364. Nine Elms Gasworks, No. 2 gasholder of 1891–2, seen from the east (possibly Belfour Street) in 1958. *Demolished*

CHAPTER 8

Industry

'Battersea is very peculiarly circumstanced; first, in having become a very large manufacturing district, and, secondly, in having a labouring population daily and hourly enlarging . . . to an extent that would hardly be credited'. So wrote William Connor, Battersea's Medical Officer of Health, in 1866, expressing the association of this part of London with industry and the working class that remained current for another century and more.[1]

From the seventeenth century Battersea attracted a steady flow of trades and manufactures – some specialized, some pioneering, many of them malodorous or noxious. It was along the riverfront, especially at first at Nine Elms, that these tended to congregate, the Thames then providing the only effective means of transporting heavy goods. The arrival of the railways from the 1830s encouraged growth, and Battersea thereafter became well known for a varied concentration of factories, workshops and wharves. Candles, cement, chemicals, crucibles, flour, oil, paint, soap, starch, sugar, turpentine and vinegar were all prominent. The area also harboured industries typically found more widely on the south bank, such as building, engineering and brewing; and the riverfront east of Chelsea Bridge became increasingly associated with large-scale public works and utilities, for water, gas and electricity. Industry's ascendancy was such that by the late nineteenth century it had all but engulfed the parish church and old village centre by the river.

The physical impact of all this industrial fabric was one of the area's defining characteristics. High factory walls and smoking chimneys rose along with church spires and board schools above the roofs of a sea of Victorian housing. The effect was greatest along the riverfront, where in several places closely packed chimneys and cranes crowded the skyline.

This fundamental aspect of Battersea's history now seems distant. The last remnants of industrial activity visible by the Thames, around Cringle Street east of Battersea Power Station, had been reduced by the summer of 2012 to a single cement works, as the long-heralded regeneration of Nine Elms described in Chapter 13 starts to take off, leaving only a few silent cranes and other symbolic relics behind. West of Battersea Bridge, reconstruction has already taken place. Since industry left, the riverfront there has been rebuilt with increasingly assertive apartments and offices. Further inland, banal commercial or service-oriented developments have appeared in their wake, in and around Lombard and York Roads.

Where industry survives it is mostly contained in tracts of land cut off by railway infrastructure, such as the modern trading estates sandwiched between the east–west main lines off Culvert Road, or the jungle of enterprises in the 'Battersea Tangle' area around Silverthorne and Stewarts Roads, where a large cement factory, several business parks and the former Hamptons' furniture depository dominate the map.

In this chapter general accounts of the area's industrial development and its workforce are followed by topographical gazetteers of major individual sites, both riverside and inland. Battersea Power Station is covered separately in Chapter Nine.

Industries before the 1840s

One of Battersea's earliest industries was milling (Ills 365, 370). Three windmills stood on the riverfront in the seventeenth century, their locations probably equating with those shown on eighteenth-century maps: a smock mill east of the Red House tavern, Battersea's most renowned riverside watering-hole; a post mill a little further east, generally used for grinding corn; and Randall's Mill, a stone-built tower mill beside the parish boundary at Nine Elms.[2] Those at the Red House and Nine Elms survived long enough into the nineteenth century to feature regularly in topographical views. All had gone by *c*.1845.[3]

There were also limekilns and whiting houses in seventeenth-century Battersea, again mostly at Nine Elms, which by the early 1700s had emerged as the parish's main industrial quarter in continuation of neighbouring Vauxhall. Further west, where Lombard Road now stands, John Smyth had sugar-houses in the 1670s, where he refined 'very grate quantities yearly' of raw sugars imported from Barbados. Smyth's sons, Allyn and Joshua, carried on the business into the eighteenth century, most likely refining sugar for brewing, which was also taking place locally by the 1670s.[4]

In addition to the mills, limekilns, sugar-houses and breweries, by the early to mid 1700s a string of tidal meadows, timber docks and osier beds, interspersed with small docks and creeks, stretched along the foreshore. The parish drew rents from the docks of the 'Church Hopes' beyond the Red House tavern, where timber was moored before being shipped to London. There was also a 'Dung Wharf' near the Red House, presumably receiving urban night-soil and coal ashes as fertilizer for local market gardeners. And the osier grounds supported trades such as mat making and basket weaving.[5]

365. *On the Thames at Battersea from the Red House*, by George Cumberland, *c.*1820. Looking east towards the windmills of Battersea fields. Both were at one time used to grind colour: that to the rear had been demolished by the mid 1830s for a vitriol factory

Several major establishments emerged during the eighteenth century – for instance the malthouses and distilleries of Messrs Bell at York Place and Hodgson at Bolingbroke House, the Battersea enamel factory at York House and a tide mill for grinding corn at Nine Elms. Two other noteworthy names connected with Battersea in this period are John Baptist Jackson, the engraver and wallpaper designer, who is thought to have established a factory for wallpaper here in the 1740s; and the glassmaker and artist, William Beilby, who lived and opened a drawing school in Battersea Square in the 1780s. For neither, however, is there conclusive evidence of much commercial activity.[6]

366. Early vitriol furnace in Battersea Fields, 1797, looking north towards river

The industry that took increasing hold in Battersea from the 1760s onwards, and was to remain prevalent throughout Victorian times, was the manufacture of chemicals. The area's cheap land, good water transport and unusual position – remote from the City yet at the same time close to it – all played a part in this. Kingscote & Walker, the first London druggists to make sulphuric acid, had a large factory at York House from the 1750s till *c.*1773; and Joseph Fry, founder of the chocolate firm that bore his name, also had a chemical works at Battersea in the 1770s, where he made soap and alkali from salt, and also possibly sulphuric acid.[7]

Known at the time as 'oil of vitriol', sulphuric acid was the chief chemical product of Battersea around 1800 (Ill. 366). It had many applications, but by the mid eighteenth century was used principally in the metal industries, in the manufacture of alkali (or synthetic soda) from common salt, and in bleaching and preparing linen for dyeing.

