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BRITISH BRICK SOCIETY

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* *The annual subscription to the British Brick Society is £20-00 per annum. There are now no concessionary subscriptions.*

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British Brick Society web site:

http://britishbricksoc.co.uk

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Cover

The Guaranty Building, south-west corner Pearl Street and Church Street, Buffalo NY, (1894-95: Adler & Sullivan; 1895: L.H. Sullivan). All over decoration in terracotta on pillars and the alternate false pillars; see also figure 6 on page 13.

Editorial:
British Brick Society Matters

The British Brick Society will be holding its 2024 Annual General Meeting in the Wesley Room, Jubilee Central, King Edward Street, Kingston upon Hull, on Saturday 15 June 2024. This is the fiftieth Annual General Meeting of the British Brick Society, the first having been held in the rooms of the Society of Antiquaries of London, Burlington House, Piccadilly, London W1, in 1974. In choosing to visit what is the most complete brick town from medieval England, it is therefore a reason to celebrate the persistence of the society.

However, this or the projected AGM in Colchester in 2025 could be the last face-to face annual general meeting of the society. The committee have been having an email discussion as to whether future annual general meetings might not be virtual. During the Covid-19 crisis, the society held its 2022 Annual General Meeting on ZOOM. This attracted a larger than usual participation. The enclosed list with suggestions for the venue in a northern location in 2026 is therefore in two parts. One side asks members to indicate their preference for in person or Zoom conference. The other side makes seven possible suggestions as to a venue, avoiding places in both Lincolnshire and the East Riding of Yorkshire, the venues for the annual general meetings in 2022 and 2024 respectively. Members who wish to suggest a venue should try to avoid these counties.

Behind the reasons for suggesting that the Annual General Meeting is held by ZOOM are two. One is the financial cost of the meeting, hiring a room for the meeting and providing the services of a tour guide. Occasionally a member of the society has led the town tour in the afternoon but this cannot be guaranteed. These costs place an increasing burden on the finances of the British Brick Society and often the attendance does not justify the costs incurred.

The second is that having a fixed physical location will require the costs of both travel and accommodation for many members and as members become older, they may wish to travel less than they have done in the past.

There are disadvantages to going on to a ZOOM meeting, not least the lack of face-to-face contact between members. The informal coffee and chat accompanying the meeting often produce new insights for an attendee. Secondly, although this may seem strange in 2024, not everyone has access to a computer, and probably not everyone feels confident in using ZOOM. However, it is surprising what one can learn in one's late seventies. The writer had not written a PowerPoint before 2022: the writer left formal work in 2010 just as the college management insisted on PowerPoint being used in lectures and seminars rather than the former system of acetates. He was presenting at the 2022 International Congress on Medieval Studies at Western Michigan University, Kalamazoo MI, and has done so virtually in subsequent years. The writer does not consider himself particularly adept in using the full range of options on a computer!

Further discussions will be held by the committee on the options available to what is a relatively small society in membership terms. The committee will be reporting back to the membership in *BBS Information,* **156,** June 2024.

As of late February 2024, the options for the 2025 Annual General Meeting in Colchester remain open as the society has had a volunteer from the membership who is willing to make the arrangements for a meeting room (hopefully free of charge) and a tour guide. Members will be given further information in due course.

The Editor of *British Brick Society Information* apologies for the delayed appearance of this issue. It is due to recurrent medical problems, the pain from which restricts his activities: he has a fairly high pain threshold.

DAVID H. KENNETT
Editor, *British Brick Society Information.*

Louis Henry Sullivan: The Unanswered Question

David H. Kennett

> Genius the Master had — or rather it had him. It possessed him, he revelled in it, squandered it, and the lesser part of him was squandered by it. He lived! And compared to what came to him in life from his effort, the effort itself being a quality of it, the greatly successful careers were, I imagine, relatively lifeless.
> Frank Lloyd Wright, 'Louis H. Sullivan — His Work',
> *Architectural Record,* **56,** 1, July 1924, pages 28-32.

INTRODUCTION

Members of the British Brick Society whose interests extend to early-twentieth-century classical music will be aware of, and probably familiar with, the piece, *The Unanswered Question* (1908, revised 1930-35) by the American composer Charles Ives (1874-1954). Ives was of the succeeding generation to the architect Louis Henry Sullivan (1856-1924), the centenary of whose death occurs on 14 April this year.[1]

Sullivan remains an enigma to many architectural and building historians, including the present writer, who has been thinking about the architect, his work, and his life[2] for more than four decades, and, in the latter part of the first decade of the twenty-first century, visited the surviving buildings in Chicago, in St Louis, in Buffalo, in New York, and in the Midwestern states of Iowa, Michigan Minnesota, and Wisconsin.[3]

Frank Lloyd Wright, as quoted above, provides one partial answer: in the first two decades of the twentieth century, society was not enamoured of Sullivan's work and Sullivan was not enamoured of society nor of the direction which Architecture was taking, as the quotation immediately below makes clear. Writing thirty years later of the effect of the Chicago Columbian Exposition of 1893-94 and make-believe 'White City' in lath and plaster, Sullivan wrote:

> The damage done by the World's Fair will last for half a century from its date, if not longer. It has penetrated deep into the constitution of the American mind, effecting their lesions significant of dementia.[4]

The 'White City' was classical in its inspiration, except for Adler & Sullivan's 'Golden Door' for the Transportation Building (fig.1); specifically, the Columbian Centennial Exposition added almost nothing to the search for an American architecture that was derived from the ideas of the nascent country. To create a specifically *American* architecture was one of the aims of the writings and buildings of Louis Henri Sullivan.

But is Wright's suggestion the whole answer? This writer suspects not. In reality, the unanswered question one may pose about Sullivan is actually quite simple: How did a no more than average practitioner of the bread-and-butter of a late-nineteenth-century architectural practice, namely domestic residences and industrial structures, albeit one who could light up a neighbourhood with the ornament provided on his buildings, rise to become 'the greatest architect of our generation' as he was described by one of the mourners at his funeral in Graceland Cemetery, Chicago, on 16 April 2024? All this, one must add, with an extremely minimal level of training.

BUFFETTED BY THE STORMS OF ECONOMIC UNCERTAINTY

Between October 1872 and May 1875, in the two-and-a-half years after he graduated from the English High School, Boston MA, at the age of sixteen, Sullivan spent an academic year in the Building and Architecture Department of the Massachusetts Institute of Technology; had five months in the Philadelphia offices of Furness & Hewitt, before being made redundant in the immediate aftermath of the crash of 1873; fled to his parent's new home in Chicago where he worked for William le Baron Jenney for eight months; saved enough money to go to Europe and, sailed from New York to Liverpool on the *SS Britannic* before going on to France

where after six weeks' preparation he succeeded in passing at the first attempt the examinations for attendance at the highly prestigious Ecole des Beaux Arts in Paris. But Sullivan left after just six months and travelled in southern France and Italy for two months. He returned to New York via Liverpool, again on the *SS Britannic*, before settling in Chicago for the remaining 48 years of his life.

Sullivan packed a lot in the three years between his sixteenth and nineteenth birthdays but buried in the long sentence in the preceding paragraph is an important clue to understanding part, but *not* the whole, of the enigma of Louis Sullivan: the crash of 1873,[5] which Sullivan witnessed from the offices of Furness & Hewitt. Half a century later, he vividly recalled the events of that day. In his autobiography, *The Autobiography of an Idea,* he wrote of the events of 18 September 1873:

> The offices of Furness & Hewitt occupied the entire top floor of a new, brick, four-storey building at the north-east corner of Third Street and Chestnut.
>
> One day in September, it was very warm, all windows were open for air, the force was wearily at work. As they worked, there came through the open windows a murmur, barely noticed at first; then this murmur became a roar, with wild shouting. Then all to the windows, Louis saw, far below, not pavement and sidewalks, but a solid mass of frantic men, crowded, jammed from wall to wall. The offices of Jay Cooke & Co. were but a short distance south on Third Street. Word came up that Jay Cooke & Co. had just closed its doors. Louis saw it all, as he could see down both Chestnut Street and Third. Chestnut westward from Third was a solid mass. The run on the banks had begun. The devastating panic of 1873 was on, in its mad career. Louis was shocked, appalled at the sight. He was too young, too inexperienced, to understand what it really meant, even when told it was a panic in finance, that credit had crumbled to dust, that men were ruined, and insane with despair; that this panic would spread like wildfire over then land leaving ruin in its wake everywhere. And he could not understand what had brought it about.
>
> The office held steady for a while; there was work on hand which had progressed so far that it must be completed.[6]

Ten weeks later, Frank Furness felt obliged to divest himself of the newest, and probably youngest, recruit among his draughtsmen, despite there being nothing wrong with the quality of Sullivan's work.

Sullivan fled to Chicago whence his parents had relocated from the Boston area. Arriving in the city, on Wednesday 27 November 1873, the day before Thanksgiving, he was immediately impressed. Many years later, he wrote, perhaps a little fanicifully:

> The train neared the city; it broke into the city; it ploughed its way through miles of shanties, disheartening and dirty grey. It reached the terminal at an open shed. Louis tramped the platform, stopped, looked towards the city, the ruins around him; looked at the sky; and as one alone, stamped his foot, raised his hand, and cried in full voice:
>
> This is the Place for Me.[7]

In one sense, at the beginning of the Long Depression,[8] Chicago had been fortunate. The great fire of 1871 had destroyed so many buildings that construction in the city was largely unaffected by the general economic downturn which spread across the United States of America. Sullivan soon found work with William le Baron Jenney, a French-educated civil engineer who had worked for the Union side in the Civil War (1861-65) and in a period when civil engineering and architecture were interchangeable professions, had taken up the latter, having a gift for structural engineering: Jenney is credited with designing the first true skyscraper in the Home Insurance Building (1883) where the brick of the exterior is only a skin and the weight is borne by the steel frame.

But the abruptness of the economic crash in September 1873, when one over-extended bank could not meet its obligations to its depositors, scarred the young, prospective architect for the rest of his life. Confined to Philadelphia, New York, and Washington, the panic was financial and not necessarily structural to the economy of the wider United States. Sullivan would be scarred again and even more by the crash of 1893, as a grey cloud hung over the White City, created for the Columbian Exposition for the whole period it was open in 1893 and 1894:

The future looked bright. The flag was in the breeze. Yet a small white cloud no bigger than a man's hand was soon to appear above the horizon. The name of this cloud was eighteen hundred and ninety-three. Following the little white cloud was a dark dim cloud, more like a fog. The name of the second cloud was Baring Brothers.[9]

Baring Brothers was an English merchant bank, heavily involved in financing infrastructure projects in Argentina and Uruguay, not least in substantial lending to the Buenos Aires Water Supply and Drainage Company. The latter defaulted on their loans and the bubble burst on speculation in land in July 1890. The national bank in Argentina, the Bank of the Nation, could not pay a dividend leading to a run on the bank. At the same time, there was speculation in Brazil on coffee, where the bubble burst in December 1890 and to a lesser extent in Chile on nitrates. Heavily exposed in South America, Baring Brothers were unable to repay their creditors and had difficulty in raising new capital. Barings survived, thanks to loans to the Bank of England from the Banque du France and gold shipments from Russia.

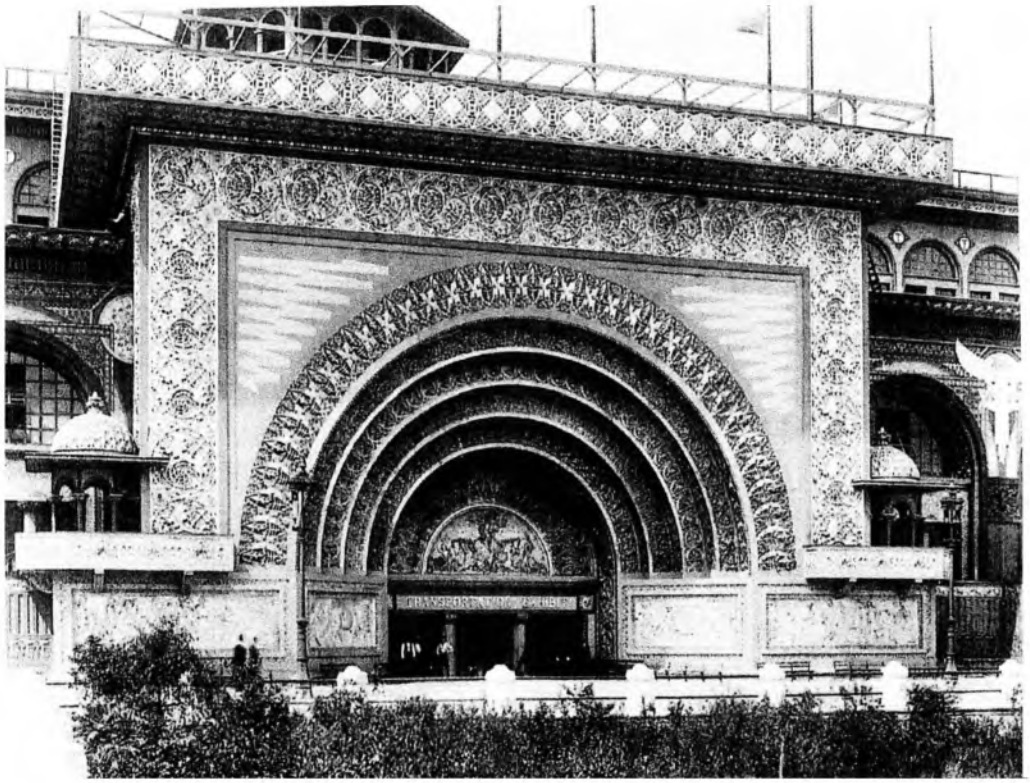

Fig.1 The 'Golden Door' of the Transportation Building at the Columbian Centennial Exposition, Chicago, in 1893-94. (Adler & Sullivan). For it, Louis Sullivan was awarded a gold medal, a silver medal, and a bronze medal by the Paris-based Union Centralé des Arts Décoratifs in 1894.

'Greedflation' is inflation caused by the greed of the few to the detriment of the many; the word may have been coined in the twenty-first century but it is an accurate description of the besetting sin of the recurrent banking crises of the USA in five decades between the Civil War and the Great War.

Sullivan was right to detect the near failure of Baring Brothers as a key factor in the background to the ensuing speculative boom in the United States. Stock markets across the country crashed. Following the Sherman Silver Act of 1890, a peculiar aspect of the United States political and economic situation throughout the early 1890s was the rising demand for silver, which was mined in Nevada, the demand for silver led to heavy speculation in precious metals, both gold and silver. The downturn in 1890 was short-lived and appears not to have greatly affected construction but far worse was to come.

Between December 1892 and May 1893, speculation in specie intensified. The crash was dramatic: country banks began to fail in June 1893 and over the following twenty-four months many more went into

liquidation. The Chemical National Bank in Chicago being one of the major victims of the dim grey cloud and by no means the only one. Here the crash came in May 1893. The downturn lasted until the end of 1896: businesses failed, partnerships were disbanded, including architectural ones. The dissolution of Adler & Sullivan in July 1895 was a late calamity; for Dankmar Adler there were just too many 'office failures' (see below).

Sullivan's adult life, both professional and personal, to a large extent was shaped by the recurrent banking and economic crises of its last fifty years: 1873-1879, 1890, 1893-1896, 1907-1909, 1913-14, and 1918,[10] as his childhood had been by the 'Panic of 1857. Wall Street. Half past 2 o'clock. Oct. 13, 1857' to quote the title of the painting by James H. Cafferty and Charles G. Rosenberg.[11] In October 1857, his father, a dancing master, had suddenly decamped with his family from Boston, Massachusetts, to Halifax, Nova Scotia; he had crossed the border with Canada. In contrast, the later years of Sullivan's childhood seem to have been much less affected by the Civil War (1861-1865) and its aftermath.

Fig.2 The Wainwright Building, north-west corner of 7th and Olive Street, St Louis, Missouri (1890-91: Adler & Sullivan), the concept drawing of the building which changed how skyscrapers were conceived as having a base, a column, and a capital rather than being individual floors stacked on one top of one another. (See also fig.7)

The first three of the downturns listed in the previous paragraph, occupying most of the fourth quarter of the nineteenth century, are collectively known as 'The Long Depression' in the earliest period of which, as had been noted, Chicago was largely exempt. As the second quotation from *The Autobiography of an Idea* (on page 5, above) makes clear, the 1873-79 crisis was primarily a banking crisis but one where the consequences lasted not just the six years of the immediate downturn in economic fortunes but in many respects for next

twenty-three years. The effects were uneven. European immigration of many fleeing pogroms and poverty meant a larger population for the whole country and its cities boomed. Between 1870 and 1920, the number of people resident in Chicago went up ninefold from 299,000 to 2,701,700.

