Upon An Article Which Appeared in "The Wine and Spirit Trade Record"', London (1905): Boord and Son, 3-5. (Copy with EH, London Region Historian's File).
4. *Who Was Who 1897-1915* (London, 1929), 74.
5. Leonard Reilly, 'Southwark: An illustrated History', (London, 1998), 47.
6. EH, London Region Historian's File, notes headed 'Tooley St. Maps'.
7. 'A Visit to A Famous Distillery', 18
8. *ibid.*
9. ©Aerofilms Ltd., print held in Southwark Local Studies Library.
10. Herbert F. Mansford, 'Recent Street Architecture in London.-VII', *Builders' Journal and Architectural Record*, 15 October 1902, 137.
11. Walter Besant, *London South of the Thames*, (London, 1912), 139-40
12. Jill Lever (ed.), *Catalogue of the Drawings Collection of the RIBA* (London, 1984), 130.
13. Saint (1987).
14. *The Builder*, 31 January 1919, 110; Lever, *op.cit.*; A Stuart Gray, *Edwardian architecture : a biographical dictionary* (Ware, Hertfordshire , 1988), 374-5
15. *Who Was Who 1916-1929* (London, 1929), 107.
16. Saint (1987), records the original blocks as still extant at the time of his inspection (1987).
17. This size and British Standard Beam reference number (6 x 4½ BSB 109) corresponds to that listed in British Standard 4 (1932).
18. 'A Visit to A Famous Distillery', 6.
19. *ibid.*
20. *ibid.*
21. *ibid.*
22. Information kindly provided by Mary Mills.
23. 'A Visit to A Famous Distillery', 7.

24. Saint (1987).
25. The employment of cast-iron columns as opposed to steel stanchions on the Duty Paid Warehouse ostensibly betrays an uneasiness in entrusting the new material to severe compressive loading, but, may also represent a prudent decision based on the relative behavioural properties of the two metals under specific conditions. At this relatively early date the ultimate compressive strength of cast-iron was known, whereas that for mild steel (and wrought-iron) could not be accurately measured on account of their ductility. Certainly the *safe* compressive resistance of cast iron tabulated in G.A.T. Middleton, *Modern Buildings: Their Planning, Construction and Equipment* Vol IV (London, 1906), 70 shows it to be superior to mild steel: the ultimate resistance of cast-iron and mild steel are given as 36 and 28 (estimated) psi respectively, the corresponding figures for safe resistance are 7 and 6½ psi. Given the large-scale employment of vertical supports throughout the complex, relative costs of the two materials may have been a contributory factor.
26. Saint (1987).
27. An Aerial Photograph taken in 1950 (©Aerofilms), shows the smoking chambers had been constructed by this date.
28. Saint (1987).
29. 'A Visit to a Famous Distillery', 23.
30. *ibid*, 14.

JOB NUMBER 99/00079

DATE TAKEN 20/04/99 PHOTOGRAPHER DJK

ADDRESS

115-121 TOOLEY STREET
LONDON BRIDGE
BERMONDSEY ROTHERHITHE AND SOUTHWARK

NEGS TAKEN 23

BB99/09018	SUB-BASEMENT, SPINE PASSAGE THROUGH WINE STORE, VIEW FROM NORTH.	B&W
BB99/09019	SUB-BASEMENT, VIEW OF WINE STORAGE RACKS.	B&W
BB99/09020	SUB-BASEMENT, VIEW OF WINE STORAGE RACKS ALONG NORTH PASSAGE VIEW FROM WEST.	B&W
BB99/09021	SUB-BASEMENT, VIEW OF SECONDARY BRICK INSERTION TO STRENGTHEN WINE RACKS.	B&W
BB99/09022	SUB-BASEMENT, GRAFITTI ON STORAGE RACKS.	B&W
BB99/09023	BASEMENT, URINALS IN SOUTH WEST ROOM.	B&W
BB99/09024	BASEMENT, RADIATOR IN SOUTH WEST ROOM.	B&W
BB99/09025	BASEMENT, STORE ROOM, VIEW FROM SOUTH WEST.	B&W
BB99/09026	BASEMENT, STORE ROOM, DETAIL OF STEEL POST AND BEAM JUNCTION.	B&W
BB99/09027	BASEMENT, STORE ROOM, DETAIL OF CEILING BEAMS AND CONCRETE INFILL.	B&W
BB99/09028	BASEMENT, SOUTH EAST ROOM, VIEW FROM NORTH.	B&W
BB99/09029	GROUND FLOOR, VIEW FROM MAIN ENTRANCE HALL INTO CENTRAL OFFICE FROM SOUTH.	B&W
BB99/09030	GROUND FLOOR, VIEW OF CENTRAL OFFICE AREA FROM SOUTH WEST.	B&W
BB99/09031	GROUND FLOOR, IRON FIRE DOOR FROM CENTRAL OFFICE TO WAREHOUSE, BELOW STAIRCASE ON EAST SIDE.	B&W
BB99/09032	GROUND FLOOR, SPIRAL STAIR ON EAST SIDE OF OFFICE, DOWN TO BASEMENT.	B&W
BB99/09033	GROUND FLOOR, NORTH EAST ROOM, VIEW FROM SOUTH.	B&W
BB99/09034	FIRST FLOOR, CENTRAL OFFICE, VIEW FROM NORTH EAST.	B&W
BB99/09035	FIRST FLOOR, CENTRAL OFFICE, VIEW FROM SOUTH EAST.	B&W
BB99/09036	FIRST FLOOR, SOUTH EAST OFFICE, VIEW FROM NORTH WEST.	B&W
BB99/09037	FIRST FLOOR, VIEW FROM SOUTH EAST OFFICE THROUGH ENFILLADE TO WEST.	B&W
BB99/09038	FIRST FLOOR, CENTRE OFFICE ON SOUTH SIDE, VIEW FROM NORTH EAST.	B&W
BB99/09039	THIRD FLOOR, CENTRE ROOM ON SOUTH SIDE, VIEW FROM NORTH EAST.	B&W
BB99/09040	THIRD FLOOR, SOUTH EAST ROOM, DETAIL OF RANGE IN EAST WALL.	B&W