Other vitriol concerns in the area at the time, both along the river and further inland, included those of a Mr Peake (*c.*1801); Philip Sandman, at Ford's Folly, near Battersea Bridge (1806–16); Clement Prosper Armand and Angelo Solari, in Lombard Road (bankrupt 1823); Peter Pariss & Son, in Battersea Fields (1830s–60s); Hartnell & Garrett (*fl.*1834); and Thomas Groves (1840–1).[8]

Of the more general manufacturing chemists, many also made colours, acids, pigments and paints. The Church Road area and stretch of riverfront between there and Battersea Bridge proved fertile ground for these undertakings. In 1816 Justus Erich Bollman took over Sandman's old vitriol works at Ford's Folly, off Church Road, where until his death in 1821 he manufactured acids, pigments, and derivatives of vinegar. His successor, Foot & Company, continued to make chemicals and colours there until the mid 1870s. Also in Church Road from 1834 was the partnership of Grimwade, May & Pickett, later May & Baker, perhaps the area's biggest and best-known chemical company as suppliers to pharmacists of bismuth, camphor, ether and ammoniacal preparations. The firm's riverside site at Garden Wharf, acquired in 1841, remained its headquarters until 1934 (see Ill. 387).[9] Other chemicals made in Battersea before the 1850s included aquafortis (concentrated nitric acid), verdigris, naphtha and corrosive sublimate, the last acting as a preservative to 'kyanize' timber – a process patented in 1832 by John Howard Kyan, who may also have been engaged in a local paper-making concern. Unsurprisingly, fires were common and often devastating.[10]

The river itself was a source of employment, supporting watermen and lightermen, barge owners, ships' breakers, even fishermen. The parish also had its share of boat-builders and dealers by the 1830s, with several yards, mostly situated at Nine Elms. Being so far upstream, Battersea's trade was confined largely to building and repairing smaller vessels and barges. Henry Carne and his son, at Nine Elms from the 1820s, ran one of the more successful yards and by the 1850s were able to take on construction of the *Louisa Shelbourne*, at 145ft long the biggest flat-bottomed vessel ever built above London Bridge.[11]

One notable aspect of this first, unhurried phase of industrial expansion before 1840 was the number of manufacturers engaged in novel or revolutionary processes. Stephen-Theodore Janssen's factory of the 1750s at York House, where finely decorated enamel wares were produced in bulk, was an early, albeit ephemeral example of this, as was the pioneering sulphuric acid factory that took its place. More highly visible was the wind-harnessing technology of Captain Stephen Hooper's horizontal windmill, unique in London, erected close to the parish church at Bolingbroke House in 1788 for grinding linseed. Finally, there were the veneer-cutting sawmills, army-boot factory and decorative tinfoil works established by Marc Brunel in the early 1800s close to Battersea Bridge. Here exceptionally fine machinery and progressive production methods attracted admirers.

Brunel liked the Battersea location because of its good transport links, urging his business partners to secure the site in 1806 as they were 'not likely to be better accommodated'. In his view the combination of river access and nearby turnpike roads gave it superiority over Joseph Bramah's new engineering works at Pimlico, which he thought 'distant from any good road'. He also cited the proximity of Battersea Bridge, which he said would always provide 'a clear walk to Chelsea market'.[12]

The bridge's creation in 1771–2 encouraged industrial development beside its southern approach, though its impact was not immediate. Indeed, at first its narrow timber spans hindered riverborne trade, collisions with barges being frequent enough to merit throwing four of the central spans into two in 1795. But by the early 1800s factories and wharves were appearing in larger numbers: in addition to Brunel's works, chemical production, soapmaking and a pottery were established, and by the time of the general building boom of the 1840s, the riverfront here was fully built up.[13]

Industry in the railway age

At first the railway running to and from Nine Elms had little effect on Battersea's industrial riverfront. But in time its tracks became a wide physical barrier, severing low-lying north Battersea from the higher ground to its south. North of the tracks, with the notable exception of Battersea Park and the houses and flats erected around its perimeter, fields and marsh disappeared beneath docks and wharves, works and factories, railway sheds and swathes of increasingly lower-working-class housing.

This was a gradual process. Although by the 1840s industry was already well entrenched at Nine Elms and along the stretch of riverfront from Battersea Bridge to St Mary's Church, in between were undeveloped fields and marshland, and south of the church was mostly a realm of pleasant riverside villas. All this was soon to change. During the 1840s and 50s most of the marsh was laid out by the Commission of Woods and Forests (later the Office of Works) as Battersea Park. To its east two large-scale public works had a dramatic impact on the topography and, along with the railway goods depots at Nine Elms and Battersea Wharf, were to define the character of this area for years to come. The first was the waterworks of the Southwark (& Vauxhall) Water Company, established in 1840–1, Nine Elms having been selected as an ideal site from which to draw drinking water from the Thames for the people of south London. A vitriol factory and alkali works were removed to accommodate its reservoirs and filter beds. The second was the gasworks of the London Gas Light Company, established beside an old tide-mill pond in the 1850s as an outstation, but greatly extended soon after to become the company's main works.

The railway companies were themselves large employers, especially in the two great depots at Longhedge and Nine Elms; these are covered in detail in Chapter 7. Goods and freight services also brought the ability to move

increasingly larger loads, particularly for inland factories. Nevertheless, the Thames remained the main route for incoming raw materials and outgoing produce. Grain for the area's flourmills and distilleries; maize for Garton's glucose works; coconut oil, palm oil, spermaceti and paraffin wax for Price's candles – all came from around the globe to the enclosed docks or the Pool of London before being transferred to barges and lighters and brought to Battersea.[14] Those with their own wharfage avoided fees for docking and handling that less well-situated manufacturers had to pay before bringing materials by road or rail.

The same transport system also applied to coal, which was by far the biggest commodity, as without it few if any of the area's manufactures could take place. It came by ship from Scotland and the north of England to the Port of London, where it was transferred by coal-whippers to barges and then taken upriver to be unloaded at the quaysides. The largest consumers – Nine Elms Gasworks and, later, Battersea Power Station – took the logical step and built their own riverside jetties fitted with hydraulic cranes, enabling private fleets of sea-going vessels to bypass the port and unload at will. There were also private coal wharves and depots along the Victorian and Edwardian riverfront, notably at Nine Elms, usually comprising little more than a quay for unloading, sheds for storage, and stabling for horses and delivery carts.[15]

With such importance attached to river transport, Battersea Bridge was further modified to aid navigation, R. M. Ordish in 1875 enlarging the central waterway from 31ft to 75ft and also increasing the size of openings towards the Chelsea end. It was eventually rebuilt in 1886–90. The same period also witnessed great activity along the riverfront in terms of reclamation and improvement, with many owners constructing embankments, piers, river walls and jetties.[16]

* * *

As with housing and population, Battersea's greatest period of industrial growth came in the latter half of the nineteenth century, after the second railway boom of the 1860s. By then development was intensifying. When the freehold to Thomas Whiffen's Lombard Road chemical factory was sold at auction in 1867, this was described as a 'populous and rapidly increasing neighbourhood' and one where rents were expected to increase.[17] Demand for waterside premises was not only great but rising, and within twenty years the houses and gardens of Lombard Road had given way to docks, wharves and barge-building yards.