Sullivan had sat out much of the earliest phase, 1873 to 1879: he was young, he was mobile, he could find work, and ultimately in 1883 an architectural partnership on equal terms with Dankmar Adler (1844-1900). For twelve years (1883-1895), the highly successful combination of Adler, the trained engineer turned architect who could do both structural engineering and acoustics, with the mercurial Sullivan, who enjoyed dreaming up decorative and ornamental schemes, prospered. On Friday 5 July 1895, with the partnership dissolved, Adler left architectural practice for the rest of the year. Adler needed a reasonable salary on which to support his family. Sullivan was a bachelor, living first in the house at 4575 Lake Park Avenue (now demolished) he had designed for his mother, who died before she was able to live there, and then after 1896, and even after 1899 when married, in rooms in apartment hotels, each one becoming even more depressing and run down as his practice, his finances, and, ultimately, his marriage disintegrated. His final lodging, after the break-up of his marriage in 1909, was one room in a seedy hotel deep in the south side: it cost him nine dollars a week. By 2010, when the writer searched for it, the building was long gone. For much of the last ten years of Sullivan's life, his rent, his subscriptions, and his meals were paid for by his friends. At his death, his debts were written off by his creditors.

To begin to understand how the economy of the United States fell apart in the eighteen months of the 1893-94 Chicago World Fair, instigated a year late to celebrate four hundred years since Christopher Columbus supposedly 'discovered' America, one needs only to list building projects by Adler & Sullivan which never came to fruition. Adler & Sullivan had strong connections with St Louis, a city 280 miles south of Chicago, and had designed three major buildings there: the Wainwright (1890-92) (figs.2 and 7), the Union Trust Building (1892-93), and the now demolished St Nicholas Hotel of 1892-93. Dominating the highest portion of the city's Bellefontaine Cemetery is the finest of the tombs designed by Sullivan: that erected for the young Charlotte Dickson Wainwright in 1892. But between late 1893 and mid-1895, at least four skyscraper projects in St Louis were never constructed: the Trust & Savings Building, the Chemical Bank Building, a building to include a large retail store, and a scheme on Olive Street for which both eight and twelve storey structures were proposed.[12] In Chicago, Levi A. Eliel could not find the money to proceed with an apartment building: the firm had designed a house for the same client in 1886. And in Cincinnati, the owners of the Burnet House Hotel did not proceed with the refurbishment and remodelling of one wing. To Adler, these 'office tragedies' meant loss of work, loss of prestige, and, for him, loss of face. Dankmar Adler felt obliged to seek accept paid employment with the Crane Manufacturing Company, a firm which had been a major client for Adler & Sullivan and would be for Sullivan on his own. On Friday 5 July 1895, the Adler & Sullivan Partnership was dissolved.

The 'office tragedies' of Adler & Sullivan are but one relatively minor aspect of the severe depression of the 1890s: between 1892 and 1897, the United States economy shrank by 29.97 percent, almost three times the downturn of 1873, which was 10.83 percent.[13]

SULLIVAN ALONE

After Adler left, Sullivan was left alone in the eyrie he had designed at the top of the Auditorium Tower. At first, he was relatively successful. There was the series of commissions for a department store, from Schlesinger & Mayer, one portion in 1898, three bays of ten storeys on Madison, another, taller and much larger in 1902, twelve storeys with three bays on Madison, one rounding the corner, the busiest corner in the world, and two on State, with in the following year another four bays on State extending the store south (fig.3). But before completion of the third phase, the store was sold to a rival store owner, Carson Pirie Scott, who remained there until 2008. Other architects extended the store southwards but were obliged to follow Sullivan's heights and general façade layout, although the top floor loggia was abandoned both by Daniel Burnham & Co in 1906 and by Holabird & Root in 1948.

But thereafter, gradually the commissions failed to materialise, except in dribs and drabs, or they were withdrawn as with the project for a school in Owatonna MN in 1918. After the economic downturn of 1907, when the value of the industrial economy fell by a sixth (17.38 percent), there were only the banks in small provincial towns. The earliest of the eight banks had been constructed at Owatonna in Minnesota between 1906 and 1909, when George Grant Emslie (1869-1952) was still the chief draughtsman, a position which after

1909 was left unfilled. But the next commission did not materialise for some years; it was the first of three bank buildings built in Iowa: at Cedar Rapids in 1910; the others were at Algona and Grinnell (fig.4), both constructed in 1913. Like the bank at West Lafayette, Indiana, of 1914 and the first of two in Ohio, that at Newark, also of 1914, the latter two were completed as yet another economic downturn struck. The second bank in Ohio was three years later, at Sidney in 1917: the last-named Sullivan regarded as the best of the eight he designed. The final new bank was built 1919-20 at Columbus, Wisconsin, for the Farmers & Marchants Union Bank, who still occupy the premises (fig.5), now twice enlarged. The Framers & Merchants Bank also have a large office block on the northern edge of the town. After that commission, Sullivan was asked to remodel the interior of a bank in Martinique in the northern peninsula of Michigan but the building has been demolished.[14]

Fig.3 The Carson Pirie Scott stone, south-east corner of State and Madison, Chicago, as built. The loggia on the top floor was designed to provide a walking space for the female shop assistants who lived on site. (1898, 1901-04: Louis H. Sullivan).

Away from Chicago, two other buildings were built in Iowa: a church in Cedar Rapids in 1909 and a department store in Clinton in 1913-14. But in Chicago after 1895, there was very little. The Russian Orthodox Cathedral and its presbytery of 1899 to 1903 stands out as one of the two major works in the city in the last

three decades of Sullivan's life, the other being the Schlesinger & Mayer store. An attempt to gain finance for an innovative office block on South Michigan Avenue, where the south wing is stepped down to allow more light to the offices on the south side of the north wing, failed because of a lack of investors.

The final architectural work, the terracotta façade of the Kraus Music Store of 1922 was a gesture from a former assistant William C. Presto to a former, if temporary, employer. It is worth the long ride out on the Elevated to see 4611 Lincoln Avenue.

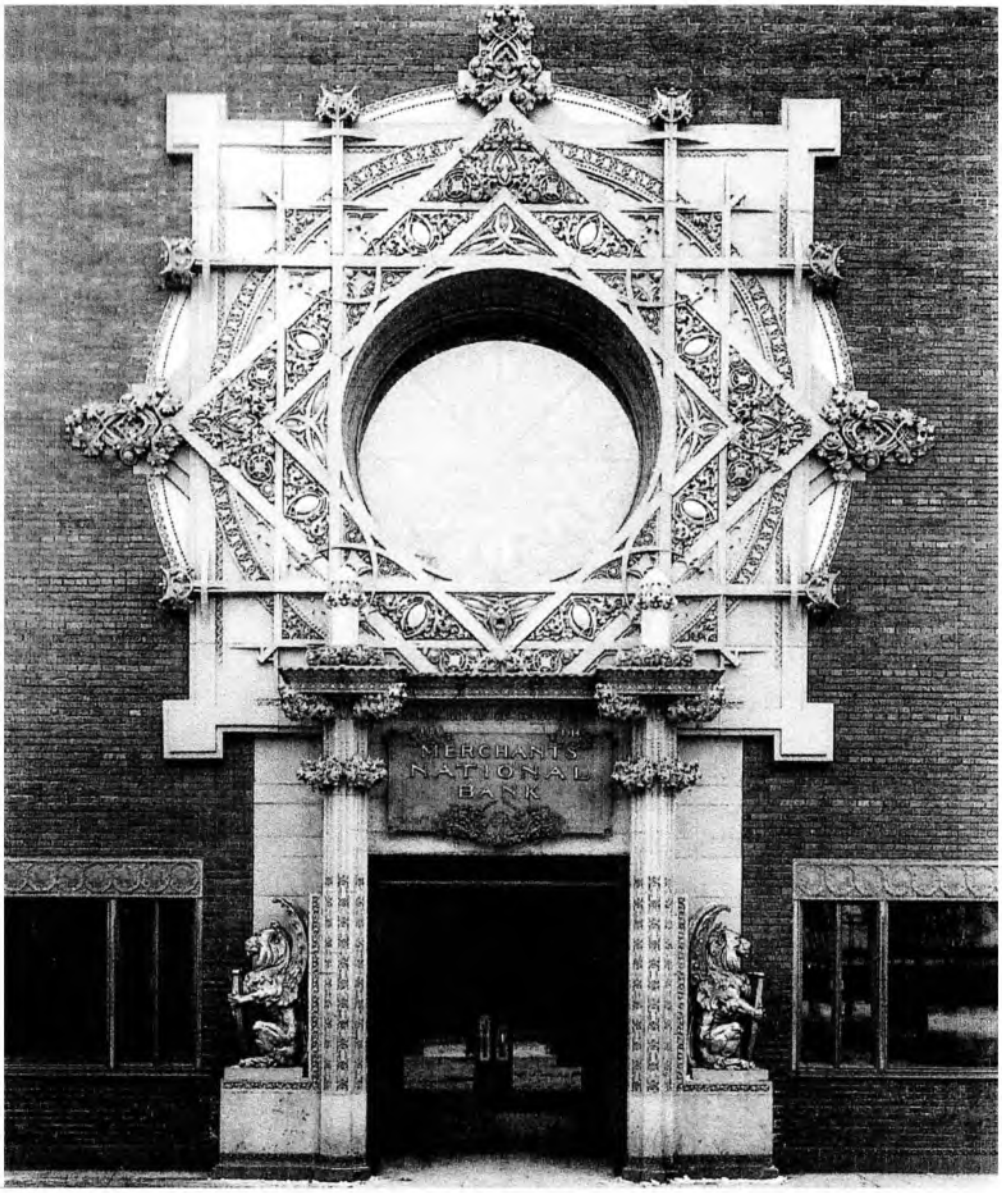

Fig.4 The Merchants National Bank, north-west corner of 4th and Broad Streets, Grinnell, Iowa. (1917-18: Louis H. Sullivan), the terracotta ornament at the entrance. This bank is one of three which Sullivan designed that are now branches of the Wells Fargo Bank.

Gradually in the twenty-three years after the partnership split, the assistants were let go or, sensing the way the wind was blowing, simply had left to find other employers. The draughting room designed to hold fifty draughtsmen, by February 1918 held none and thereafter it was not accessible to Sullivan himself. Moreover, Sullivan was unable to pay the rent due on the office and was forced to leave on 18 February 1918. His final buildings were designed on the corner of the drafting table of a terracotta manufacturer's office.

Fig.5 The Farmers and Merchants Union Bank, north-west corner of James and Dickson Streets, Columbus WI (1919-20: Louis H. Sullivan), the architect's final building, which is signed.

After George Grant Elmslie left in 1909 after enduring several years on half pay to join another former Sullivan assistant, William Purcell, and the latter's engineer classmate George Frick, in Minneapolis MN, Sullivan never had more than two assistants and sometimes not even one. When the construction drawings for his final architectural commission, the façade of the Kraus Music Store, 4611 Lincoln Avenue, Chicago, in 1922, needed to be prepared Sullivan did the half-scale drawings himself. There is nothing amiss with the blueprints; they are perfectly clear and as beautifully executed as were those for the banks in Owatonna MN and Columbus WI.

In some years there were no new commissions or only one. Potential commissions did not always result in executed buildings; they were lost because of misunderstandings. The secondary school in Owatonna in 1918 being a supreme example of Sullivan's intransigence. Sullivan was a difficult man with whom to do business, convinced of his own artistic and intellectual superiority. After his marriage finally broke down in 1909, Sullivan became even more lonely man. At some point in the final months of 1917, John Lloyd Wright (1892-1972), the architect eldest son of Frank Lloyd Wright (1867-1959), found his father's old employer all alone in the private office without any work: the darkening perspective apparent in the final photograph, taken in about 1920, was already brooding over the man who could look back on so many successes, including the building he had been operating from, but whose profile had been eclipsed in the twenty years since the photograph taken of the highly successful — and probably newly-married — architect on the steps of his winter home in Biloxi MS.[15] But then in 1900 he was engaged on the swansong of his skyscraper designs, the Schlesinger & Mayer Store on the corner of State and Madison, where the vertical is softened by the fenestration on the upper floors being expressed horizontally and the top floor being given a loggia.

In an Appendix to *Louis Sullivan: His Life and Work,* Robert Twombly listed 51 potential projects between 1895 and 1922, of which two-thirds were actually constructed; all were still standing when the list was made and as far as this writer is aware, all are still extant,[16] although the bank in Cedar Rapids was damaged by the floods in 2008 of the Cedar River: the writer in May 2010 found the building still drying out. At the beginning of this century, this was unlike the severe losses of the earlier work, mostly before 1960. In the first two decades of the twenty-first century, three early works have been destroyed: the Biloxi cottage because of Hurricane Katrina in 2006, and the Wirt Dexter Building at 630 South Wasbash, Avenue, Chicago,

in the same year after a fire. The Kehilath Ma'ariv Synagogue of 1889-90, later the Pilgrim Baptist church, was the victim of collateral damage from an explosive conflagration at the gasoline (petrol) station to the east: the temperatures raised by the gasoline igniting twisted the metal of the substantial T-bars of the petrol station and blew out the east wall of the synagogue/church, destroying both its interior and the roof structure; the inferno also severed the iron ties linking the stone walls facing the streets on the north and west sides to the inner walls of brick, so that these two sides of the building have been propped up by strong, wooden bracing since 2006. The sidewalks (pavements) were completely blocked by the hefty bracing. The south wall and the remnant of the east wall, both using only brick, three and four headers thick with outer and inner courses totally integrated, stand tall even though the original tent-like roof has long gone.

The buildings of the post-1895 phase have been well maintained by their owners. The banks, particularly, are welcoming to visitors and respect the fact they are custodians of what the architect called his 'jewel boxes,' a designation which could equally apply to the three tombs of an earlier phase of his career.

INTERPRETATIONS OF THE BUILDINGS OF LOUIS HENRY SULLIVAN

Some interpretations of the architect's significance can be firmly rejected. Notably, one rejected interpretation *must* be the idea that Sullivan was some form of progenitor of the early style of European Modernist architecture proclaimed since the 1930s by those searching for easy explanations of the origins of the severe non-ornamental style of Walter Gropius (1887-1965) and, in a different vein, Ludwig Mies van der Rohe (1886-1969).

Re-reading Hugh Morrison's *Louis Sullivan: Prophet of Modern Architecture*, originally published in 1935, one is struck by the fact that the biographer accepted that ornament was integral to the work of Louis Sullivan.[17] Sullivan could and did design plain, industrial structures in Chicago. One example is the successive phases of the Brunswick-Balke-Collender Factory between 1881 and 1893, six storeys above a semi-basement of sheer brickwork punctuated by sash windows, occupying the whole city block formed between Superior, Huron, Ontario, and Sedgewick Streets, Chicago. Such buildings were part of the bread and butter of any practice in the city between 1880 and 1917.

Despite being recognised as one of the foremost pioneers of the tall building, Sullivan equally believed in the necessity of ornament.

This is clear from the Wainwright Building (figs.2 and 7) in St Louis (1890-92) which changed the direction of Sullivan's work at least in respect of tall buildings. He had designed tall buildings before. The sixteen storeys of the Auditorium Tower (1886-89) had briefly been the tallest building in the world and the heaviest: all this on 'the muddy onion field' to give a literal translation of 'Chicago'. The offices of Adler & Sullivan occupied the top the sixteenth and seventeenth storeys of the tower. The Auditorium — a then novel combination of hotel, offices, and concert hall but with ground-floor shops confined to the frontage to Wasbash Avenue although there was a bar on Congress Pathway (now replaced by a covered sidewalk due to road widening) — was designed in the then prevailing style, loosely called Richardson Romanesque, of which the Marshall Field store on State Street and the Glassner House in the south side are the chief examples in Chicago by the man after whom the style is named, the Boston architect Henry Hobson Richardson (1838-1886). In the late 1880s and even after 1891, Adler & Sullivan continued to design other buildings in the style. In Chicago are the clubhouse for the Standard Club (1887-89), the Kehilath Ma'ariv synagogue of 1889-90, the Walker Warehouse (1888-89), the tomb for Carrie Elizabeth Getty (1890), of which only the last-named survives intact: the Walker Warehouse has been demolished and, as noted above, the synagogue was burnt out due to the fire at the adjacent gas (petrol) station. Away from Chicago were the demolished Opera House in Pueblo CO of 1889-90, the project for the Ontario Hotel of 1890 and the demolished Dooly Block of 1890-91, both in Salt Lake City UT. Two now demolished hotels — the St Nicholas Hotel in St Louis, of 1892-93, and the Victoria Hotel in Chicago Heights, built in 1892 in anticipation of the Chicago Columbian Exposition — also show elements of the Richardson Romanesque, at least on their ground floors but are also heavily ornamented. When completing the design of the Walker Warehouse, Sullivan is reputed to have said to his disciple, Frank Lloyd Wright (1867-1959), that the building was 'the last word in the Romanesque'.