DO NOT SCALE FROM DRAWING
ALL DIMENSIONS TO BE CHECKED ON SITE

NOTES

ALL MEASUREMENTS TAKEN TO EXISTING
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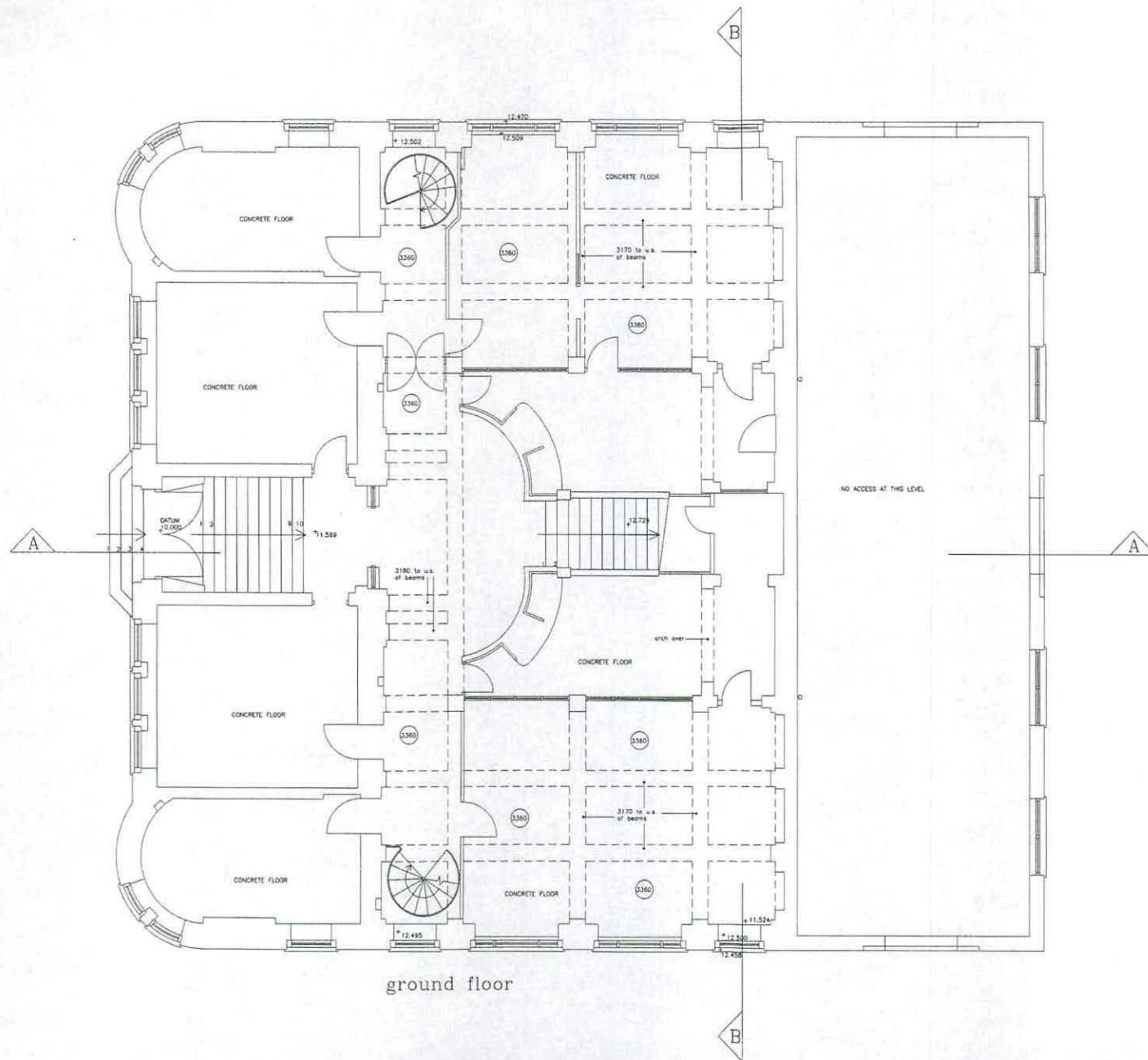
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30300 SPINE HEIGHT