The established industries held their own. Lime and white lead were still being produced on the riverfront, as was cement. Chemicals continued to dominate, with nationally important firms like Whiffens and May & Baker keeping their Battersea premises well into the twentieth century. The bigger, more successful firms tended to consolidate, rebuild and, if possible, expand over adjoining wharves. The two great names of Battersea industry – Price's Candles and Morgan Crucible – established themselves on the riverside in the mid 1850s, in a modest way initially. Over the ensuing half-century they grew into enormous factory complexes, each of over eleven acres, employing more than 2,000 people between them.

Other industries came into stronger focus during this period. Battersea emerged in the 1870s as a centre for mechanized steam laundries, a development of the previous decade. These provided valuable female employment in an area traditionally associated with male heavy labour. With their reliance on good road-transport access, the laundries gravitated to the main thoroughfares: Battersea Park Road had two of London's biggest.[18] Also, with a house-building boom in full swing in the 1870s–90s, building contracting flourished. Many builders' yards and sawmills were situated further inland, but several large operators had wharves on the riverfront, whither building materials were shipped, bricks from North Kent in particular. Engineering and steel-working also became prevalent, and by the early 1900s several well-known firms were based in Battersea: Homan & Rogers and Dorman Long side by side in Cringle Street; Archibald Dawnay & Son on York Road; and Drew-Bear Perks & Company at Ransome's Dock.

With so many goods coming and going, an array of service or support trades sprang up, again most commonly along the river at Nine Elms. There were barge owners and lightermen to serve all but the biggest companies, which kept their own fleets; carmen and vehicle contractors; sack hirers and peddlers; and also hay and straw salesmen to cater for the army of horses needed to haul Battersea's goods to and fro.

Another growth industry around 1900 was food. Flourmillers, brewers, and mineral-water and vinegar makers were already established in Battersea, and Gartons had built their sugar and glucose factory at York Road in the 1880s. Crosse & Blackwell invested £70,000 in the early 1900s on a modern brick-built jam and pickle factory at Nine Elms, beside the gasworks. But the biggest concentration was around Ransome's Dock, where an ice factory, dairy and steam-bakery were erected in the 1880s–1900s.

By the twentieth century a pattern of industry had been established that was to persist. The 'public' works – the railways, gasworks and, from the 1920s, the power station – were the big employers. Alongside them stood a handful of successful large firms with extensive works or room to expand – Price's Candles, Morgan Crucible, Garton's Saccharum Works, Battersea Flourmills, and, further inland, the Nine Elms Brewery and the laundries of Battersea Park Road. These dominant private businesses had begun in the mid to late nineteenth century and were still the dominant businesses in the 1950s. Life for smaller concerns on restricted sites was less stable, and the turnover of firms more pronounced.[19]

After the First World War some companies such as the drug makers enjoyed a brief period of prosperity, working at increased capacity as they had done to help the war effort. General engineering and the metal industries also welcomed a rise in employment. But Battersea could not benefit from the inter-war boom in American-style suburban industrial development, as found in north-west London, with its emphasis on open sites and good road-transport links. And for those firms that did succeed, the shortage of undeveloped land left little scope for expansion, forcing some to move away, as both May & Baker and Whiffens did in the 1930s.[20]

The Second World War accelerated industrial decentralization. Some firms opened regional 'shadow' factories during the war to maintain production in the event of damage to their London works, often on a larger scale than was possible at Battersea; and, having enjoyed the fruits of manufacturing outside London, decided to make such a move permanent, as Morgan's did in the 1960s and 70s. Manufacturers were happy to escape inner London's high rates and labour costs, and increasing LCC controls, and, later, to benefit from regional grants. Added to this, the heavy bomb damage suffered in Battersea, the proposals to segregate residential and industrial zones in London's reconstruction, the office boom and rise in service industries, and the post-war decline in British manufacturing – all made Battersea's riverside an unattractive prospect for industrialists in comparison to the New Towns and Development Areas elsewhere.[21]

Those firms that remained hung on into the 1960s and 70s but economic conditions worsened. When the three big 'public' industry employers finally left – the Nine Elms railway yard in the 1960s, the nearby gasworks in 1970 and the power station, in phases, in 1975 and 1983 – there followed a string of closures in all sectors of Battersea's manufacturing community: Morgan Crucible Company's works (1970); Albert Bridge flourmills (1970s); Nine Elms Brewery (1975); Garton's glucose factory (1982); Price's Candles (1980s); and Rank Hovis's Battersea Flourmills (1992). The ascendancy of containerization, the disappearance of London's riverborne trade and the closure of the docks finally killed off Battersea's riparian industries. Without river transport such firms could no longer operate. Wates Ltd, who were promoting the redevelopment of the disused Morgan Crucible site as up-market housing, condemned the access and transport facilities there as unsuitable for modern industry, and saw the relocation of firms like Morgan's away from inner London as 'inevitable and irreversible'.[22]

The Workforce

It might be expected, in an industrialized area like Battersea with a large working-class population, that as a rule the local people worked in the local factories. But this seems to have been the case only until about 1860, after which both population and industry grew at an unprecedented rate. Thereafter it was often remarked upon – in the 1890s, 1930s and 1950s – that large numbers of residents went elsewhere in search of employment and that many workers in Battersea's factories came from further afield.