When Adler & Sullivan began work on the Wainwright Building, an office block for the brewer Ellis Wainwright (*d.*1924), in St Louis, the first drawings show yet another building using the vocabulary of the Richardson Romanesque, in stone and with round arches at the top of stacks of windows separated by columns of stone, a fairly standard treatment in the Richardson Romanesque, but this was changed to sheer sides of firm

columns of red bricks, source unknown, with alternate ones only being functional in covering the steel frame. Panels of terracotta separate seven floors of offices lighted by sash windows of two single-panes. There were stores on the ground floor separated by columns of brick, hiding the steel frame, and on the first floor, a series of offices where the recessed windows are separated by brickwork. And at the top, at least on the south and west sides and the return of the south side, the Wainwright has a continuous band of red terracotta, distinct in its decorative scheme from the panels in the walls. The top floor housed services like water tanks, elevator equipment, and document storerooms.

In the decade or so after the Wainwright, Sullivan actually designed very few skyscrapers: the seventeen-storey Schiller Building, 64 West Randolph Street, Chicago, in 1890 and built between then and 1892; the project for the Oddfellows' Building in Chicago, also in 1890, which never found enough finance but was the genesis of the idea behind the Sears (now Willis) Tower, Chicago, six decades later; the Union Trust Building, on the corner of Olive and Seventh in St Louis, in 1892-93; the Chicago Stock Exchange in 1893; the Guaranty Building in Buffalo NY, in 1894, also known as the Prudential Building (cover and fig.6), the last product of the Adler & Sullivan partnership but completed in 1895, after the partnership had broken up; the Bayard-Condict on Bleeker Street in New York City, of 1897-99; the façade for the Gage Building on South Michigan Avenue, Chicago, in 1898, extended upwards a decade later; and the various phases of the Schlesinger & Meyer Store on the corner of State and Madison between 1895 and 1902, although design work was mainly completed by the end of 1900. There were also the unbuilt: the tall buildings in St Louis mentioned on page 3 and the speculative and innovative design for a skyscraper on South Michigan Avenue, Chicago, where the southern office wing was stepped down so as to permit more light to enter the light court between it and the north wing. Despite a favourable professional reaction, it failed to attract sufficient investors to pay for its construction.

In combining height *with* decorative elements, usually in terracotta, Louis H. Sullivan found his metier. The use of terracotta decoration is found also in the larger bank buildings, but not in the smaller ones, those in Algona IA, Cedar Rapids IA, West Lafayette IN, where a purely decorative use of brick is the norm. The same vocabulary of decorative brickwork was employed on the mixed-use store and flats building in Chicago for Eli Felsensthal (now demolished).

Ornament was *not* a crime, to misquote the title of a paper in 1906 by a one-time visitor to the Chicago Columbian Exhibition, Adolf Loos of Vienna (1870-1933), who spent between 1893 and 1896 in the United States, mainly in Philadelphia. After, he went home, he designed a typical Chicago skyscraper in the *Looshaus* of 1897 on a corner site in Vienna. An extremely plain building externally, it has much decoration in the interior.

Seeing ornament not to be a crime could be the key to understanding one element in the unanswered question. From the few surviving buildings from the 180-plus works with Dankmar Adler — by the early 1990s a total of no more than eighteen buildings and three tombs — at least eight buildings and two of the three tombs have distinctive ornament on the external surfaces. The tomb for Martin Ryerson in Graceland Cemetery, Chicago, in black granite, is an exercise in pure geometry.

It is not that Sullivan suddenly discovered ornament in 1890. The surviving houses of the 1880s, scattered as they are through the residential areas of Chicago south of the Chicago River, have pieces of decoration in brick, in metal, and in terracotta. Ornament is equally pronounced in the photographs of the many demolished residences for Adler's fellow congregands, for whom the firm designed houses in the streets near the Kehilath Ma'ariv Synagogue. Even the surviving Derssenberg Block, a three-storey store and loft building at 251 East Michigan Avenue, Kalamazoo MI, has a plaque of unglazed terracotta which makes it standout from its neighbours on either side; this building and the building adjacent on the east side are is now a branch of Hutchinson's Bank.

Ornament was central to Sullivan's philosophy of architectural experiment. But this only goes part of the way to resolving the unanswered question. Louis Henry Sullivan was of his time and perhaps this is where one should search for the solutions to the unanswered question.[18]

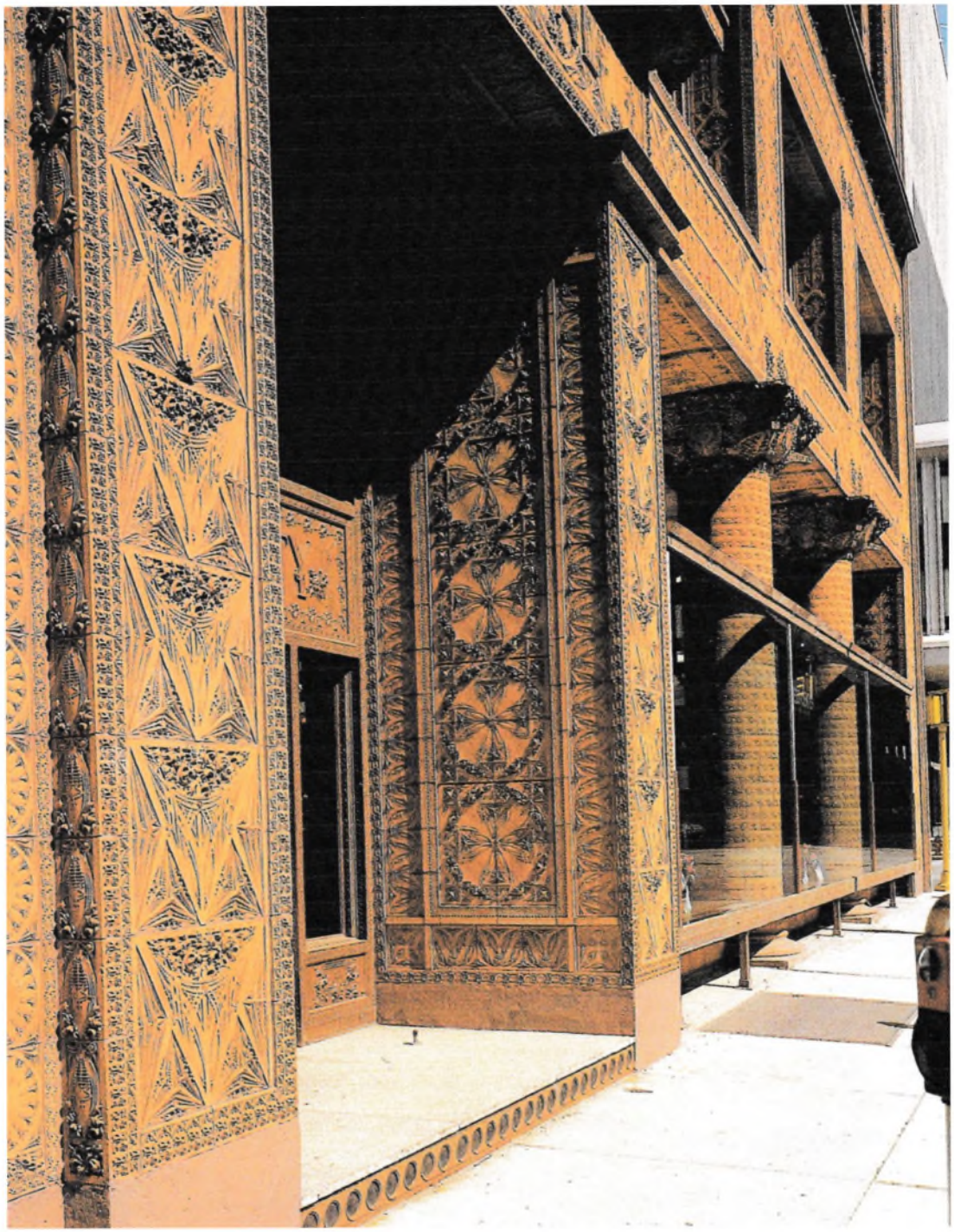

Fig.6 The Guaranty Building, north-east corner of Church and Pearl Streets, Buffalo NY. (1893-95:Adler & Sullivan; 1895: Louis H. Sullivan). An example of the use of all-over terracotta ornament. The shop fronts derive from those Louis Sullivan saw at Oriel Chambers, Water Street, Liverpool, England, (1863: Peter Cook) when journeying from the USA to Paris.

NOTES AND REFERENCES

1. This paper began life as a lengthy Editorial but the content is clearly more suited to be presented as an essay but with minimal referencing due to space considerations. The books cited in notes 2, 3, and 16 *infra* are well illustrated in regard of the buildings of Louis Sullivan.

2. Sullivan's life can be followed from his own account in *The Autobiography of an Idea,* Washington: American Institute of Architects, 1924, and reprinted New York: Dover Publications, 1956, and from the accounts in Hugh Morrison, *Louis Sullivan: Prophet of Modern Architecture,* New York: W.W. North & Company, 1935, reprinted 1962 and 1998 (best consulted from the 1998 edition with an introduction by Tom Samuelson); Robert Twombly, *Louis Sullivan: His Life and Work,* Chicago: Chicago University Press, 1986; and Mario Manieri Elia, *Louis Henri Sullivan,* New York: Princeton Architectural Press, 2005. Good short accounts are Paul Sprague, 'Sullivan, Louis H.' in *Encyclopaedia of Architects,* 1982, volume **4,** pages 152-163, and David van Zanten, 'Sullivan, Louis (Henry)' in *The Dictionary of Art,* 1996, volume **29,** pages 712-717; both are available in major references libraries.

3. Good introductions to Sullivan's buildings are to be found in Hans Frei, *Louis Henry Sullivan,* Zurich, München, London: Artemis Verlag AG, 1992, and Patrick Cannon, *Louis Sullivan: Creating a New American Architecture,* Petaluma CA and Warwick: Pomegranate, 2011. Richard Nickel and his successors of the Richard Nickel Committee produced a full *catalogue raisonné* in Richard Nickel and Aaron Siskind with John Vinci and Ward Miller, *The Complete Architecture of Adler & Sullivan,* Chicago: The Richard Nickel Committee, 2010. All of these have good illustrations, mostly in black-and-white but include some in colour in Cannon, 2011, and Nickel *et al.,* 2010, together with the valuable essays in W. de Wit, ed., *Louis Sullivan: The Function of Ornament,* New York and London: W.W. Norton, 1986.

4. Sullivan, 1924/1956, p. 325.

5. The 1873 crisis is considered Harold James, *Seven Crashes: The Economic Crises that Shaped Globalization,* New Haven and London: Yale University Press, 2023, pages 52-82.

6. Sullivan, 1924/1956, pp.195-196.

7. Sullivan, 1924/1956, p.197

8. General considerations of the origins of the frequent banking and financial crises in nineteenth- and early-twentieth-century USA are to be found in Charles P. Kindleberger and Robert Z. Aliber, *Manias, Panic, and Crashes: A History of Financial Crises,* 6th edition, Basingstoke: Palgrave Macmillan, 2011 (1st ed., 1978), which lists 1857, 1873, 1893, and 1907 as major crises within Sullivan's working life, *ibid.,* pages 306-308; while Carmen M. Reinhart and Kenneth S. Rogoff, *This Time is Different: Eight Centuries of Financial Folly,* Princeton NJ and Oxford: Princeton University Press, 2009, who point to August 1857, December 1861, April 1864, September 1873, May 1884,, 1890, March 1907, July 1914 as the initial dates for major and minor financial panics, *ibid.,* pages 389-390.

9. Sullivan, 1924/1956, p. 325.

10. Contemporary accounts of the economic downturns of the period from 1857 to 1915 pertinent to this paper are those of Charles A. Conant, *A History of Modern Banks of Issue,* 5th edition, New York: G.P. Putman's Sons, 1915; A.D. Noyes, 'The Banks and the Panic of 1893', *Political Science Quarterly,* March 1894, and *Forty Years of American Finance,* New York: G.P. Putnam, 1909; and O.M.W. Sprague, *History of Crises Under the National Banking System,* Washington DC: National Monetary Commission, 1910. An early explanation of these recurrent crises is Clement Juglar, *Des Crises commerciales et leur reteur périodique en France, en Angleterre, et aux Etats Unis,* Paris: Guillaunin, 1862, reprinted London: Elibron Classics, 2005, and *Des Crises commerciales et leur retour périodique en France, en Angleterre, et aux Etats Unis,* revised edition, Paris: Guillaunin, 1889.

11. New York: Museum of the City of New York, gift of the Hon. Irwin Untermyer, reproduced D.F.Hamlin, *American Architecture,* London: Thames & Hudson, 1985, pl57 where it illustrates the new, taller buildings of New York in the 1850s rather than the actual panic.

12. The writer has in preparation 'The Panic of 1893, St Louis, and Louis Sullivan', an article for *Missouri History.*

13. Industrial production figures and percentage declines have been taken from Joseph H. Davis, 'An Annual Index of U.S. Industrial Production, 1790-1915', *Quarterly Journal of Economics,* **119,** no.4, 2004, pages 1177-1215.

14. A forthcoming article, in preparation for a future issue of *British Brick Society Information,* will review the brickwork of the banks and make comparison with the much earlier tombs which are stone.

15. Cannon, 2011, prints photographs of Sullivan from *c.*1890 on p.7; at the Biloxi cottage, *c.*1900; and in a suit,c.1920 on p.5. The drawing of the building in the last-named is unidentified.

16. Twombly, 1986, pp.00-00, which is the basis of the list in Frei, 1992, but is extended by a catalogue raisonné in Nickel *et al.,* 2010.

17. For a view of the significance of ornament to Louis Henry Sullivan see David van Zanten, *Sullivan's City: The Meaning of Ornament for Louis Sullivan,* New York and London: W.W. Norton & Company, 2000. See also the essays in de Wit, ed., 1986.

18. Paper completed 25 January 2024. Reading begun late 1980s; fieldwork conducted 2005-2011.

Fig.7 (opposite) The Wainwright Building, north-east corner of 7th and Chestnut Streets, St Louis Missouri (1890: Adler & Sullivan with Charles E. Ramsay) in its new guise as the nucleus of the State of Missouri Building in the city of St Louis. The glass atrium was added by Hastings & Chivetta in association with Mitchel/Giurgola who between the two firms also added two lower buildings to the east of the original structure.

Brick for a Day: the British Brick Society's visit to the Dreadnought Brick & Tile Works of Hinton, Perry and Davenhill, on 18 July 2023

Michael Chapman

Twelve members and their guests were welcomed to the factory by, Mr Alastair Holding.

The visit commenced by the group being shown a video explaining the long history of the company and of its products and the production process carried out on the site. After a very pleasant buffet lunch, the group toured the actual production facilities where we could fully appreciate the attention to detail and superb quality of the products being manufactured. The photo below is at the factory entrance and has been designed to display the range of colours, standard bricks and special shapes that form just part of the overall product portfolio.

HISTORY OF THE COMPANY

The Company name, Dreadnought Tile Works was founded and named after one of the British battleships that took part in the Battle of Trafalgar on 21 October 1805. The postal address of Dreadnought Road was not adopted until the 1960s.

The present company was formed from two separate brick and roof tile manufacturers, Ketley Brick Company and Hinton, Perry and Davenhill, the roof tile manufacturers. This part of the 'Black Country' has long been associated with the Heavy Clay Industry, as the primary raw materials of coal and a variety of clays were present in huge reserves which were relatively easy to mine or quarry. Whilst Fireclays supported a world-renowned Refractories Industry, it was the Etruria Marl clays that gave rise to the development and manufacture of the Staffordshire Blue and Red fired products, which are still sought after today.

The original Ketley Brick Company was established around 1880 in the Kingswinford area, and recorded as having two works, one at Kingswinford and the other at Nagersfield. A notice in *The London Gazette*, dated 28th August 1892 announced that the Nagersfield Brickworks business had been dissolved, with henceforth that said business being carried on by the Ketley Brick Company Ltd. The owners of this business were the Skelding Brothers, a family name that was later associated with Dreadnought Tiles.

By 1892 the company was called the Ketley Blue Brick Company, with the photo below showing the company's trademark of the letter "K" contained within a 'Staffordshire Knot'. Ketley Brick also advertised, their Blue Bricks in *The Building News*, October 1883 with the illustration on the right in figure 3.