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ET TELECOM
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EM ELECTRIC METER
PB FUSE BOARD
CN CLIPBOARD
V VALVE

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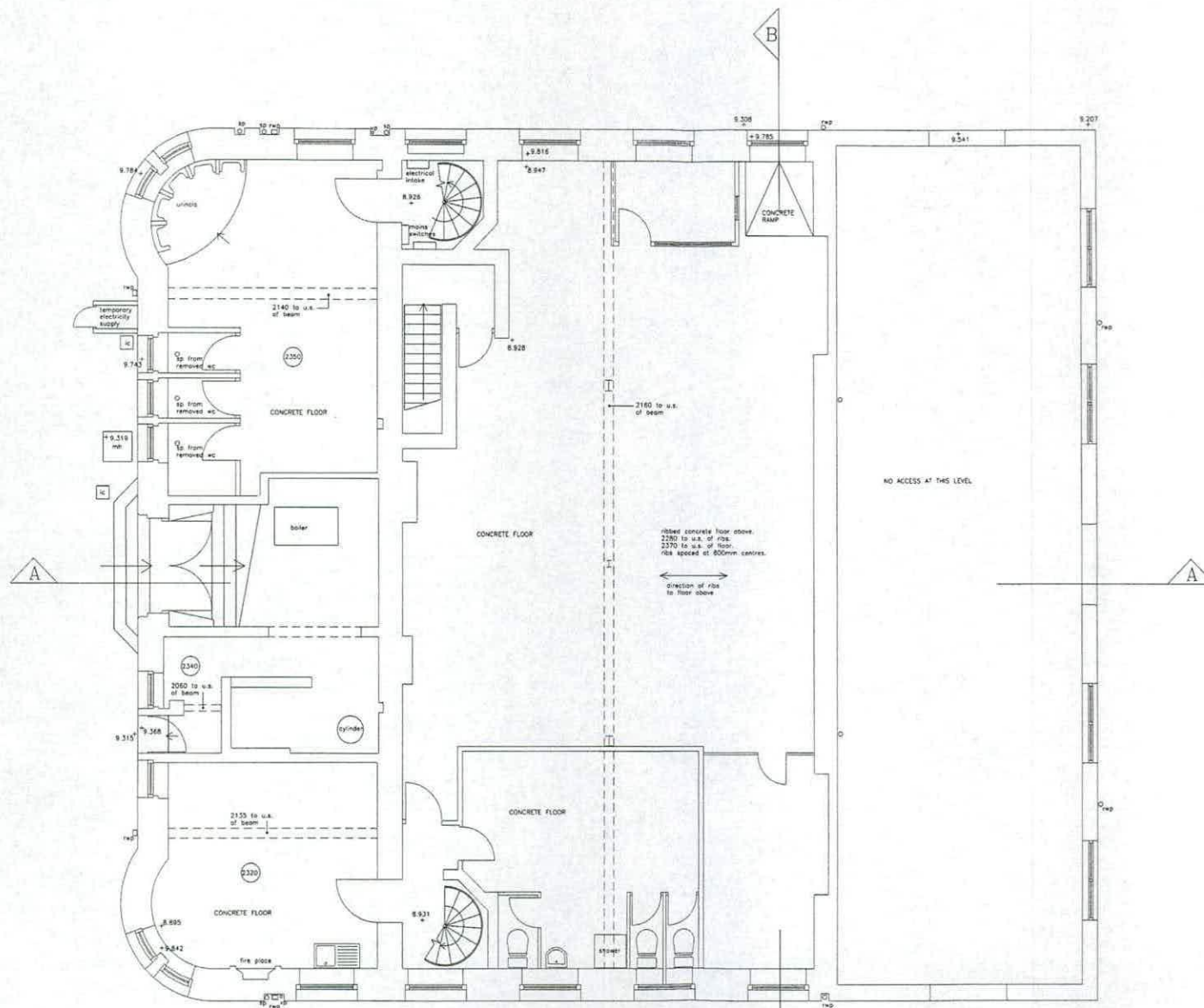
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LONDON SE1