One reason was the price of local accommodation. Battersea's factories had a preponderance of unskilled,

367. Workmen's club room at Whiffen's chemical factory, Lombard Road, *c.*1910. *Demolished*

lowly paid jobs, and though local rents were never excessive, they seem to have been considered 'rather high' for the poorer families drawn to this kind of employment in late-Victorian London, for whom they represented a large proportion of income. So for many it was more economical to live in cheaper areas like Wandsworth or Peckham and travel to work in Battersea by workmen's trains.[23]

Also, many factory owners preferred to employ people from outside the area. This was especially true of skilled workers. For example, in 1899 the more 'respectable' employees at Holland & Hannen's builder's yard at Nine Elms and at the Pulsometer Engineering Works on Wellington Road were coming from north of the Thames or further west. Similarly, there was a tendency for employers to encourage workers from the provinces to move to Battersea. Mark Mayhew, the young radical owner of Battersea Flourmills in the late 1890s, preferred to employ such 'countrymen', whom he thought knew the business better and worked harder than Londoners. Of the hundred-odd Battersea residents employed by the glovemakers Fownes Brothers in York Road in the early 1880s, many had migrated there from gloving areas like Somerset or Worcester. As if in justification, it was said of Battersea's poor resident population: 'A lot *will not* work'.[24]

There was still a degree of old-fashioned seasonality to local industry in the late 1800s. Chemists and drug makers took on extra staff for the spring boom in camphor production to meet the summer demand when people began putting away their winter clothing. Many casual labourers taken on at Nine Elms Gasworks in the winter went hopping in the summer when work was scarce. Also, Battersea's laundries provided wives and daughters with employment during seasonal troughs in the men's industries, the early summer peak at the start of the society season coinciding with lay-offs at the gasworks, the winter peak at the opening of Parliament matching the low point in the building trades.[25]

Factory conditions were often unpleasant and dangerous. Fires and explosions were common at May & Baker's chemical works, where mercury was made by dissolving quicksilver in hot concentrated sulphuric acid in cast-iron pots over open coke fires. Sugar refining at Garton's Saccharum Works in York Road was particularly arduous, the men there working almost naked in 100°-heat for sixty hours a week in dark, low-ceilinged rooms. Nine hundred men went on strike for three weeks in 1913 for better pay and conditions. Some Battersea workers could be identified by the discoloration of their skin: white for the flour-millers, black for those handling graphite in the crucible works, yellow for those using cordite and TNT to make shells in the projectile works.[26]

But though exploitation and hardship were commonplace, there was also benevolence. The two big family-run businesses, Morgan's and Price's, were the most progressive in their attitude to workers' welfare. Both offered religious instruction, education and sporting activities for adults and children, and Price's channelled water that had become heated in the manufacturing process into a swimming pool for the factory boys to bathe in. Price's also introduced profit-sharing for workers in the 1860s and a pension scheme in the 1890s.[27]

By 1900 'nearly all' the inhabitants were said to be leaving the area to earn a living, some on foot, some by train, some by tram. It is likely they were not going very far: in the 1890s Charles Booth's investigators found that people lived in Battersea because it was close to their place of work and because others 'spoke well of the place'.[28] By the mid 1900s many Battersea dwellers were known to cross the river to work in Fulham at various factories there. With such an exodus, health officials now regarded the area as a working-class residential district, not an industrial one, and were of the opinion that the manufactures carried on were 'comparatively few'.[29]

When the last factories closed in the 1970s and 80s, workers were forced to leave or stay behind and risk unemployment, as in place of the big riverside industries came luxury private housing estates, which offered little to the indigenous population, creating a 'millionaires' row' along the riverfront – later described by one critic as 'a private party . . . to which you have not been invited, another London . . . in which you are not welcome'.[30] These factors contributed significantly to the demographic changes that by then were already beginning to affect the area.

Riverside sites

Nine Elms to Battersea Park

The site chosen for the wharf and steamboat pier built by London & Southampton Railway at Nine Elms for their goods and passengers in 1838 (page 287) approximated to Battersea's eastern limits, where the riverside settlement merged indiscernibly with the equally industrial suburb of Vauxhall in Lambeth parish. At the time an eighteenth-century windmill, Randall's Mill, stood jutting into the waterfront east of the pier (Ills 369, 370), probably marking the site of one of Nine Elms's earlier mills. A beacon to river travellers as well as an unofficial parish boundary marker, it took its name from its first lessees in the 1770s, Randall & Company.[31]

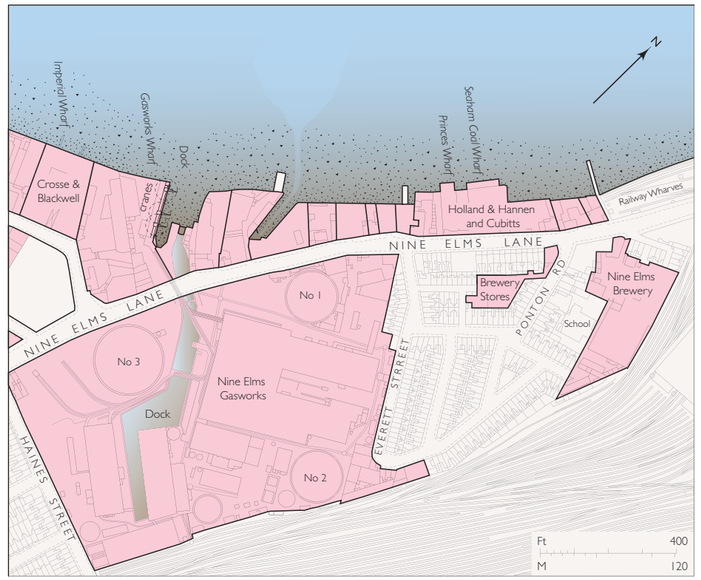
About half a mile west of Randall's Mill a riverside grain mill had been established around 1760 by Daniel Ponton of Lambeth, a Surrey JP and large landholder at Nine Elms. To power this, Ponton greatly extended an existing watercourse there into a cut with a long, irregular millpond on the south side of Nine Elms Lane, which was carried across its neck on a bridge thereafter known as Mill Pond Bridge. Later tenants here include Johnson & Company, malt distillers of Vauxhall, in the years around 1800.[32]

Between Randall's Mill and Ponton's millpond ran Battersea's oldest stretch of industrialized riverfront. Its character was shaped by a series of mostly small-scale wharves and docks laid out between Nine Elms Lane and the river, and also from the 1850s by the large gasworks on the south side of the road – a character that remained largely unchanged until the 1960s.