Oct. 26, 1883. THE BUILDING NEWS. xx.

STAFFORDSHIRE BLUE BRICKS.

THE KETLEY BRICK COMPANY,

KINGSWINFORD, NEAR DUDLEY, STAFFORDSHIRE.

Managing and Resident Partner, Mr. REUBEN CULL.

MANUFACTURERS OF

BLUE BRICKS, STABLE PAVING, WALL COPINGS, RIDGE TILES, PAVING QUARRIES, GARDEN EDGINGS, &c.

New Machinery, and Kilns of the most modern description, recently completed, enable these Works to produce Staffordshire Blue Bricks of very superior quality. Situate adjacent to London and North-Western and Great Western Railway Stations. Prices Quoted on application.

Fig.2 (left) Brick with the company trademerk of a "K" within the Staffordshire Knot.
Fig.3 (right) Advertisement for Staffordshire Blue Bricks, *The Building News*, 26 October 1886.

The Hinton, Perry and Davenhill business, founded in 1805, and incorporated as HPD in 1902, had originally made both bricks and roof tiles, but progressed into specialising in roof tiles and accompanying special shapes.

The Dreadnought site was served originally by the Great Western Railway's Kingswinford Branch line, allowing its products to reach national markets. This line, originally built by the Oxford, Worcester, and Wolverhampton Railway, was completed in 1853 and linked the main GWR line at Stourbridge Junction to Dudley and onto Wolverhampton, with the final section serving the Pensnett Trading Estate closing in 1998.

The comparison map below, shows, on the left-hand side the 1914 OS map, with the Dreadnought site marked with the red cross, and interestingly still noted as a brickworks. The modern aerial map on the right shows the works and its proximity to the Pensnett Trading Estate.

The high-quality fireclays and Etruria Marl, all readily available, supported several companies all specialising in high grade refractory Products, with the latter clay enabling the Dreadnought/Ketley business to manufacture high quality Staffordshire red and blue engineering products. The split map below, shows several mines and works, with the left-hand image being the OS map from 1900, with Dreadnought marked by the red X, and then on the right-hand side a modern image showing how much the industrial landscape has changed. Dreadnought works, marked again with the red X is now the only clay products manufacturing plant left.

Fig. 4 (left) The 1914 Ordnance Survey map, showing the proximity of the site and marked with the red cross, to the Kingswinford branch of the Great Western Railway.
(right) Modern aerial map, showing the present factory, marked again with a red cross, with the Pensnett Trading Estate to the left.

In 1930 HPD purchased clay reserves at Ketley Quarry, and then in 1964 purchased the business and name of the Ketley Blue Brick Company, and from then both Ketley bricks and Dreadnought Rooftiles have been manufactured from the Dreadnought site, all being known as Hinton, Perry and Davenhill, manufacturers of Ketley Bricks and Dreadnought Tiles. The Dreadnought works has been in continuous operation since 1805, with production kept going through both World Wars. More recently, with the Ketley Quarry clay reserves becoming exhausted, the company opened their Holly Bank Quarry, Essington Quarry, Cannock.

THE PRODUCTION PROCESS

This modern plant produces an extensive range of bricks, roofing tiles and fittings and slip tiles, from Etruria Marl, sourced from Holly Bank Quarry, with all products conforming to BS EN 771-1:2011, with Class 'A' specification for crushing strength, water adsorption and durability. To achieve this quality standard in its blue colour range, the firing cycle incorporates a full reduction phase to ensure the blue colour penetrates the product, not just as a surface coating.

Fig.5

The effects of oxidation and reduction phases in the firing cycle. The upper brick has been subjected to full reduction with the blue colour evident into the middle of the brick, i.e., through colour. The lower brick subjected to surface reduction and still retains its red core. This latter product would be classed as a brindle colour range.

Fig.6 (left) Covered Clay Store
Fig.7 (right) Box Feeder, to ensure consistency of feed rate.

The visit commenced in the clay store where road wagons deliver 8 to 10 loads per day of Etruria Marl from the quarry, with it being transferred by loading shovel to a box feeder and into the clay preparation section. The clay is then crushed and ground to a particle size of 1.5 to 2.0mm for brick production and under 1.5mm for tile production. prepared clay being conveyed to the extrusion process. The suspended grey coloured box is a magnet which ensures that any "Tramp Iron" is removed. The yellow layer is sand, which is included in the clay mix, as a grog to reduce the clay density, making it easier to dry and fire. The sand addition is the only non-clay material used throughout the process.

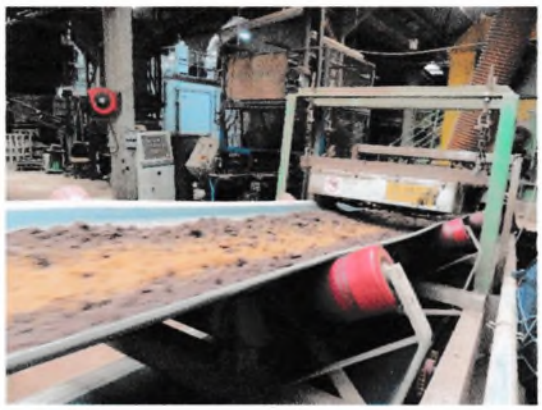

Fig.8 Sand addition to clay.

The tour progressed to the 'green brick' manufacturing line, where extruded slip tile production was in progress. Slip tile production is becoming popular as the Brick Industry responds to a growing market that requires clay faced cladding as an alternative to traditional brick work. Historically, within the overall Brick Industry, slip tile production has centred on cutting a fired brick into a tile from the face. A process that is both laborious and wasteful, as the remaining part of the brick is discarded. Direct extrusion eliminates this, but extruding a thin section, usually 25mm thickness, can produce bowing as the stress factors created in the process start to relieve themselves. This fault then renders the tile unfit for precision fixing into a cladding module. This defect is overcome by stacking the tiles on top of each other so that the combined weight minimises any bowing tendency.

Fig.9 (left) Extrusion machine producing a continuous ribbon of tile.
Fig.10 (right) Cut length of the ribbon presented to multiple cutting wires, set to produce a 65mm face in the fired tile.

Fig.11 (left) Robotics used to commence the stacking of the cut tile.
Fig 12 (right) Stacked "bung" of tiles, awaiting removal to the dryer.

The drying process for all products is critical to ensure that moisture is removed, and shape retained. The dryers consist of a group of chambers, all of which are supplied by finger car, with the drying process computer controlled. The cycle of tile drying is five days, with the cycle for bricks being three. Following the explanation of slip tile manufacture, the tour progressed to the roof tile plant, where a wide range of clay roof tiles, fittings and floor tiles are manufactured.

As with slip tile production, the roof tiles are extruded to make plain tiles or fittings such as ridge and hip tiles. These products are either extruded, using shaped dies, or for the more intricate shapes then made by a team of hand makers, who ensure that the skills and heritage necessary to make these products is kept very much alive and well.

Fig.13 (left) Roof tile extruder being set up to produce ridge tiles.
Fig.14 (right) Steel profiles used to make a variety of tile fittings.

Fig.15 (left) Hand-making fittings.
Fig.16 (right) Hand-operated presses used to produce small batches of 'special shape' tiles, with the press in the photo used to produce 'Fish-Tail' tiles.

Fig.17 Hand-operated hydraulic press used for experimental shapes. The company is presently investing in an automated press line to manufacture new ranges of products.

Fig.18 (left) Wirecut extrusion line.
Fig.19 (right) Automated finger car loading/unloading bricks from a bank of chamber dryers. All drying and firing uses natural gas as the fuel.

The tour progressed to the main line brick production plant, where an extrusion line was making a perforated wirecut brick, one of the mainstays of the overall range of products made. Once rooftile and standard bricks have been dried they are set using robotics onto kiln cars, with the bricks being fired in shuttle kilns and the tiles in a tunnel kiln. Several small intermittent kilns are used to fire special shapes.

Fig.20 (left) Tiles set in "U" refractory cassettes, awaiting firing in the adjacent tunnel kiln.
Fig.21 (right) Staffordshire Blue Engineering bricks awaiting the dehacking process, where they are sorted and packed ready for despatch.

Fig.22 (left) Aerial view of the factory in 1966.
Fig.23 (right) The lady brickmakers who kept the factory running throughout both World Wars.

Hinton, Perry and Davenhill/Ketley Brick have a long and proud heritage having ben been in continuous production since 1805.

The day concluded with a look at some historical photos of the site and a look at the extensive samples department.

Whilst the market demands have changed dramatically over that period, the company has succeeded through its continued focus having a range of clay products that incorporate a traditional Staffordshire Blue product range for which quality, natural fired colours are key to success. They are investing both in innovation e.g., 3D printing, automation and heritage craft skills by investment and training to ensure long term success in their sector of the market.

Fig.24 Award winning development, Victoria Gate, Leeds City Centre. A combination of Ketley brick slips and specials used to create an impressive façade.

ACKNOWLEDGEMENTS

The British Brick Society is very grateful to HPD, in particular Ashliegh Coates and Alastair Holding for their help to ensure that we had a very interesting tour.

Figure 4 is a map from the National Library Service of Scotland.

Historical Information and Staffordshire Knot photo courtesy of BBS member Martyn Fretwell.

Figures 22, 23, 24 are courtesy of BBS Members Paul Rothery and Cynthia Church.

All other photographs courtesy Mike Chapman Collection.

BRICK IN THE NEWS:
THE EINSTEIN TOWER, POTSDAM, GERMANY

Albert Einstein (1879-1955) had published his Theory of Special Relativity in a paper in 1905, following this up with a further paper on General Relativity in 1915. To test his theories, in 1920, the architect Erich Mendelsohn was asked to design a tower on Telegraph Hill, Potsdam, 16 miles south of Berlin. An innovative architect, Mendelsohn had hoped to construct the *Einsteinturm* (Einstein Tower) in concrete as the building has no right-angles in its plan, deliberately to allow it to function as an observatory. But the astrophysical observatory had to be built in brick and covered in stucco. In the early 1920s, there was a lack of materials in Germany. Completed in 1922, after a century of active astronomical and astrophysical observations, cracks began appear in the stucco and dampness began to creep into the brickwork: the pristine white appearance had turned yellow.

It had suffered heavy damage from allied bombing in the Second World War.

Following the diminution of the Covid-19 pandemic, structural engineers, architects, and specialist builders set to work repairing the damage suffered to the structure of the Leibniz Institute for Astrophysics. The building was encased in scaffolding for a year whilst the work was done and the pristine white exterior restored, without the cracks, at a cost of €1.2 million (£1,033,000) and make it safe for another hundred years studying the red shift in spectral lines of the sun's gravitational field, its current activity.

The repairs were reported in *The Guardian,* 27 September 2023. A brief considerations of the Einstein Tower can be found A. Cobbers, *Erich Mendelsohn, 1887-1953: The Analytical Visionary,* Köln, London, etc: Taschen, 2007, pages 18-21; and a much fuller account in K. James, '"Organic!" Einstein, Finlay-Freundich, Mendelsohn, and the Einstein Tower in Potsdam', in R. Stephen, ed., *Erich Mendelsohn Architect 1887-1953,* New York: The Monacelli Press, 1999, pages 26-37.

D.H. KENNETT

Brick for a Day:
W.T. Knowles & Sons Ltd, Ash Grove Sanitary Pipe Works, Elland, West Yorkshire, on 18 October 2023

Michael Chapman

Ten members and guests were welcomed by Mr Martin Knowles, who now owns and operates this unique family business that specialises in clay drainage ware, traditional chimney pots, flue liners and a wide variety of fixtures and fittings.

Many of the products are hand made with the factory being the only one in the country that still produces traditional salt-glazed ware.

The present works has its origins as a refractory brick manufacturer, whose primary raw materials, fireclay and coal, were sourced from a drift mine driven into the adjacent hillside, extended some one and a half miles into the hillside prior to closure in 1976.

In 1889 Mr John Ainley, a successful dyer from Elland, purchased Ash Grove house and adjacent land, containing proven reserves of coal and fireclay allowing him to commence operations as the Ash Grove Brick and Fireclay Company, manufacturers of refractory bricks and suppliers of coal and fireclay.

The original works, sited next to the Rawson Arms public house comprised a production plant, four rectangular downdraught kilns, and a twenty-four chamber Belgian continuous kiln.

A boiler house was constructed to provide steam for motive power to the machinery and to provide heat for drying the clay ware produced. The boiler house was built with a 178 ft. high square brick chimney, which is still standing and in use for the operation of the present battery of round downdraught kilns.

In 1906, Walter Thomas Knowles, from Darwen, Lancashire, and with experience of clayware manufacturing, purchased the works from Ash Grove Brick Tile & Fireclay Co. owned by the family of John Ainley, who had died in 1904.There was a fireclay mine on the hillside at the rear of the works, which in 1908 employed three miners. Walter Thomas Knowles was listed as firebrick and drainpipe manufacturer.

The development of the site and the people involved can be summed up as being:

1897-1904	**John Ainley**	brick maker
1904-1906	**Ash Grove Brick Tile & Fireclay Co.**	firebrick and sanitary ware manufacturers
1906-1928	**Walter Thomas Knowles**	firebrick and sanitary pipe manufacturers
1928-to date	**W. T. Knowles & Sons Ltd.**	sanitary pipe manufacturers.

In addition to the manufacturing site, the company also owns the land on the opposite side of the Elland Road which is used for a garage and additional storage for its products.

This area also has a history in that it was the site of the original Binns Bottom Colliery. The entire site is adjacent to the Calder and Hebble Navigation, which was used for transporting finished goods from the works.

Fig.1 (left) Group of kiln workers, wearing wooden clogs. Traditional footwear used for working on hot kiln floors.

Fig.2 (right) The original company name taken from a large plan of the works, dated 1900.

Fig.3 (above) The site today, from an aerial photograph showing the 178 ft. chimney, marked with a red star, with the six round 'beehive' kilns immediately below the large building.

Fig.4 (below, left) The company offices, also including, on the left-hand side, the original Rawson Arms, named after Edward Rawson, an original life tenant of the Ash Grove site.

Fig.5 (below, right) Brick from the Ash Grove works.

THE SITE TODAY

After the introduction to the company,the group was given a very comprensive tour of the present manufacturing facilities

The company employs 39 people working a 5 day week, but with production and kiln firing operating on a shift system to ensure sufficient ware is produced to keep the drying and firing stages operating continuosly. A separate 3-shift sytem is required for kiln operation as kiln burners must always be in attendance. The red firing shale comes from nearby Elland, whilst the buff firing fireclay comes from a site in Derbyshire.

At the quarries the excavated clays are built into stockpiles of about 5,000 tonnes,which are allowed to weather for a year in order to assist breaking down the harder lumps of clay to make grinding and preparation easier. Once sufficiently weathered the clays are delivered by road into the factory. The clays are crushed and ground to a fine powder,before being blended and mixed with water to suit the particular products being made. The majority of these products require a blend of both clay types, 80% shale, 20% fireclay.

Fig.6 Ordnance Survey map from 1905. Showing the Ash Grove Fireclay works with its four rectangular kilns.

At present the majority of the range is classed as red Terra Cotta,which requires a higher percentage of the red firing shale in the mix. The balance of production is classed as Buff,which has a predominance of the buff firing fireclay in the mix. Any scrap from the firing process is recycled back into the clay mix as grog, which helps to open up the very plastic clays and assists in both drying and firing.

The Production Process

With the clay mix crushed and ground to a fine powder it is mixed with just enough water for onward use,either for extrusion or handmaking.

The machine made pipes are produced using a vertically orientated extruder. Unlike extruded bricks where the machine is horizontally orientated ,pipe making requires the extruder to be in a vertical position so that the pipe lengths can be more easily handled away.

On the day of the visit cavity liners were being produced using one of the several vertical extruders on site. Figure 7 shows the operator in the background extruding a hollow lentgh of clay onto a hand operated cutting table,with that piece being moved by hand away.to be cut on a jig to ensure exact dimensions. Figure 8 shows the holow pieces being fettled to remove any clay caught in the cutter wire and then stacked for onward movement to the drying area. To extrude a pipe or hollow piece a core is built into the die of the machine, which allows the clay to flow around it and form whatever the die shape is,e.g. round or rectangular.

Fig.7 (left) Cavity liners in production being extruded on a hand-operated cutting table.
Fig.8 (right) Hollow pieces being fettled to removed excess clay.