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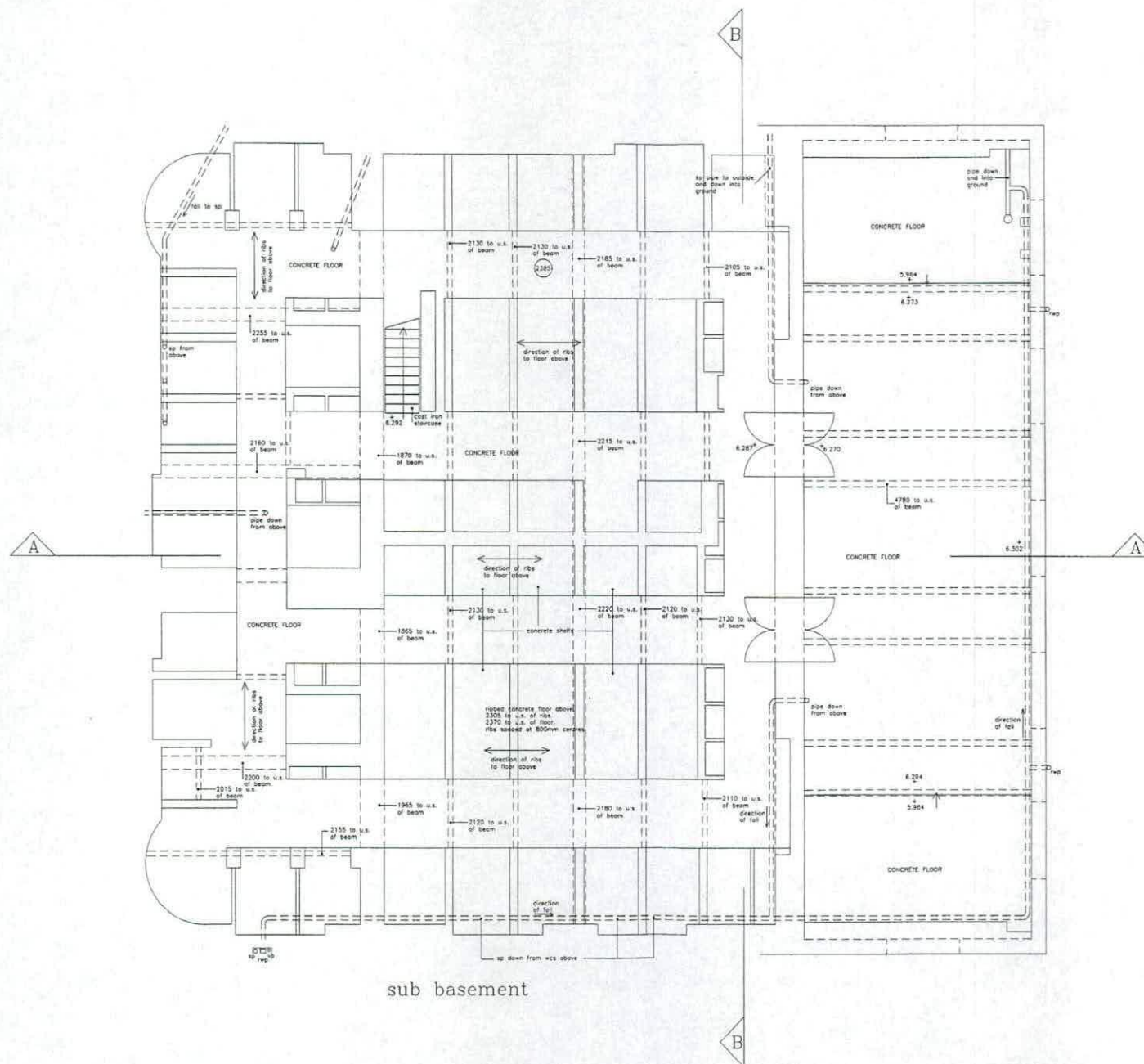
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ALL MEASUREMENTS TAKEN TO EXISTING SURFACE FINISHES

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LEVELS IN METRES AND RELATE TO ARBITRARY DATUM

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- 2130 FLOOR TO CEILING HEIGHT
- 212620 SPRING HEIGHT

- IC INSPECTION COVER
- G GULLY
- BT TELECOM
- UP SOIL PIPE
- EM ELECTRIC METER
- FB FUSE BOXES
- CH CLIPBOARDS
- V VALVE

REVISIONS DATE BY

METRO PLANS
140 DEVONSHIRE ROAD
CHISWICK, LONDON W4 2HA
TEL NO. 0181 987 9929

PROJECT 115-121 TOOLEY STREET
LONDON SE1

TITLE LAYOUT PLANS
AS EXISTING

SCALE 1:50 DATE AUG 98

DRAWN BY D.C. CHECKED BY G.P.

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