Whiting works and limekilns had been prevalent at Nine Elms since the seventeenth century, grinding, burning and refining chalk from the Channel coast and Thames estuary for such products as paint, paper, abrasives and ceramics, as well as limestone for cement. In the early nineteenth century the biggest Nine Elms firm in this sector of manufacture was Francis & White, whose cement works and wharf lay immediately west of the windmill and first railway wharf. Charles Francis established himself here in 1809–10 as a wharfinger, lime-burner and cement merchant in partnership with John Bazley White.[33] Francis was a pioneer, and his firm, later known as Charles Francis & Son following White's departure in 1837, was an important supplier of the very successful patent 'Roman cement'. Their large factory with its tall chimney, conspicuous in early views of the riverside (Ills 369, 370), was the company's London base until around 1870, when it was swallowed up by the adjoining railway goods wharf. Cement production lived on, however, at other wharves near by, such as A. H. Lavers' cement works and wharf, which included old whiting sheds inherited from far earlier manufacturers (Ill. 371). Lavers also traded in bricks, tiles, chimney pots and other wares, much of it brought from Kent by Thames barges and then dispatched by rail or cart. The Heathwall Pumping Station at 54–56 Nine Elms Lane now occupies this site.[34]

West of Francis & Son in the 1840s was Belmont Coal Wharf (also soon to be absorbed by railway expansion) and beyond that the riverside malthouses of Thorne Brothers, whose Nine Elms Brewery lay south of Nine Elms Lane. Thornes, who acquired the brewery in 1841, rebuilt it in 1898 in a Queen Anne revival style to designs by G. T. Harrap and W. H. Duffield. Meux's Brewery bought out Thornes in 1914, and in 1921 Nine Elms became their main centre of production, taking the name Horseshoe Brewery from their historic West End headquarters, which then closed. Brewing ceased in 1964 and the site was cleared in 1975.[35]

Of the several Nine Elms boat and barge makers of the 1840s – William Downey, William Robins, John Heighington, Thomas and Fleming Revel, Henry Carne – few survived the rapid decline in London shipbuilding of the 1860s and 70s. The several coal wharves fared better, among them Seaham Coal Wharf, held by the Marquesses of Londonderry from the 1860s until the 1910s to land coal from their Durham coalfields. At least one coal dealer was still based here in the 1950s.[36]



368. Nine Elms riverfront and industrial sites, *c.*1916. The smaller, unlabelled wharves were then mostly used for storing coal or hay and straw

369. Riverfront at Nine Elms, *c.*1840–5, showing (from left to right) London & Southampton Railway's warehouse, Randall's Mill and Francis & Son's cement works

370. *Randall's Mill, Nine Elms, Looking towards Vauxhall Bridge* by John Varley, 1830.
In the foreground are blocks of chalk and stone, delivered by boat to Francis & White's cement wharf and works

371. Laver's Wharf, Nine Elms, in 1906, looking south towards Nine Elms Lane, with gasworks (Gasholder No. 1) in the background. The tall wooden sheds, used for drying whiting at the end of its manufacturing process, were probably of eighteenth-century origin. *Demolished*

By the early 1900s building tradesmen, contractors and civil engineers were gravitating to Nine Elms and, along with the carmen, lightermen and other service trades, persisted there beyond the Second World War. Holland & Hannen were the longest-running, establishing a large storage yard at Princes Wharf in *c.*1880 and around 1913 absorbing the adjoining Seaham Coal Wharf, where they gathered the stone for the construction of County Hall. They remained at Nine Elms until the mid 1950s.[37]

Nine Elms Gasworks (demolished)

Latterly one of the biggest in the Thames district, the Nine Elms Gasworks began modestly in 1856–8 as a small station with a single gasholder beside the millpond on the south side of Nine Elms Lane. It was established by the London Gas Light Company (LGLC), which had been making gas at Vauxhall since 1834. In 1860–3 the company acquired the mill, pond and adjoining land, spent some £50,000 on new buildings and by 1864 had transferred the bulk of its production there.[38]

The fully equipped site included two large gasometers (Nos 1 & 2) of one million cu. ft capacity, designed by Richard Jones, the LGLC's engineer, and built in 1856–7 and 1860–1 respectively. Both had guide frames of giant-order cast-iron columns in the style common to the period. A third, larger holder (No. 3), designed by Jones's successor, his cousin Robert, was under construction in November 1865 when an explosion set alight and ripped apart the two existing gasholders, killing ten workmen and injuring many more. Houses close by in Haward Street were also destroyed. Reconstruction rolled on into the early 1870s, by which time production had increased to such an extent that more storage space was needed. This was gained by purchasing land beside Battersea Park railway station, where in time four additional holders were erected to store gas piped from Nine Elms (page 359).[39]

Huge quantities of coal were consumed at Nine Elms. Sidings connected the works to the London & South Western Railway, but most coal came by barge through a cut beneath Nine Elms Lane and into a dock constructed on the millpond site, where forty barges could lie at a time. Fifteen thousand tons of coal stood heaped in the works yard, 'wafting a gritty dust over the district so that often it resembled a mining village'.[40] In 1877–82 an open dock and wharf were built on the riverfront for a new fleet of steam colliers – the first sea-going vessels to bring coal this far upriver. Coal was transferred from boat by crane to an

372. Nine Elms Gasworks, *SS Afterglow* unloading at a riverside coal wharf, *c.*1925. Coal conveyor over Nine Elms Lane in the foreground. *Demolished*

automated conveyor, designed by Robert Morton, crossing to the works some 20ft above Nine Elms Lane (Ill. 372). It was this wharf's efficiency that ultimately ensured the works' survival into the late twentieth century, while other, less well-situated or well-equipped gasworks closed. Shortly after these improvements, the LGLC was taken over by the Gas Light & Coke Company (GLCC), which thus acquired its only facility south of the river.[41]

There was often a pioneering side to work at Nine Elms. The late-Victorian 'scrubbers' there, where harmful acids were washed from the gases, were of the latest design, on a system patented by William Mann in partnership with Messrs C. & W. Walker. 'Inclined' retort settings were first tried experimentally at Nine Elms in the late 1880s to a design by André Coze, engineer of Rheims gasworks, before being introduced more widely; and the same was true of 'vertical' retorts in 1906. A research laboratory and training centre, Watson House, was established in the mid 1920s in a converted Crosse & Blackwell jam factory beside the wharf. In 1963 this moved to Hurlingham Park.[42]