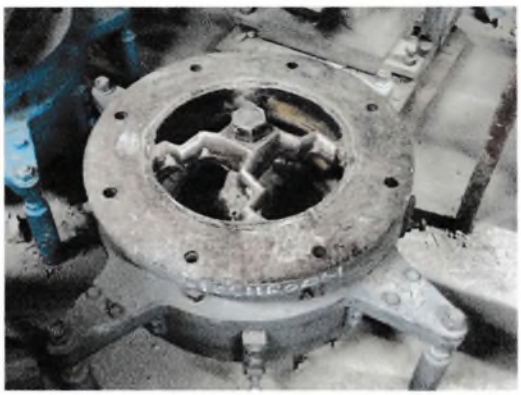

Fig. 9 (left) A die assembly with the retaining 'spider 'which holds the inner core in place.
Fig.10 (right) A number of dies and mouth pieces assembled and ready for use.

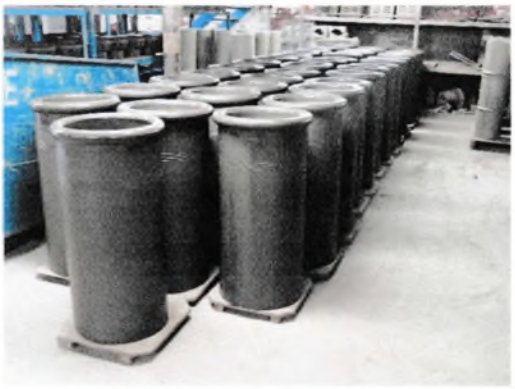

Fig.11 (left) Manual fettling station,with the orange coloured trolley being jacked to a level position so as to minimise operator lifting.
Fig.12 (right) Recently extruded chimney 'cans' ready for the drying process.

For producing difficult or intricate shapes,pugged and plastic clay is taken to a handmaker's bench either as part made extruded pieces,or as prepared plastic clay. Using either a template or moulds made of Plaster of Paris the clay shape is built up in layers.Each layer is worked so as to minimise lamination or air inclusion.

The next stage of the process is drying.This is a critcal stage as careful control of the rate of drying is essential to ensure that a uniform rate of moisture removal is achieved.This is a difficult process on larger and more intricate shapes some of which will be air dried prior to any heat being applied. This process can take from a few days to several weeks,with the warm air,using recovered heat from the kilns, being introduced into the drying rooms through vents in the floor.

Once drying is completed,the final stage of the process is firing. The kilns used for this are of the traditional round 'Beehive' intermittent type,once in common use for firing a wide variety of clayware in the UK. The Society last saw one of these in use during a visit to Bulmer Brick and Tile Co. in July 2022, where the kilns are still coal fired. At W.T. Knowles's works there are six kilns, all now converetd to natural gas firing.

Fig.13 (left) Machine prepared blanks
Fig.14 (right) Hand finishing, using a jig and boring tool to produce a flue vent, used to cap a redundant chimney flue.

Fig.15 (left) Clay being carefully layered into one half of a mould
Fig.16 (right) Completed piece.The two halves are joined,with the joints smoothed. The ceramic bond achieved during firing ensures that the two halves are fused together as one piece.

Fig.17 (left) A variety of pieces being dried, all placed on a slatted floor to facilitate the passage of warm air.
Fig.18 (right) Completely dried ware,with the floor constructed with perforated blocks again, to allow the passage of warm air.

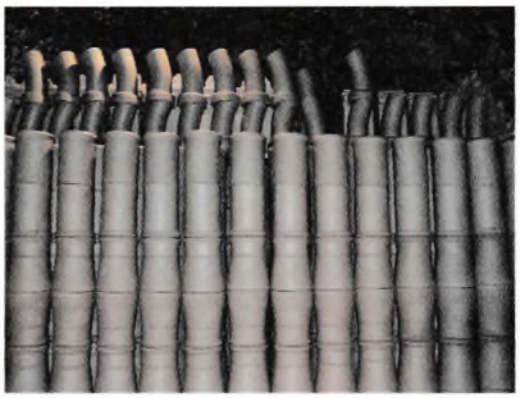

Fig.19 (left) Exterior of a Beehive kiln, showing the steel bands used to stabilise the structure during the expansion and contraction that occur during the firing cycle.

Fig.20 (right) Setting a variety of shapes. In the kiln. This is all done by hand and requires great care to ensure that the individual pieces are not damaged, and the clay mass remains stable.

Fig.21 (left) A view of the kiln interior showing pots set on top of land drain pipes.The latter are used in most firings to help with stability. Despite severe competition from plastic, clay land drains are still in demand. The picture also shows the perforated refractory blocks, or 'Holey Boys' that make up the floor allowing the products of combustion to be removed from the kiln.

Fig.22 (right) Despite using very a traditional type of kiln, control of the firing process is key to achieving the desired quality. Process control instrumentation is used with this device providing both temperature control and a continuous log of the firing conditions within the kiln.

Salt glazing, is achieved by the careful introduction rock salt in the final high temperature stage of the firing cycle.Salt glazing was historically a very popular way of covering the clay piece in a uniform layer of glaze that would then ensure resistance to severe chemical attack, critical when used as a sewer pipe or in many chemical producing processes. The chemical reaction created as heat is applied to the raw salt causes it to break down into hydrochloric acid and chlorine,both of which are very harmful in the atmosphere. The process was severly limited under the provisions of the Clean Air Act of 1956, and provisions of the older Alkali Act of 1906, albeit with dispensation given where,as in the case of W.T. Knowles, the annual tonnage produced is very small.

Fig.23 (left) The stock yard containing a wide variety of shapes and colours, including in the foreground gullies that have been salt glazed.
Fig. 24 (right) View of the dominant chimney, which in providing the natural draught for kiln operation, has remained critical to the works since 1906.

The British Brick Society is very grateful to Martyn Knowles for consenting to our visit giving the society an opportunity to visit a unique site within the Heavy Clay Insustry of the UK.

ACKNOWLEDGEMENTS

Fig.3 W.T. Knowles web site, marked up by the author.
Fig. 5 Photogragh of Ash Grove, Elland Brick. Original photo by Chris Shaw, posted on the Brocross.com web site
Fig.6 1905 Ordnance Survey map, National Library Service of Scotland.
Figs 17 and 20, photographs courtesy of BBS member Martyn Fretwell
All other photographs Mike Chapman Collection

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Historical information provided courtesy of BBS member Chris Bateman and extensive research by the Halifax Antiquarian Society.

An Aspect of Bricks in Archaeology

Pat Chapman

I was finds supervisor and ceramic building materials (cbm) reporter, among other responsibilities, for the commercial archaeological organisation Northamptonshire Archaeology (NA), part of Northamptonshire County Council, sold off to become the MOLA (Museum of London Archaeology) Northampton Office after 2014.

Commercial Archaeology operates through the planning process. Developers are required to commission and finance an assessment of the likely archaeological remains on a proposed development through desk-based research on existing knowledge, with this often accompanied by fieldwork, typically comprising geophysical survey and exploratory trial trenching. If significant remains are present then the planning consent will include details of further archaeological work to be financed by the developer, a mitigation strategy which may require the preservation of some areas and the full excavation of others. In areas of low potential there may be a watching brief, with an archaeologist watching machine works in case something unexpected turns up.

My involvement with bricks comprised writing reports on those recovered either as collections or as individual items from evaluations or excavations. Brick reports would be add to the more recent history and background of a site, particularly if it involved industrial or urban archaeology.

Although I had retired from archaeology at the end of 2016, I was asked in early 2023 if I could give some advice on reporting cbm to a finds officer at MOLA. After I had put together a selection of reports for her, it occurred to me that I could update an article I had written for *British Brick Society Information*, **108**, September 2008, which was dominated by roof tile as I had written few brick reports by that time.

However, as time went on more bricks that had been dumped, scattered or left in demolition rubble were recovered as more brownfield sites came up for development. So I reported on a range of assemblages and individual bricks, particularly those with stamps from around the country with stories of place, journeys and histories. Those are the bricks that generally got photographed for inclusion in reports, rather than plain bricks.

Many of NA's excavations took place across the Midlands, with excursions further afield, so here are a few examples of the range of bricks that came my way.

KING'S DYKE, CAMBRIDGESHIRE

An archaeological evaluation comprising trial trenching on a site near Peterborough recovered bricks from companies involved in the rise and expansion of Fletton bricks, named for the village which is now part of that city.

On the A605 at King's Dyke, which has its own place in the history of brickmaking, an assemblage from five different brickworks, as well as bricks from what may have been the workers' homes, came from an evaluation ahead of a proposed development of the level crossing.[1] Twenty-two complete company bricks had been laid directly on top of each other in alternating directions and mixed with sandy gravels and clinker in a trench, 0.92m deep, within an old brick storage yard.

The two earliest bricks were from local companies. One brick (225 x 105 x 70mm) came from the Star Pressed Brick Company of Dogsthorpe near Peterborough, trading from 1899-1914 until it was sold to the Dogsthorpe Star Company in 1915, itself taken over by London Brick in 1923/4.[2] The other brick (220 x 105 x 67mm) came from the Whittlesea Central Brick Company formed in 1898 and an independent company until the 1960s when it was bought by the National Coal Board, then sold in 1973 to the London Brick Company (fig. 1a).

Seven bricks (all 215 x 105 x 65mm) stamped LONDON BRICK were the product of the amalgamation of the London Brick Company and Forders. The years between 1890 and 1914 saw the beginning of the rise of the London Brick Company under J C Hill, who purchased land in Fletton and the surrounding area and began buying out or controlling the local companies.

In Bedfordshire, one of the main brick building areas in England, the Forder Company had become a major part of the industry until 1923 when London Brick and Forders combined to become L.B.C & Forders. At this time the first Fletton bricks were being designed for aesthetic appeal, with a

Fig.1 King's Dyke bricks:
(above) a, STAR and CENTRAL WHITTLESEA; b, LONDON BRICK;
c, L B C PHORPRES; d, KEMPSTON.
(opposite) e, Chimney/well stretchers.

roughened zig-zag pattern machined into the surface, and a wide range of textures and colours became available. The name 'Forders' was dropped in 1936 and the company was just known as London Brick,[3] so the seven bricks are post 1936. There are reference numbers in the frogs; they all have 34 at one end and five have numbers at the other end; 2, 11, 12 which is dimpled on three sides, 22 has the zig-zag design on the header and stretcher as mentioned above and is still in use today, and 24 (fig. 1b).

Four fletton bricks from Bedfordshire are stamped LBC PHORPRES, literally 'four pressed', that is, pressed twice in each direction, hence the stamp, the name registered in 1926 as a trademark.[4]

These bricks came from the Stewartby works, whose Wootton Pillinge LBC village, designed by company architect F W Walker and built for the brickworkers, was renamed Stewartby after the Stewart family who had developed the brickworks. The four bricks of this type (212 x 100 x 62 mm) are all damaged and blackened, three have a stamped number at one end of the frog, two with 13 at one end and one with 14 (fig. 1c).

The remaining ten company bricks (210 x 110 x 65 mm) came from another of the early Bedfordshire fletton brickworks at Kempston Hardwick, about which there was little information other than that it seemed to be connected to the Stewartby works (fig. 1d).

Also recovered from the trenches at King's Dyke are old house bricks that came from the wall foundations of buildings that had stood on both sides of the A605 from 1901 to 1976, as recorded on Ordnance Survey maps, possibly the homes of the brickworkers. The bricks are all pale red to white in colour (on average 220 x 100 x 65 mm to 224 x 104 x 65 mm), with significant heat damage, the surfaces finely cracked and discolouration on unprotected areas from red to black. Broken bricks revealed a black core. All these bricks have cement of varying thicknesses still adhering to various surfaces. Four slightly curved bricks are possibly chimney or well stretchers (295-235 x 108 x 68 mm), one with a stamp too damaged to decipher (fig. 1e).[5]

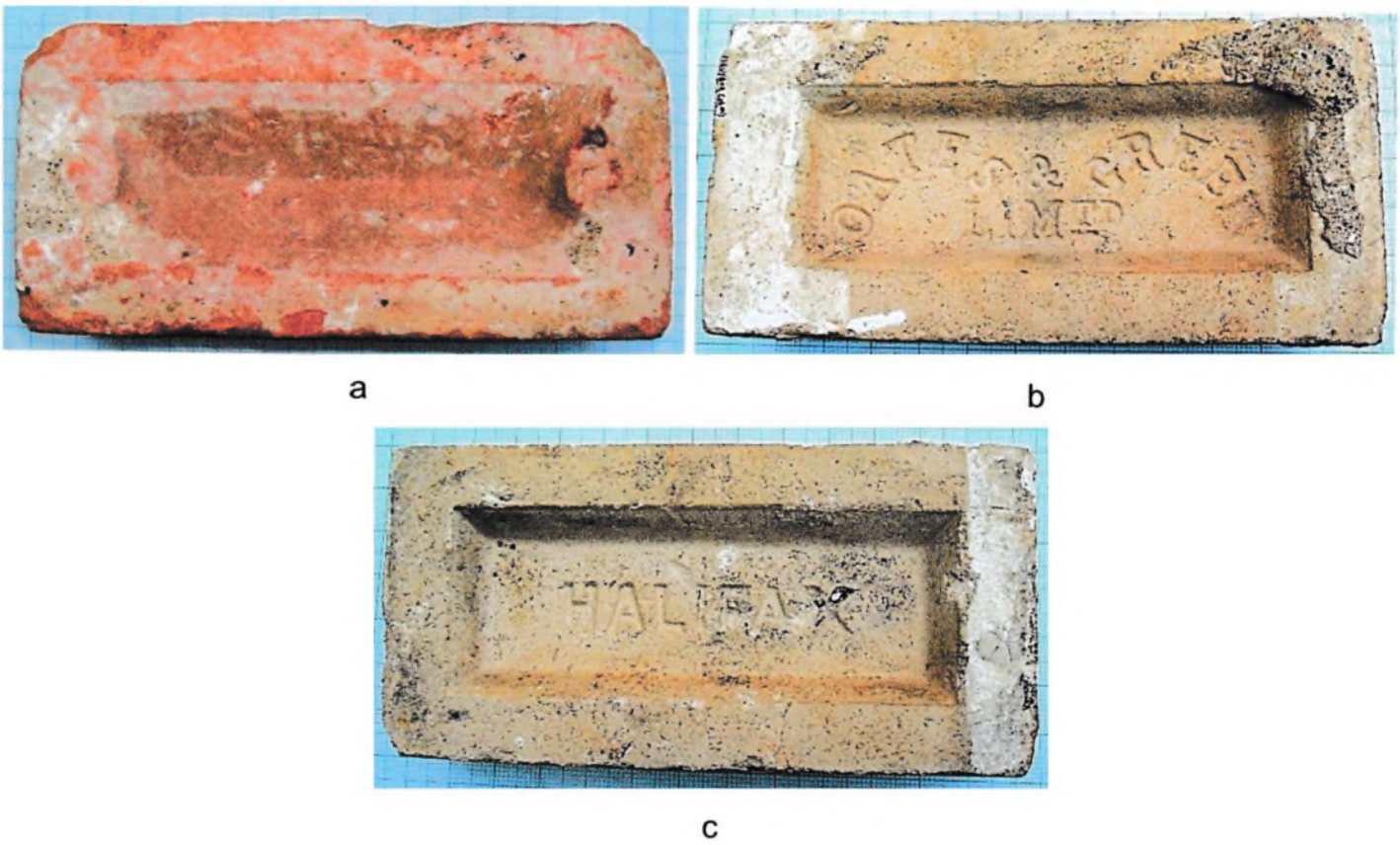

Fig. 2 Peterborough bricks: a-c
a, STAR; b, OATES & GREEN LTD; c, HALIFAX.

PETERBOROUGH CATHEDRAL SQUARE, CAMBRIDGESHIRE

The largest assemblage I reported on, comprising 220 bricks, came from improvement works undertaken in Cathedral Square, Peterborough. An evaluation in 2008 and 2009 was followed by a watching brief and small scale excavation during 2009-2010. The archaeologist covering this produced a superb report, drawing together information from the separate interventions to tell a coherent story of the historical development of the square.[6]

There are, however, just nine complete bricks plus 211 fragments of varying sizes from these interventions. Many of the bricks are handmade locally, pale red to mauve and slightly overfired, or with yellow streaks, while orange, orange-brown and red-brown are quite common, with a few dark purple examples. These are typically 54-60mm thick and up to 120mm wide, both thinner and wider than the more modern bricks. Many of these bricks came from deposits dated from the 12th to 17th centuries, more associated with the later dates according to the pottery, as the square was constantly remade, repaired, rebuilt and depressions filled in. There are a few yellow bricks, which began to be used from the late 18th century onwards either as Dutch imports or from local areas with Gault clay.

The complete bricks all came from the 19th-century remnants of the Corn Exchange which had been truncated and built over by the Norwich Union building in the 1960s. These included three yellow bricks, one plain (220 x 112 x 65mm) and one perforated (223 x 105 x 65mm) from the demolition and one with a horizontal skintling (220 x 105 x 55mm) from the Corn Exchange cellar.