In 1891–2 the No. 2 gasholder was rebuilt to double its previous height under the direction of George Trewby, the GLCC's chief engineer. This had a guide frame of narrow box-section iron lattice standards, strengthened by horizontally webbed girders, and topped by decorative ball finials.[43] Its distinctive silhouette was a potent reminder of the works' place in the local economy until its closure in 1970 (Ill. 364). More improvements were made in the 1920s, including the filling-in of part of the barge dock to allow for a new purifying plant. By 1948 the old No. 1 gasholder had gone, and around the same time the No. 3 holder was rebuilt as a spiral-guided steel holder.[44]

When nationalization came in 1948–9, the North Thames Gas Board announced an immediate £7m reconstruction programme, dispensing with smaller gasworks in order to concentrate on large riverside sites like Nine Elms. There the bulk of the money went on a new 360ft-long steel and concrete jetty to take the biggest of the board's new fleet of diesel-class colliers and an associated coal-handling plant, capable of unloading a 2,600-ton ship in a single tide. Begun in 1948, the new facilities were inaugurated by the Duchess of Kent in May 1952.[45]

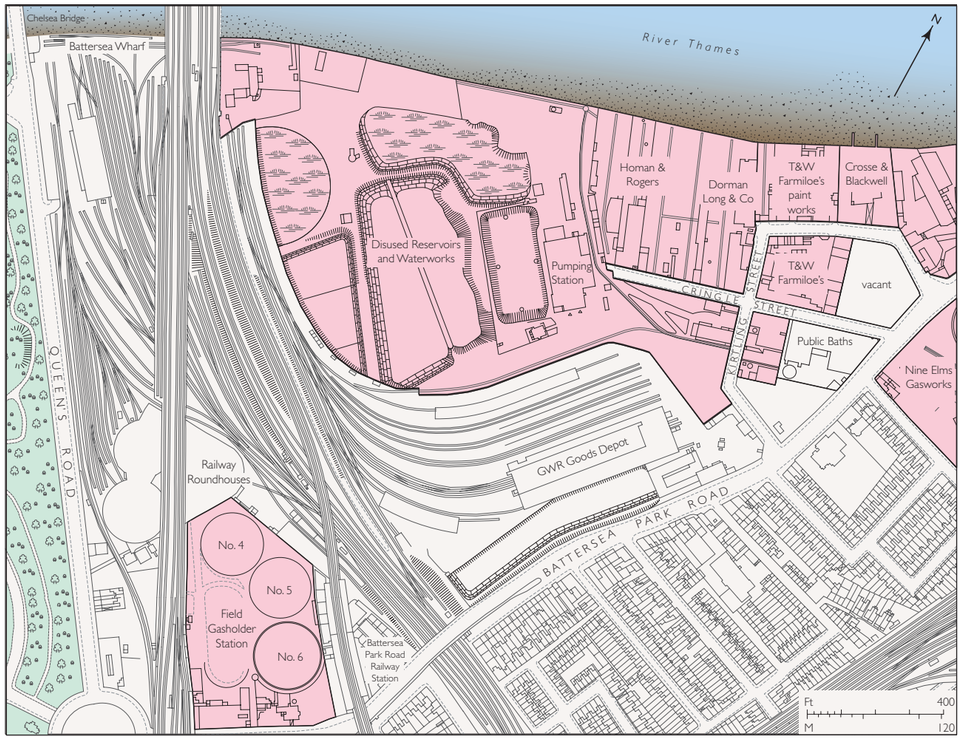
As Britain began to turn its back on coal-based 'town' gas, manufacturing plants like Nine Elms were phased out, the last shipment of coal to the wharf coming in January 1970.[46] Soon afterwards the gasworks closed and since then several modern industrial developments have taken its place (see below). The only survivors are the 1950s concrete jetty, minus its cranes and rechristened Nine Elms Pier, and the adjacent dock, both of which now offer shelter to houseboats.

373. Women workers shovelling coal at Nine Elms Gasworks in 1917

Industrial and commercial development in Nine Elms, 1979–85

With the closure of the Nine Elms goods yards, gasworks and brewery in the 1960s and 70s, a very large tract of land became available for redevelopment. Nine Elms Lane and Battersea Park Road were now widened into a major traffic artery and radically reconfigured at the Vauxhall end. This was principally to serve the two distinct portions of New Covent Garden Market, constructed in 1971–4 on railway land south of this route. The market buildings are separately discussed in Chapter 11.

Once the markets had opened, Ponton Road was entirely reconstructed and a branch road off it created, called Post Office Way. Various further buildings sprang up here and on either side of the widened main route between about 1979 and 1985 as part of a campaign to renew commercial and light-industrial employment in the Nine Elms area.[47]



374. Riverfront and industrial sites between Nine Elms and Battersea Park, *c.*1916

Many have already gone at the time of writing, as the area awaits another reconstruction as part of the Vauxhall/Nine Elms Opportunity Area, described in Chapter 13.

The one building of architectural ambition here was HM Stationery Office's Publications Centre or TSO Building, 51 Nine Elms Lane, of 1980–2. It was designed in the colourful early manner of James Stirling by Tony Henocq, architect (of the PSA Directorate of Civil Accommodation), with an office block on a splayed plan embracing a planted court, and flanking warehouses faced in corrugated steel (Ill. 375). It was demolished in 2010.[48] Next to it and of similar date was a large Royal Mail Sorting Office in Nine Elms Lane, serviced from Post Office Way (Gollins Melvin Ward Partnership, architects). Opened by the Queen in December 1983, it remains in service at the time of writing but is to be redeveloped. Also worth passing mention is the auctioneers Christie's Warehouse of *c.*1982–3 at 42 Ponton Road, displaying a striking cut-brick portrait medallion of the founder on the front.[49]

Cringle and Kirtling Streets

The first big development here came in 1884 when a barge builder's dock was filled in and a large four-storey riverside warehouse erected to designs by Karslake & Mortimer for T. & W. Farmiloe of Westminster, one of two London firms of the entrepreneurial Farmiloe family trading in glass and lead (Ill. 376). Over the next twenty years the firm expanded into dealing in sanitary ware, varnish and paint, and more buildings were added, with factories and warehouses by the river, and glass-cutting departments, blacksmiths' and coopers' shops and stables around a courtyard on another plot south of Nine Elms Lane. Having suffered bomb damage, Farmiloes rebuilt in the 1950s, but further redevelopment has taken place and the firm has gone, though the site is still identifiable and some old fabric – including a heavily rebuilt white-lead factory of *c.*1910 – remains at the junction of the two streets.[50]

375. HM Stationery Office's Publications Centre (TSO Building), 51 Nine Elms Lane, in 2009. *Demolished*

Adjoining Farmiloes to the west were the stockyards and engineering factories of Dorman Long & Company and, for a short while, Dawnay & Company and Homan & Rogers. Dorman Long's works, of 1893–6, were greatly extended in the early 1900s, and especially in 1915–16 when the firm was taken under government control. By then the site was dominated by two enormous open-ended steel-framed workshops, each about 150ft long. Here giant steel beams and sections were brought by sea from their Middlesbrough mills to be unloaded at the quayside for assembly. The firm kept on their Nine Elms yard until the early 1960s.[51]

After Dorman Long left, the eastern part of their site was taken by RMC Aggregates and converted to a storage wharf and concrete-mixing plant, which remains today. Adjoining to the west is the Cringle Dock Solid Waste Transfer Station, established by the GLC on the western half of the Dorman Long site around 1970. This has a compacting plant at the front, where domestic refuse comes by road to be squashed into containers, which are then transferred at the rear to barges for transportation downriver to the appropriately named Mucking landfill site at Thurrock.[52]

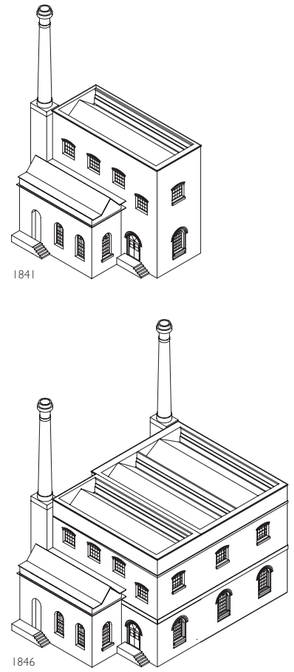
376. T. & W. Farmiloe's warehouse, Nine Elms, in 1885. *Demolished*

Both wharves lie in the shadow of Battersea Power Station, which is considered separately in Chapter 9. Its predecessor on the site, the Battersea waterworks of 1841–1903, is described below.

Southwark & Vauxhall Company's Waterworks (demolished)

One of Victorian Battersea's foremost industrial complexes, this waterworks covered upwards of 45 acres at its height in the 1880s and 90s. It closed in 1903 and was obliterated in the 1920s for the construction of the power station, alongside which stands the site's only survival – its engine-house, the Battersea Pumping Station as it is generally known, now empty and forlorn.

The site's origins lie with the Southwark Water Company, established in 1834 by Act of Parliament to provide water to south London by acquiring the Southwark Water Works of John Edwards Vaughan, who had died the previous year. Vaughan's supply had been taken untreated from the Thames at Bankside; the Act required that the intake be moved upriver to Battersea and the water filtered before delivery. However, land acquisition was delayed until 1839, water being supplied to Southwark in the interim by the Lambeth Water Company.[53]



377. Southwark & Vauxhall Waterworks engine-house, axonometric views. The boiler-house range to the rear has been omitted for clarity

Battersea seems a surprising choice for such a plant in the 1830s, as by then criticism of the poor quality of Thames water this far downriver had forced the Grand Junction Water Works Company to move upstream from Ranelagh to Brentford. Battersea's recommendation came from William Anderson, engineer to both the Southwark and Grand Junction water companies. He set his faith in the effectiveness of subsidence or 'depositing' reservoirs used in combination with a system of slow sand filter beds, for which there was ample space at Battersea and Brentford, but not at Ranelagh.[54]

Around eighteen acres in Battersea Fields were acquired in 1839–40, east of the land used shortly afterwards for Battersea Park and the approaches to Chelsea Bridge. It was mostly open marshland – the Flood Marsh, the largest portion of which belonged to Thomas Cubitt – but included also the Flora Tea Gardens and some 750ft of river frontage, then occupied by an alkali works and vitriol factory. Not all was brought into use immediately; parts were let to tenants until required for expansion.[55]

The first works, of 1840–1, comprised a site of about twelve acres, set back from the riverfront, with a seven-acre reservoir, 2¼-acre filter bed, engine-house, boiler-house and superintendent's residence – all designed by Anderson and built by Joseph Bennett of Rochester Row. An iron main connected the works to the company's existing supply pipes at Elephant and Castle.[56]

Described at the time as a 'double' house, the engine-house of 1840–1 comprised two bays, unequal in height and depth: much of its fabric survives within the present building (Ill. 377). The larger of its two engines failed to work effectively when started in December 1840, forcing Joseph Quick, the works' superintendent, to design a 130ft standpipe which could absorb the surges of water from the engine strokes and ensure a steady pressure before it reached the mains. This was erected shortly afterwards by John Aird & Sons.[57]

Soon the area of supply was extended to Bermondsey and Rotherhithe, prompting competition from the Vauxhall Water Works Company, which in places began laying pipes alongside those of the Southwark company. A merger was agreed and a new company, the Southwark & Vauxhall Water Company, formed in 1845. As a result the Battersea works were enlarged in 1845–6 to supply the united district, allowing those of the Vauxhall company to be sold off.[58]

Further land acquisition at Battersea had already begun in preparation for the merger and continued throughout 1845. Thomas Wicksteed had been appointed consulting engineer following Anderson's death and was asked to prepare plans, but in the end Quick took on both roles. Once again part of the site – about four of the 24 acres – was set aside for future growth.[59] Quick extended the engine-house with two more large bays on its east side, so creating the squareish main block that remains today.[60] The firm of Harvey & Company re-erected an engine from Vauxhall here in 1847, working over a second, taller standpipe, 145ft high, erected to the east of the original, which was raised to match. At this stage the easternmost bay of the engine-house remained empty. To improve water quality, a lifting engine was installed at the rear of the extended boiler-house, allowing water to be taken from the river below