A more modern brick, also from the demolition is stamped STAR, (220 x 105 x 70 mm), from either the local Dogsthorpe Star Brick Co or the Star Pressed Brick Co, Peterborough (fig. 2a), see King's Dyke above.

More specialised bricks came from further afield. Two white glazed bricks (225 x 110 x 72 mm) were recovered from the cellar/toilet wall of the Corn Exchange extension. One is stamped with HALIFAX in the top frog and in the reverse OATES & GREEN LTD (fig. 2b), a company specialising in urinals and the construction of toilet blocks, established by 1880 in Halifax, West Yorkshire, and bought by the Leeds Fireclay Company in 1908. The other brick is stamped HALIFAX (fig. 2c); Most of the bricks retain either lime or Portland cement mortar adhering to one or more surfaces.

BIRMINGHAM UNIVERSITY, WEST MIDLANDS

A watching brief was carried out during groundworks at Birmingham City University across an area that had been developed in the mid-19th century with houses and a pub on the west side, and the canal wharf and factories on the east side.[7] The houses were cleared after the war due to bomb damage, the industrial area lasted till the later 20th century. What survived across the site were the brick-lined cellars, floors and footings of the houses, and factory and wharf walls.

Five complete but different bricks came from the demolition debris, two white, two black and a Marston Fletton. This last was reddish, buff-yellow in places (213 x 100 x 67mm), with a deep rectangular frog stamped MARSTON (fig. 3). The first local fletton brickworks opened in 1897 in Marston Vale in Bedfordshire. The Marston Vale Brick Company formed in 1929, built workers houses, and remained a rival of the London Brick Company until the 1970s when LBC finally owned all the brickworks, until they were taken over by Hanson plc in 1984.[8, 9] The last brickworks closed in 2008 as it was unable to comply with UK emission regulations.[10]

One white clay brick (226 x 110 x 78 mm) had one white-glazed stretcher and a rectangular frog stamped STOURBRIDGE (fig. 3), from a local area noted for glass making and refractory bricks that can resist very high temperatures.

The other white brick was larger (240 x 116 x 75 mm), pale orange-pink on part of the surfaces, with a rectangular frog stamped PYRAMID (fig. 3), while the base had a very shallow flat rectangular frog. Two bricks stamped PYRAMID, recorded at Kidderminster, Worcestershire were added to the online brick index from a building recording report [11]. However, a search of the Archaeology Data Service,[12] the Online Archaeology Library of Worcestershire County Council [13], and an internet search failed to locate the origin of this stamp or the brickmakers.

The two black clay bricks had no stamps. One (245 x 125 x 46 mm) had a very shallow rectangular frog with two shallow rectangular recesses set slightly in (fig. 3), the other was plain (228 x 100 x 80 mm). There was cement on all surfaces.

Fig.3 Birmingham Bricks
top right, STOURBRIDGE; top left, PYRAMID;
lower left, black brick; lower right, MARSTON.

DORDON, WARWICKSHIRE

Eleven dumped bricks from a long gone colliery in Dordon were recovered during a trial trench evaluation.[14] Only four are complete, but nine have company stamps in the frogs which give a short history of this site (fig. 4).

The first stamp, M & S HALL END on three damaged bricks (220 x 105 x 70 mm), refers to Morris & Shaw Ltd. By 1896 the company owned the Hall End mine, as the main pit was known locally, together with the brickworks.[15, 16].

Morris & Shaw Ltd also owned the Birch Coppice Colliery which was registered, together with the coal brickworks, in 1940.[17] However, all was taken over by the National Coal Board on 1 January 1947, hence NCB BIRCH COPPICE stamped on the four complete bricks (218x100x68mm) and one damaged brick (fig. 4).[18]

Just one brick is stamped DORDON (? x 110 x 70 mm), recording the village which had benefited from both the coal mine and the brickworks (fig. 4).

Fig.4 Dordon Bricks
Left, NBC BIRCH COPPICE; top and middle right, M & S HALL END;
lower right, DORDON.

SHEFFIELD ASSAY OFFICE, SOUTH YORKSHIRE

There are a few sample bricks retained from the excavation on this industrial site.[19, 20] In the nineteenth century the site was occupied by the factory of a firm of cutlers, Francis Newton and Sons, and court housing — both of which were cleared in the second quarter of the 20th century prior to the building of the Sheffield Assay Office. An open area excavation took place ahead of residential development. The results, together with cartographic, documentary and census information, built a picture of the works together with the houses and their residents.

The six sample bricks comprise three taken from house walls, one from a fireplace, and two from the industrial rubble.

The three bricks from the house walls are similar in both dimensions and appearance and typical of the buildings as a whole (235-245 x 110-115 x 70 mm). The fabrics were originally red-brown, but one is damaged, cracked and blackened, another is overfired and friable, held together by cement. The brick from the fireplace is slightly longer than the rest and is slightly bloated from overfiring. These are most likely locally made bricks at the cheapest end of the market, which were produced according to

demand in the industrial cities of the north. There are no frogs. They had been laid with white lime mortar, containing small gravel and chalk, with some grey mortar, containing tiny gravel inclusions.

The two bricks from the industrial rubble are far better made. One brick is white glazed on both stretchers and frogged top and bottom with HALIFAX in one and BROOKE in the other (fig. 5a & b). The other brick is frogged and stamped on both sides with LEEDS FIRECLAY C^{O} L^{D}, with a brown surface on one stretcher and white glaze on the other (fig. 5c). The Leeds Fireclay Company was formed in 1889, by an amalgamation of several companies making a range of good quality ceramic products. One of those was Joseph Brooke & Sons of Halifax. [21]

Fig.5 Sheffield industrial bricks:
a and b, BROOKE/HALIFAX; c, LEEDS FIRECLAY C^{O} L^{D}

KENILWORTH CASTLE, WARWICKSHIRE

Of the 51 bricks recovered from the archaeological investigations at Kenilworth Castle there are eleven of note.[22] Eight are dated to the later 16th century, thin bricks, typically 228 x 110 x 45 mm, made with very hard fired orange-brown sandy clay, with occasional large pebbles up to 25mm long and some very small gravel, blackened on one header and towards the end of the top surface, the header being very slightly vitrified. Some have traces of lime mortar.

Two broken factory-made red-brown bricks came from a local brickworks. One has ... KHART and ...ORTH stamp, KENIL... stamped on the other fragment. In 1872, Walter Lockhart took on a lease for a brickworks at Whitemoor and produced the first Kenilworth bricks known to have carried the town's name (fig. 6b). In the 1880s the works were taken over by the Leamington and Lillington Brick Company.[23] These two bricks were originally stamped LOCKHART and KENILWORTH.

The other brick was a speciality designed for garden purposes. Foxley's Patent Brick, a moulded brick from about 1864, is made with very hard fine silty pink clay (fig. 6a). Along the centre of one stretcher a hemispherical ridge has perforations 4mm in diameter every 38mm. This brick would have been used as a plant support in garden walls, threading wire or twine through the perforations to

hold vines, espaliers etc.[24] These types of bricks have turned up during building recording in walled gardens and can be seen in gardens open to the public.

a b

Fig 6 a & b: Kenilworth bricks:
a, Foxley's patent brick; b, LOCKHART KENILWORTH

FIVE INDIVIDUAL BRICKS

From a house plot excavation in Derngate, Northampton a brick (225 x 112 x 72mm), made in a uniform fine orange-brown clay, was stamped CAFFERATA in a rectangular frog (fig.7a). William Cafferata bought the Newark Plaster Company at Beacon Hill, Newark, Nottinghamshire in 1862, which included a brickworks.[25] Unless fired very hard the bricks retained their granular structure and could not stand up to the weather.[26] The brick-making aspect of the firm was not very successful, and was on the point of closure, until the opening of the works at Jericho Farm in the 1930s, where the Cafferata bricks were made until the brickworks finally closed in 1962.[27] The dimensions and quality of the brick would suggest that it is probably from the Jericho works.

The yellow brick stamped GLENBOIG was recovered from an evaluation at Sketchley Brook, Hinckley, Leicestershire. The Glenboig Union Fire Clay Co, Ltd near Coatbridge in Lanarkshire, Scotland was originally formed in 1836, but eventually merged with several others in 1882.[28] This particular brick is similar to those produced in the 1870s when the new Star-works was built by James Dunnachie in 1872.[29, 30] These firebricks were regarded as being superior to the Stourbridge bricks at the time (fig. 7b).

The Castle brick (fig. 7c), found in excavation at St Thomas School, Chester, Cheshire, came from the Castle Firebrick and Coal Company formed in 1875 from the original Castle Brickworks established in 1866 in the town of Buckley in Flintshire, the works finally closing down in 1970 (pers comm J. Burke site supervisor).

The WHITWICK COL^{Y} LIMITED BRICKWORK COALVILLE brick, from Leicestershire (fig. 7d) was found during a watching brief in Shutlanger, Northamptonshire. The brickworks was established in 1914 and taken over by the NCB in 1947 and the colliery closed in 1986.

And finally, a brick for the accession of George V, 1910, recovered from an evaluation at Daventry Priory, Northamptonshire (fig. 7e).

Most of the reports referenced above can be found on the archaeological data service (ads) website:
https://archaeologydataservice.ac.uk/library/research/,
by inputting the site name, or at the relevant county Historic Environment service (HER). The photographs are all by the author, who apologises for the variable quality and colour.

Fig. 7 Five individual bricks a-e
a, CAFERATTA; b, GLENBOIG; c, Castle; d, WHITWICK Colliery;
e, KING GEORGE V 1910

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BRICK SYNAGOGUE IN THE NEWS: THE FOURTEENTH-CENTURY SYNAGOGUE AT UTRERA, ANDALUCIA, SPAIN

Buildings only survive if uses can be found for them. The fourteenth-century synagogue at Utrera, Andalucia, Spain, was closed with the expulsion of the Jews from Spain in 1492, part of the cultural vandalism of the deliberate destruction of the multi-cultural, multi-ethnic, and multi-religious Spain of the Middle Ages by Ferdinand and Isabella in the last decade of the fifteenth century. The two monarchs regarded anything other than strict adherence to other than their extreme version of the Catholic faith as anathema.

Since 1492 the synagogue building has fulfilled many roles: hospital, home for abandoned children, restaurant, even in the 2020s, a disco bar. The synagogue was recorded by Rodrigo Cato in 1604 as being the site of the Hospital de la Misericordia in an area of the city where 'only foreign and Jewish people' dwelt.

In 2022, archaeologist Miguel Angel de Dios found the area for the Torah ark and the accompanying prayer hall. The small photograph accompanying the article in *The Guardian,* 8 February 2023, shows a substantial space divided by a series of brick arches on stone columns with the other visible walls covered with paint or plaster of various colours.

This is only the fifth synagogue known to have survived from medieval Spain. The others include two in Toledo: the late-thirteenth-century Santa Maria la Blanca with five naves, which survives reused as a church, and the other that of Samuel Levi or El Tránsito, with a single nave. Another surviving synagogue is now the church of Corpus Christi, Segovia, whilst the synagogue in Cordoba has a square plan. Single nave synagogues are known from archaeological excavations at Lorca in Murcia province and from documentary and epigraphic evidence at Medina de Aragon in Guadalajara province.

Utrera is south-east of Sevilla, on the railway line from Sevilla to Cadiz.

A brief discussion of synagogues and the attacks on the Jews by both Muslim and Christian rulers is given in M. Valor and A. Guitiérrez, editors, *The Archaeology of Medieval Spain 1100-1500,* Sheffield and Bristol: Equinox Publishing, 2014, paperback, 2015, pages 215-216, and figure 9.10 (view of the excavated synagogue at Lorca).

D.H. KENNETT

Book Review: Brickmaking and Brick Buildings in Ireland

Susan Roundtree,
Brickmaking in Ireland — A Gazetteer: County Survey of Brickmaking History and Brick Use in Buildings,
Dublin: Wordwell Ltd,
vii +344 pages, numerous plates, many in colour, 1 map,
ISBN 978-1-913934-72-9,
Price, hardback, €40-00.

This is a highly attractive book and an impressive piece of work which will aid scholars working on Ireland and its brick buildings. The endpapers grab you with a wall of brick marks, helpfully repeated on the verso of the inner endpaper. The basic idea is simple: for each of Ireland's 32 counties, Susan Roundtree provides a short account of the known brickworks, a note on the prominent and not so prominent brick buildings of the county, augmented by two or three pages of colour photographs of both brickworks and brick buildings in that county. Dublin County has six pages of photographs, as befits the capital city, and Cork County five. Most counties have a half-page colour photograph at the beginning of the account. An exception is County Antrim which shows Heypark Brickworks, Ormeau Road, Belfast, in September 1910 with bricks being loaded from the adjacent kiln on to a wagon (not a cart): there are two axles to the vehicle not one. The horse is waiting patiently.

The volume begins with 'Brickmaking in Ireland: An Overview' (pages 3-6) preceded by map on page 2 showing the location of the brickworks of Ireland within each county and ports of entry for bricks being brought into Ireland. It ends with a 'Select Bibliography (pages 341-344). There is no index.

Each chapter begins with an introduction to brickmaking in the county. County Kildare benefitted from the ban on brickmaking in Dublin City imposed in 1774 and its proximity to the Grand Canal. After the general comment, there follows accounts of each individual brickworks in the county. Surprisingly, only two were founded in County Kildare. The Athy Brick & Tile Company commenced in 1883 which lasted until the Great War, with a brief revival in the 1930s. The Ballysax Brick Works supplied bricks to the Curragh Camp between 1880 and 1910. Again, the works was revived but it lasted only from 1935 to 1940.

Other counties had many more brickworks. County Antrim had twenty-three in Belfast and six outside the city. In considering mid-Victorian Belfast, Dr Roundtree was able to draw upon the lists of brickmakers in the city's Directories of 1846, 1956, and 1870, often with an address but not a business name.

Each chapter concludes with an account of the brick buildings therein and has generous colour illustrations of individual buildings and the uses of brick.

Brick kilns are illustrated where surviving. Beehive kilns are illustrated from Carley's Bridge Pottery, near Enniscorthy, County Wexford (page 291) and from The Swan, Flemings Fireclays, Kockacrin, County Laois (page 175) from where a different type of kiln buildings is also illustrated (page 176). There are further black-and-white photographs of the Heypark Brickworks, Belfast, County Antrim, on page 20, including one of the first Hoffman kilns in Ireland.

This book is the product of several decades of research, both fieldwork and in surviving documents, something which can be notoriously short as Englich Common Law regarding the keeping of business records for tax purposes allows that seven years must be kept but thereafter they may be destroyed.

Working on this brief review, it struck this reviewer that we need a similar volume for Wales. Susan Roundtree's method provides a good template and can be recommended to all brick enthusiasts.

DAVID H. KENNETT

Review Article:
Brick Buildings for Healing and Healthcare before 1800

In my beginning is my end
T.S. Eliot, 'East Coker, line 1,
Four Quartets, 1940.

Mohammad Gharipour, editor,
Health and Architecture: The History of Spaces of Healing and Care in the Pre-Modern Era,
London, New York, etc: Bloomsbury Visual Arts, 2021 (hardback), 2023 (paperback),
xxiv + 364 pages, 101 illustrations,
ISBN (hardback) 978-1-3502-1737-9; (paperback) 978-3502-1741-6,
Price, paperback, £28-99.

In the twenty-first century, most babies in Britain will be born in a medical setting, either a maternity ward in a hospital or in a private nursing home. In the supposedly affluent West, few home births now occur. Death, a far less predictable event, may happen at home but is often in a geriatric ward of the local hospital, or at hospice, or in a care home. But before the late twentieth century, birth and death were natural events which more often occurred at home; the former almost certainly in the marital bed, the latter perhaps less frequently as the centuries progressed. Between the two great climacterics, in the modern world, many will spend time in a hospital, as an inpatient, as an outpatient, or visiting a relative or a friend who is an inpatient. The concept of the modern hospital is less than a century and a half; it has been defined as:

> "a medical, technological factory," [which] differs so radically from its predecessor, "a charitable, environmentally therapeutic, reformative waystation" in form and function, and in social and economic significance (page 312).

So writes Stuart W. Leslie when concluding his discussion of the first modern hospital, the Johns Hopkins Hospital, Baltimore MD, USA (1889: John Shaw Billings).

The volume being reviewed results from a panel at a Society of Architectural Historians annual meeting organised by Mohammad Gharipour and Stuart Bill Leslie. With the exception of the final essay, the seventeen contributions are concerned with 'charitable, environmentally therapeutic, reformative way stations'. Following an introductory chapter, 'Places of Care and Healing: Context, Design, and Development in History' (pages 1-22) by the editor, the book is arranged in four parts, each of four chapters. Part I looks at 'Religiosity: Healthcare in a Religious Context' (pages 23-96) while Part II is concerned with 'Polity: Public Health and Politics' (pages 97-178). Part III examines 'Typologies: Places of Health in History' (pages 179-238) and Part IV considers 'Architecture: Designing Spaces of Healing' (pages 239-314). There are extensive chapter bibliographies (pages 315-347) and a good index (pages 348-364). The chapter bibliographies are especially useful when reading individual essays as they allow unfamiliar citations to be quickly accessed without the trouble of reading back through several pages of endnotes. They may, of course, spark further ideas for research.

Cutting across the parts established by Gharipour's editing are specific topics, not least individual phases of life, beginning with birth. The 'Uterus House: Incubating Obstetrics in Early Modern Bologna' (pages 260-279), the subject of Kim Sexton's contribution, shows how Giovanni Antonio Galli (1708-1782) established a training school for obstetric physicians in his own house, the Casa Nascentori, a four storey building constructed in brick in the second quarter of the sixteenth century and from where his collection of models of the growing foetus was transferred to Museo di Palazzo Poggi, Bologna. The latter became the city's Institute of the Sciences in 1758. From a very different perspective, 'Purity and Progress: The First Maternity Hospitals in the United States' (pages 221-238) by Jhennifer A. Amundson examines the creating of two of the early lying-in hospitals in the nascent country: the Preston Retreat, Philadelphia (1837: Thomas U. Walter) and the Asylum for Lying-in Women, New York, in use from 1823 to after 1855. Both of these provided for *married* women of *good* character who needed somewhere safe, airy, and clean whereat to give birth to their unborn infant. They followed existing models in London from 1750, in Dublin in 1748, and copied in Melbourne, Australia, an institution established in 1858. All three models have an elaborate façade: pilasters dividing the

five-bay, brick frontage in London; a huge complex with a rotunda apparently all in stone in Dublin; and in Melbourne a stone façade rusticated on the ground floor and at the corners of the nine-bay frontage with the central three pushed forward without a pediment. However, in Melbourne, the side walls are in brick. The double-pile, five-bay, three-storeyed New York building was brick given further height by the ground floor being raised above a semi-basement.

Illness can be physical or mental, with the former often impacting on the latter. Serious physical illness can also be non-communicable or communicable. One historic communicable disease is leprosy, known and its sufferers shunned since Prehistory; the disease can now be treated but this was not so in the past. In medieval Europe and the ancient Near East, to be a leper was to be an outcast, so, too, in Japan although in the archipelago at the eastern end of the Eurasian landmass, places of safety were provided. Susan I. Burns presents a study entitled 'For Care and Salvation: Leprosy Hostels in Pre-Modern Japan, *c.*1200-1800' (pages 209-220). The Kitayama Hall in Nara, restoration of which was completed in 2001, exemplifies the hostels as places of salvation as much as of care. Its structure includes one room of a different size and layout, complete with a dais, suggesting that there was a Buddhist temple within the hostel. Larger institutions such as the Gokurakuji Temple combined pagodas with buildings for a hospice and other facilities for care. Yet, even here the buildings for lepers — hostel, bathhouse, hospice, and clinic — were outside the main complex. Using wood, the Kitayama Hall was built to be easily reconstructed or rebuilt if an earthquake happened.

One could make comparisons with medieval English institutions for the care of leprosy. Even in the late eleventh and early twelfth centuries, the senior members of the entourages of the Norman kings were active in founding lazarettos, to use the Italian word for a leper hospital. Those known to the writer were all built in stone. The St Nicholas Hospital at Harbledown, near Canterbury, was founded a early as 1084 and the first buildings erected in the same year. That at Rochester dates to 1124 and the leper hospital at Burton Lazars, near Melton Mowbray, Leicestershire, in 1138. The hospital of St Mary Magdalene, on Newmarket Road, Cambridge, has no closer dating than the twelfth century.

The one English institution to engage the attention of the panel is The Retreat at York, a foundation of the Society of Friends (the Quakers), examined by Ann-Marie Akehurst in '"The Love of Friends Made This in the Cause of Humanity": Therapeutic Environment in Quaker Asylum Design at the York Retreat' (pages 74-95).

The Retreat was first conceived in 1792 following the tragic death two years before of the Quaker Hannah Mills of Leeds in the relatively new Yorkshire County Lunatic Asylum in York (1777: John Carr). Hannah had not been permitted family or friend to visit her in the final few weeks of her life; she died alone and, to members of her denomination, completely uncared for. The Yorkshire Quakers, in particular the tea and grocery merchant William Tuke (1732-1822), knew that they could do better. A site was secured on Heslington Road in 1793 and John Bevans (*fl.*1785-1810), a London carpenter and architect who had previously designed the original Quaker Workhouse in Clerkenwell, completed in 1786.

William Tuke had visited various London buildings with Bevans to gain an idea of what might be possible, including St Luke's Hospital, Old Street (1782-89: George Dance), and the much older Bethlem Hospital, rebuilt in Moorfields in 1676 to a design by Robert Hooke (1635-1703). But although he provided the design, Bevans remained in London, so Tuke engaged Peter Atkinson (1735-1805), a local man and the business partner of John Carr, to supervise the work on the Quaker Retreat. Building began in 1794 and was completed two years later.

The Retreat (fig.1) had a deep but plain central section of five bays and three stories under a hipped roof. Initially, on either side was a two-storied wing of five bays, again with a hipped roof. The building was constructed using a dark reddish-brown brick with the only decorative element being the stone doorcase. When the asylum opened in 1796 with three patients, only the east wing was finished; the west wing followed in 1797. One innovation was the provision of a water closet at the end of each wing on each floor of the wings. There was a single stair in the central section rather than stairs in each wing although when the buildings were extended this changed.

The Retreat gained much publicity, both for its building and for the therapeutic approach to mental illness with the publication by William Tuke's grandson, Samuel, of *Description of the Retreat* in 1813. Ideas about the building design of asylums spread across the Atlantic to Philadelphia and the Philadelphia Friends Hospital at Frankford, which also has a five bay central section but the wings are ten rather than five bays in length although keeping to two storeys above a semi-basement (Akehurst, fig.5.2).

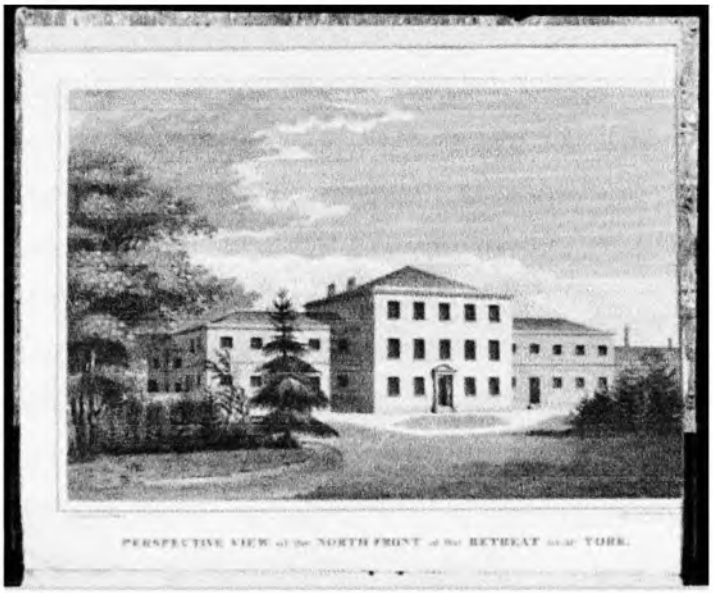

Fig.1 The North Front of the Retreat, near York from Samuel Tuke, *Description of the Retreat,* 1813, using the copy in the Welcome Library, London, Reproduced under Creative Commons Attribution Licence CC BY 4.0

Akehurst does not deal with the subsequent history and extensions of the buildings at The Retreat. Several wings were added later in the nineteenth century and the two original wings were raised to three storeys each, although kept at their original length.

A further account of The Retreat is the 2016 essay by Harriet Richardson, 'The Retreat, York', available online at *historichospitals.com/2016/03/12/the-retreat-york/*[accessed 16 January 2024].

Achieving a good death is absent from the volume, except incidentally in the essay on Japan; hospice care may need a different series of architectural analysis. Hospices may be converted from much older properties. Members who visited Milton Keynes in July 2015 saw the exterior of the house designed by Robert Hooke for his schoolmaster, Dr Busby, now the hospice at Willen.

Another area absent from the volume is the almshouse, on European, including British, examples much has been written and further aspects of these buildings could be explored. As institutions for independent living, with or without a resident warden, they are not, strictly speaking, 'buildings for healing and healthcare' so might, justifiably be omitted from the volume under consideration.

In the East Riding of Yorkshire, the historic county visited by the British Brick Society for its Annual General Meetings in 1980, 1992, 2013 and 2024, in the eighteenth century three almshouses built of brick in Beverley and one in Hull: there are also later almshouses in Hull. Almshouses built in brick in the fifteenth century at Ewelme and erected in 1613 at Mapledurham were seen by members who attended the 1984 Annual General Meeting. Included in the visit of the Society to St Albans in April 1995 were the Sarah, Duchess of Marlborough, while the Berkeley Almshouses. Beside the site of the Foregate, was one of the highlights of the visit to the city centre of Worcester in July 2014. The two-last-named were erected in 1736 and 1702, respectively.

Also cutting across consideration of the buildings in the four parts of the book are materials used in their construction. Reference to the use of individual building materials, including brick and tile, is not a prominent feature of the text and brick buildings need to be sought out. The essay by Julie Willis, 'From Exigency to Civic Pride: The Development of Early Australian Hospitals' (pages 162-177), neatly illustrates the contrast between the earliest years of European settlement and the succeeding generation. Comparatively early in European colonisation, brick was seen as appropriate for a town's hospital, as at Liverpool, New South Wales (1822-25: Francis Greenaway), in contrast to earlier hospitals as in Sydney (1811-16: unknown architect) or the convict hospital at Paramatta (1818: John Watts), both of which were of timber. The second hospital in Hobart, Tasmania (1839-43: unknown architect), has its principal front in stone. But brick was used for the first purpose-built hospital in Perth, Western Australia (1852: James Austin).

It would be interesting to make comparisons between Australia and either South Africa or Argentina, countries at the same latitudes with strong European immigration: Dutch and English in the former, Spanish and Welsh in the latter. The type of European settlement in both Australia and South Africa also asks questions about the provision of healthcare buildings for the pre-existing native populations. The book does not deal with these topics.

Three essays concern the Lusosphere. Danielle Abdon writes on 'A Plan for the King and the Sick: Portuguese Hospital Architecture during the Age of Exploration' (pages 35-55), detailing the plan, but not the building materials, of the demolished Hospital de Todos-os-Santos, where construction began on 15 May 1492 under the royal patronage of Dom João II (*r.*1477/81-95) and continued by Dom Manuel I (*r.*1495-1521). The cover illustration, a Portuguese painting from the first half of the eighteenth century, shows the complex below the Castelo São Jorge with the walls looking whitewashed. It is three storeys above an arcaded ground floor. The complex of buildings with the chapel at the centre was severely damaged in the All Saints Day earthquake on 1 November 1750; it was finally demolished in 1780. Turning to one of the lands discovered by Portuguese explorers, 'Spaces of Healing in Early Modern Portuguese Empire: Changing Public Health and Hospital Buildings on Mozambique Island (pages 138-161) is examined by Eugénia Rodrigues. Joana Balsa de Pinho examines the 'House of Misericórdia: Healthcare and Welfare Architecture in Sixteenth-Century Portugal' (pages 181-196). Misericórdias (houses of mercy) spread throughout Portugal and across its empire; Rodrigues illustrates that on Mozambique Island and its pipe system to channel water to an underground cistern (figures 8.6 and 8.7). Misericórdias were charitable foundations which provided healthcare to the poor with a church adjacent even in quite small settlements. In her photographs Pinho illustrates external views of those at Vila de Conde and Montemor-o-Velho, as well as interior views of the churches accompanying the Misericórdias at Alcohete, Santarém, and Tentúgal.

The Islamic world is highlighted in two separate chapters. Richard Piran McClary considers the '*Dar-al-shifa'* or *Bimaristan*? Islamic Hospitals of Damacus, Sivas, and Cairo in the Twelfth and Thirteenth Centuries' (pages 99-115), first clarifying the difference between the latter as a 'place of health' and the former as a 'house of healing or care'. Both can be used for 'hospital' in the generic sense. From later centuries, Nina Macaraig looks at 'Healing by Design: An Experimental Approach to Early Modern Ottoman Hospital Architecture' (pages 279-301). All the buildings discussed in the two papers were built of stone, and most were associated with a mosque.

It is striking that whether the practice is Christian, Muslim, or Buddhist, the association between provision for healthcare in 'a charitable, environmentally therapeutic, reformative waystation' continues to be closely associated with religious observance.

As noted early in this Review Article, the only modern building considered is the Johns Hopskins Hospital in Baltimore MD; Dr Leslie ends his comments stating that 'modern hospitals' are more like 'cities within cities', something which is very true of this combination of research-led university and major teaching hospital — the so-called 'eds and meds' — which dominates the local landscape and is moreover, with 50,000 workers, the largest private employer in Baltimore. Chillingly, his final sentence concludes that hospitals can now be included in

> the political economy of twenty-first century cities, where race, class, and access to healthcare are the key variables and where hospital design can *heighten socioeconomic disparity and community tension* (page 312; this reviewer's italics).
> DAVID H. KENNETT

Received for Review

Mike Kingman,
Brickmaking & Brick Building in the Midlands 1437-1780
Redditch: Brewin Books, 2023,
ISBN978-1-85858-738-5,
Price, paperback, £14-95.
Available from all good bookshops or from the author at *mikejkingman@outlook.com*
It is hoped to include a review in the next issue of *British Brick Society Information.*

BRICK IN PRINT

Between March 2023 and January 2024, the Editor of the British Brick Society has received notice of a number of publications on brick and its uses of interest to members of the British Brick Society. 'Brick in Print' has become a regular feature of *BBS Information*, with surveys usually two or three times a year. Members who are involved in publication or who come across books and articles of interest are invited to submit notice of them to the editor of *BBS Information*. Websites and television programmes may also be included. Unsigned contributions in this section are by the editor.

D.H. KENNETT

Laura Bicker, 'Cambodia: Fast fashion helps fuel blazing kilns where workers faint from heat,'
BBC News website

The article details the research by Laurie Parsons and his team from Royal Holloway, University of London, into the low health and safety standards for workers in the brick kilns outside Phnom Penh, Cambodia's capital, and where environmental protection is non-existent. Even through gloves, workers suffer burns when handling the newly-fired bricks and are in danger of injury from poorly-stacked bricks falling on them within the kiln.

Even more troubling is the thick, toxic smoke from using offcuts from Cambodia's thriving garment trade as the fuel for the kilns. Such pieces of cloth have chlorine bleach, formalderhyde, ammonia, heavy metals, and other chemicals used in the dyeing and printing process to make the clothes attractive to western purchasers. The offcuts are used to save money on buying coal or oil to fire the kilns.

Children of the workers play in the brick dust and the piles of discarded clothing waiting to be fed into the chambers of the kilns. It seems as if *The Cry of the Children of the Brickyards* is unheard on the Mekong as it is in the lands between the Indus, the Bramaputra, and the Yangtze.

The article is illustrated by five photographs, showing bricks being loaded on to a flat-bed lorry; a female worker stacking the fired bricks but with the caption 'Workers say the fresh brick often burn through their gloves'; 'Bags bursting with clothing scraps are a cheaper source of fuel for the kilns — but they carry toxic traces'; 'Scraps of Disney-labelled clothing show a sliver of Elsa, from the hit film *Frozen*'; and new houses arising from Cambodia's construction boom but this is at the expense of the poorest communities. Excepting the clothing offcuts, they were taken by Thomas Christofoletti.

Steven Brindle, 'The Englishness of English Architecture',
Country Life, 18 October 2023, pages 50-55.

Essentially an article to advertise what was then a forthcoming book: Steven Brindle, *Architecture in Britain and Ireland 1530-1830*, New Haven and London: Yale University Press for the Paul Mellon Centre for Studies in British Art, published 28 November 2023, price, hardback £60-00.

Having said that, it is useful to be reminded that Englishness (*not* Britishness, which is entirely different) has picked up traits from a variety of European sources, Italy, France, and the Netherlands in particular, these sources have always been taken on board and modified, not least to suit the English climate. The unacknowledged illustrations are judicious. Three of the eight show brick buildings.

The present Rainham Hall, Norfolk, was originally constructed in the early seventeenth century but remodelled both internally and externally between 1704 and 1707. The picture of the north front (pages 50-51) shows its rural setting and emphasises how open that setting is: the road curves round the immediate environs of one of the grandest houses in the county: Holkham Hall and Houghton Hall, its principal rivals are firmly set within walled parks, even if one can walk through the former. But the Townshends, the family who built the house, were firmly established in Norfolk long before Sir Edward Coke bought Holkham at the beginning of the seventeenth century or the Chomondleys acquired Sir Robert Walpole's Houghton in the middle years of the eighteenth century. Like the Townsends, the Walpoles were long-established Norfolk gentry. The older Raynham Old Hall, a fifteenth-century brick building, sits in the valley below the new house.

Morden College in Blackheath founded in 1695 by Sir John Morden (illustrated on page 54) is representative of the idea of the English almshouse. Morden took as his model the slightly older Bromley College, of which he was treasurer. The almshouse in Bromley was for twenty poor widows of 'orthodox and

loyal clergymen' and was founded by John Warner, Bishop of Rochester; that at Blackheath for 'decayed Turkey merchants', that is men who traded with the Ottoman empire. The buildings are similar: a long street frontage in red brick with slightly projecting wings, these providing houses for the chaplain and the treasurer. A notable central feature made the two distinct from one another: five projecting bays beneath a pediment at Blackheath, a giant entrance at Bromley. Both had a quadrangle behind the front range. The inhabitants at Bromley had two rooms on the ground floor and two bedrooms above, could have a servant and preferably an unmarried daughter as companions. At Blackheath, the inhabitants had one bedroom, a sitting room, and a half-share in both a kitchen and a bathroom; at least they were doing better than the ten 'decayed fisherfolk' in the Fishermen's Hospital, Great Yarmouth Norfolk, of 1702 who for many years had no private cooking and ablutions facilities and only one sitting room and one bedroom. At both Bromley and Blackheath there were delays in creating the buildings: twenty-nine years at Blackheath, here the estate was acquired in 1666 but the buildings did not go up for over two decades but only six years between 1666 and the completion of the buildings in 1672.

The High Street in Rochester (also illustrated on page 54) shows several brick buildings, most prominently the clock on the façade of the Corn Exchange, given to the city by its member of parliament, Sir Cloudesley Shovel. The frontage is in red brick and is the only original piece surviving; there was a mid-Victorian rebuild (1870-71: Flockton & Abbott of Sheffield). But as Brindle's caption points out, the street is of various dates.

Emily Greig, 'Religious Rivalry in Victorian Cowley St John and its Legacy',
Oxoniensia, **88,** 2023, pages 49-71.

The article examines the religious life of the suburban Oxford parish of Cowley St John in the second half of the nineteenth century. It contrasts the ministry of a well-resourced and visionary Anglican vicar, Father Richard Meux Benson, with a Nonconformist mission supported largely by ordinary people of the 'middling sort' who were determined that their beliefs should be promoted too. The Nonconformist mission left few lasting traces but this study reveals a more competitive Victorian religious world in Oxford than may be supposed from a superficial comparison of written or archaeological legacies.

Father Benson was the founder of the Cowley Fathers, more precisely the Society of St John the Evangelist, an austere Anglican order begun in 1866. It was Tractarian, that is Anglo-Catholic, and was focused on mission. Within east Oxford, it created St Stephen's House for the Cowley Fathers with its church of St John on Iffley Road, for which Bodley designed the church between 1894 and 1898 with the tower added in 1902; the parish church of St Mary and St John, Cowley Road, designed by A. Mardon Mowbray in 1875 was built over the next eighteen years. Three schools were built to designs of Bucknall & Comper in 1895-96, 1899, and 1902-03, of which the last, the Infants School, remains in educational use.

Benson was opposed to the school board and its influence. High-church Anglicanism led the objections in Oxford; in contrast, it was Nonconformity which led the objections to education on the rates in Luton.

The paper is illustrated by an annotated map of east Oxford between Headington Hill and Iffley Road, colour photographs of three church schools, all built in brick, three Anglican churches, built in stone, and three black-and-white photographs of the Nonconformist activities including the chapel built on Magdalen Road. The chapel was built in brick laid in English Bond.

AUTHOR'S SUMMARY, extended.

Simon Thurley, 'A Nursery Place: St James Palace, London SW1',
Country Life, 8 November 2023, pages 68-79.

At the proclamation of the accession of Charles Mountbatten-Windsor at King Charles III, many of us will have seen the diapered, red-brick walls of the U-shaped court on the right-hand edge of the palace which is the king's official residence: foreign ambassadors are accredited to the Court of St James. Much of the palace has been hidden from prying eyes, not least because it is a family home, not just for the heir to the throne but also for other members of the royal family.

In the article, Simon Thurley, who had edited the recently-published *St James's Palace: From Leper Hospital to Royal Court,* New Haven and London: Yale University Press, 2022, provides a useful potted history of the palace. It was originally built on the orders of Henry VIII on the site of a hospital at the corner

of what became St James' Park and was enclosed within a brick wall as a private hunting ground for the king. The palace was to be the home of the infant son whom Henry confidently expected his new love, Anne Boleyn, would bear him: she, of course, gave birth to a daughter in 1533, the future Queen Elizabeth I.

The palace was on a grand scale, as befitted a future monarch: a great gatehouse of four storeys, four large quadrangles, an open court at the north-east, various ancillary buildings to the west and a real tennis court to the north. Henry was a dab hand at the game ad had courts in all his major palaces. There were also formal gardens to the south and kitchen gardens north of the real tennis court. Thurley provides (pages 70-71) a reconstruction of the palace as it would have looked in 1640.

BRICK IN THE NEWS:
THE ICE HOUSE AT GREAT YARMOUTH, NORFOLK

Fish preservation needed ice so that the fruits of the sea could be safely dispatched throughout the country. Railways made this possible. At Great Yarmouth, a pair of ice houses were built in 1859-62 on the south bank of the River Yare, not far from the then recently-opened Southtown Station giving direct access to the London market and by more complex routes to the rest of England. Whilst both the railway station and its pair have been demolished, this one survives almost on the water's edge on the south side of the west entry to the Haven Bridge, the oldest of the town's three bridge, which was also the limit of the fishing port.

In use until 1892, the ice house was built of Burgh Castle whites, shipped round from the brickworks below the Roman fort and adjacent to Breydon Water, the great tidal expanse fed by three rivers: the Yare, the Bure, and the Waveney. The half-hipped roof of the ice house was, and is, thatched. It had been restored in 1990 by a team led by T.R. Bird of architects Olley & Haward.

The building has been given a grant from the National Lottery Heritage Fund of £1.9 million to enable it to fulfil a new role as the National Arts and Circus Centre. The lottery application was led by Taranneh Jahanpour of Out There Arts. Work is due to begin this year.

Great Yarmouth has one of two surviving purpose-built circus buildings, the Hippodrome (1903: Ralph Cockrill).

The grant was reported *The Guardian,* 26 September 2023 and at the same time on the Norfolk column on Teletext. For the ice house and the circus see the brief accounts in N. Pevsner and B. Wilson, *The Buildings of England: Norfolk 1: Norwich and the North-East,* London: Penguin Books, 1997, pages 508 and 529, respectively.

Bricks and the Social Media

Michael Chapman

Given that our lives seem to increasingly be influenced by the so-called Digital Age, and the term 'Social Media' is frequently quoted on mainstream media, and now seems to have been shortened just to 'The Socials.' This note will try to explain some of the jargon, and put into context how 'The Socials' can be of great assistance when carrying out research into all the aspects of historical brick manufacturing in the United Kingdom.

Whilst most members will be familiar with e-mail, and using a platform such as Google, to research a topic, social media now comprises an ever-increasing number of platforms. A definition of what social media is could be:

> Social media refers to websites and computer programs that make virtual communications possible, with physical items such as personal computers or mobile phones giving easy access to the digital world.
>
> This easy access enables the sharing of ideas and information through virtual networks. From Facebook and Instagram to Twitter and YouTube, social media covers a broad universe of apps and platforms that allow users to share content, interact online, and build communities.

Apart from use by individuals, it is now universally used by commercial enterprises as a powerful marketing tool and an alternative way of keeping in touch with their marketplace and employees, both present and prospective. This is very apparent when using a platform such as Google to search the web for UK Brickmakers, where the example of icons shown below are always present and can often be the preferred route for communication and dialogue.

From Left to Right the icons are the links to
Facebook, Instagram, LinkedIn, Twitter, or X as now known, YouTube.

LinkedIn is often used by Human Resources departments to find new recruits or to advertise employment opportunities. YouTube, as the name implies, is an extremely useful connection into the many brickmaking and related videoclips that exist.

Another popular, and more personal platform is 'WhatsApp' which offers a secure means of one-to-one communication.

Of course, it must be remembered that few, if any social media platforms are totally secure, and commercial enterprises dedicate huge resources to defend themselves against hacking, or illegal/unauthorised access; all too frequently without complete success. In February 2024, the British Library is still defending itself against an internationally-inspired major hack in December 2023.

For the individual, this is also an ever-present threat, with the use of commercially available security software an absolute must on any personal computer.

Individual awareness is key to try and ensure an unwanted link in a seemingly innocuous e mail does not lead straight to your personal bank account. Once you press the send button nothing can ever be retrieved.

Despite these very real concerns, some aspects of this digital world can be very useful, and much can be learned from a Google Search.

From personal experience, I can suggest two useful Facebook sites, set up for individuals who are brick enthusiasts and both of which are only open to approved members. 'UK Bricks and Brickworks Past' is a public group and has 8,000 members, whilst Brick of the Day is a private group and has nearly 4,000

members. Neither group allows commercial enterprises to join, which is a problem with many Facebook groups.

In a public group, anyone can see who is in the group and what they post, in a private group, only those who are in the group can see this.

There is some overlap between them but they both can provide a very useful source of information on brick marks and brickmaking in various areas of the UK. Useful help on information regarding brick collections and web sites are available. As with everything on the web, not all comments are completely accurate, and everything should be verified.

British Brick Society Information **156,** June 2024: 'Brick in Yorkshire' issue

The 2024 Annual General Meeting is to be held in Kingston upon Hull.

It is, therefore, proposed that *British Brick Society Information,* **156,** June 2024, should mainly be devoted to articles on 'Brick in Yorkshire'. The aim would be to issue the volume to members on or before Saturday 1 June 2024, hence the submission date of Wednesday 10 April 2024.

At present there is still room for at least one and probably two further contributions.

Members interested in contributing to a 'Brick in Yorkshire' issue may wish to have a preliminary discussion with the Editor, *British Brick Society Information,* with suggestions for an article, of any length. Any member who thinks that a non-member of the British Brick Society might wish to contribute to such a volume is also asked to contact the Editor, *British Brick Society Information,* with any proposals that might be forthcoming.

DAVID H. KENNETT
Editor, *British Brick Society Information*
davidkennett510@gmail.com

British Brick Society Information in 2025: a 'Brick in Essex' issue

Members attending the 2023 Annual General Meeting of the British Brick Society, held on Saturday 17 June 2023 in Bridport, Dorset, decided that the 2024 Annual General Meeting should be held in Colchester, Essex.

It is, therefore, proposed that *British Brick Society Information,* **158,** February 2025, should mainly be devoted to articles on 'Brick in Essex'. The aim would be to be able to issue the volume to members well before the Annual General Meeting, provisionally on Saturday 14 June 2025, hence the submission date of Wednesday 12 December 2025.

The issue has so far attracted two articles on the brick gatehouse at Layer Marney Tower, one on the methods of production of the terracotta panels and the other on the functions of the gatehouse tower. These articles will appear in different issues. Allied to a prospective presentation to the International Conference of Medieval Studies at West Michigan University, Kalamazoo MI, USA in May 2025, an article is in preparation on 'Bricks, Baptisms, and Burials: Flemish Imported Materials in English Medieval Churches' which deals with the imported bricks in three Essex churches and imports of black Tournai limestone fonts and burial slabs and Flemish memorial brasses in eastern and southern England.

Members interested in contributing to either issue with a focus on 'Brick in Essex' may wish to have a preliminary discussion with the Editor, *British Brick Society Information,* with suggestions for an article, of any length. Any member who thinks that a non-member of the British Brick Society might wish to contribute to such a volume is also asked to contact the Editor, *British Brick Society Information,* with any proposals that might be forthcoming.

DAVID H. KENNETT
Editor, *British Brick Society Information*
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NOTES ON CONTRIBUTORS

MICHAEL CHAPMAN is Chairman of the British Brick Society. He spent his working life in the UK Brick Industry, gaining a range of professional qualifications enabling him to work in technical and managerial roles and gaining expertise in all aspects of brick production and general management. Since retirement, he has remained active as a consultant, working on environmental, training, and quarry projects. He also remains active in the industry's professional institution, the Institute of Materials, Minerals and Mining, being a Fellow of the Institute and through it a Chartered Environmentalist. His principal interests lie in all aspects of both historical and modern brick manufacture and the application of brick in the built environment and as a contributor to *British Brick Society Information.*

PAT CHAPMAN is a retired archaeologist. She found aspects of her degree in Combined Arts, being trained to look and observe, to be very useful when she decided to pursue a career in archaeology. After combining work and home education on site for some years she left archaeology for a few years to continue the home schooling. On her return to work she organised the processing of finds and began to specialise in reporting on ceramic finds, other than pottery, and those involved in buildings from prehistory to the present. Proof reading and copy editing became part of her responsibilities as did the opportunities to write up various excavation reports. She became a member of the British Brick Society in 2007 to further her understanding and appreciation of bricks both materially and historically.

DAVID H. KENNETT is the Editor of *British Brick Society Information.* A retired lecturer in Sociology, he holds degrees in Archaeology, in Construction Management and Economics, and in Technology and Society from Prifysgol Cymru, Bristol Polytechnic, and Salford University, respectively. His brick interests centre on the relationships between building patronage, the building patron's wealth, and the resulting buildings; applying construction management skills to the documentary evidence about earlier buildings; and on the use of brick in religious buildings. He contributed studies of 'Brick and its uses to 1600' in France, Italy, and Spain for the multi-volume *Grove/Macmillan Dictionary of Art,* published in 1996, and revised contributions on the two last-named countries for the new online edition of 2016.

Submission dates for future issues of *British Brick Society Information*

BBS Information, **156,** June 2024: please submit items for inclusion by Wednesday 27 March 2024, so that the issue can appear before the society's Annual General Meeting in Hull on a Saturday in June 2024.
BBS Information, **157,** October 2024: please submit items for inclusion by Wednesday 21 August 2024.
BBS Information, **158,** February 2025: please submit items for inclusion by Wednesday 12 December 2024.
BBS Information, **159,** June 2025, please submit items by Tuesday 31 March 2025.
Please contact the Editor, *British Brick Society Information,* if you have any queries regarding these dates and would like a possible *short* extension thereto.

Thank you,
DAVID H. KENNETT
Editor, *British Brick Society Information*

BRITISH BRICK SOCIETY VISITS

At present no arrangements have been for any visits by members of the British Brick Society wither to a brickworks or to examine the brick buildings of a town. Should a visit, either to a brickworks or to a town, be arranged during May the details will be posted on the society's website *http://britishbricksoc.co.uk* and members should keep an eye on this from Easter onwards.

BRITISH BRICK SOCIETY
MEETINGS in 2024

Saturday 18 May 2024
Hedgereley Historical Society
Study Day: Hedgerley Brick
Contact: Mike Chapman *Chapman481@btinternet.com*

Saturday 15 June 2024
Annual General Meeting
Kingston upon Hull
Tour of the city in the afternoon.
The 51st Annual General Meeting of the British Brick Society will be held in Jubilee Central, Kingson upon Hull, commencing at 11.15 am.
Contact: Mike Chapman *Chapman481@btunternet.com*

Visits to Alcester, Warwickshire; Risley and Ockbrook, Derbyshire; Cardiff Bay; and Tewkesbury, Gloucestershire are being planned for future years.

The 2025 Annual General Meeting will be held in Colchester. Details to follow nearer the date.

All meetings are subject to attendance at the *participant's own risk*. Whilst every effort is made to hold announced meetings, the British Brick Society is not responsible for unavoidable cancellation or change.

Full details of future meetings will be in the subsequent BBS Mailings
The British Brick Society is always looking for new ideas for future meetings.
Suggestions of brickworks to visit are particularly welcome.
Offers to organize a meeting are equally welcome.
Suggestions please to Michael Chapman, or David Kennett.

Changes of Address

If you move house, please inform the society through its Membership Secretary, Dr Anthony A. Preston at 11 Harcourt Way, Selsey, West Sussex PO20 0PF.

The society has recently been embarrassed by material being returned to various officers from