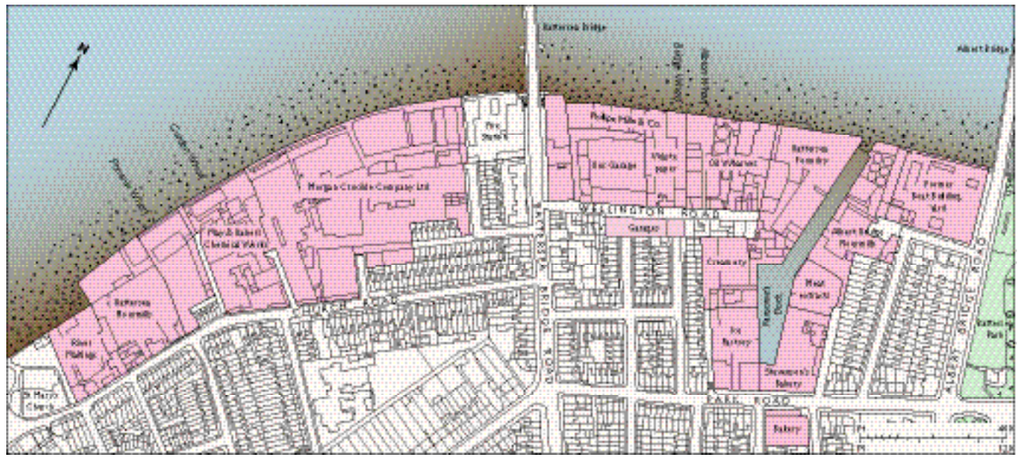
378. Southwark & Vauxhall Waterworks from the south in 1914, showing (from right to left) chimney, engine-house with standpipes in front, caretaker's cottage and reservoirs. In the foreground is part of the South Lambeth Goods Station. *All demolished*

379. Lancashire boilers being installed at the Southwark & Vauxhall Waterworks, probably in 1884

low-water mark on a falling tide – when it was thought to be at its purest – before being left to settle in the depositing reservoirs for two to three days, then filtered and pumped to the company's customers.[61]

In 1852 new legislation prohibited Thames companies from drawing water for domestic use below Teddington Lock after August 1855, so severe was the river's contamination in central London. Cognizant of what was coming, Sir William Clay, the company's chairman, had already in October 1851 purchased ten acres of riverside land at Hampton, and in the following year obtained a private Act to establish an intake there and pipe water to Battersea for filtration and delivery. A new, circular filter bed was added at Battersea to meet the increased demand, the lifting engine was removed, and by July 1855 over ten million gallons of water were being pumped daily from Hampton for filtration.[62]

Such changes required bigger and better pumping. In 1856 Harveys were asked to prepare a 112in.-cylinder



380. Riverside industries between Battersea Park and St Mary's Church, *c.*1916

Cornish engine – the biggest ever designed for a waterworks – for the vacant engine-house chamber. To back it up, John Aird once again enlarged the boiler-house and erected a third standpipe over 180ft high.[63] Like the earlier standpipes, to which it was connected, this had no surrounding protective chimney, and so these naked iron skeletons became prominent features in an otherwise flat alien landscape (Ill. 378). At the time they were compared colourfully to 'a monster hairpin stuck in the earth' or 'a Brobdingnagian wind instrument placed mouth downward to drain'.[64]

At the same time another, smaller Cornish engine was added to pump water to new high-level supply districts at Wimbledon and Roehampton. This replaced the old engine in the smaller bay of the 1841 engine-house, which was rebuilt by Aird in a style to match the three larger ones. Fearful of engine failure, the company in 1860–2 added a duplicate in a second small bay to the west, completing the engine-house in its present-day form.[65]

In 1861, during this work, part of the site was used by the London Pneumatic Despatch Company for a full-scale trial of a prototype pneumatic railway, which it was hoped would be used by the Post Office to move mailbags and parcels quickly around central London. Though several permanent underground lines were constructed in the 1860s and 70s, the system never took off to the degree envisaged by the company.[66]

The later history of the waterworks was one of gradual expansion and improvement. When a new railway line to Victoria sliced off part of the circular filter bed in the 1860s, the remainder was rebuilt with vertical rather than inclined side walls to increase capacity. At about the same time more filter beds were added on vacant land to the south, purchased from the Battersea Park Commissioners; and in 1870 a 24-million gallon depositing reservoir was constructed on land towards Battersea Park Road left vacant by the aborted West London Docks scheme (page 293).[67]

By the mid 1870s a constant supply of water had superseded the old intermittent one, and so the company increased its storage capacities with four great covered reservoirs at Nunhead, where Clay, with typical prescience, had acquired land twenty years earlier. Thereafter the focus shifted increasingly to Hampton and Nunhead. The obsolescent Battersea works finally closed in 1903, when London's water supply became centralized under the Metropolitan Water Board (MWB). In time the MWB broke up and sold off the bulk of the site, leaving only the engine-house and boiler-house as a back-up pumping facility, alongside a general works and maintenance depot.[68]

It briefly seemed in 1907 that most of the land would be taken by J. W. F. Bennett's Dream City theme park, but that fantasy never got beyond the drawing board (page 277). In 1908–10 about 12½ acres in the south-west corner, bounded by Battersea Park Road and the railway, were purchased by the Great Western Railway Company for its South Lambeth Goods Station (pages 316–17), the MWB acquiring a siding there as part of the deal. As for the rest, it remained an overgrown waste until the 1920s, when it became the site for Battersea Power Station. A two-storey warehouse at 188 Kirtling Street, latterly occupied by the power station developers, seems to have been added by the MWB in 1914 as stores and offices.[69]

381. Albert Bridge Flourmills in 1884. *Demolished*

382. Ransome's Dock looking south from the lock gates in 2008

The engine-house was converted to workshops in the 1920s and the last of its standpipes taken down. Around 1990, following privatization of the water industry, the site was sold to Parkview International, owners of the adjoining power station; Thames Water retains a presence in the form of a shaft to the London Ring Main and a switch-gear house in Cringle Street. The old building was listed (Grade II) in 1994, but Parkview obtained consent for demolition and their successors Treasury Holdings also wanted it removed in 2012 as part of new redevelopment proposals.[70] Both schemes have since been thrown to the winds and at the time of writing the building still stands, though dilapidated and dangerous.

Just east of Chelsea Bridge lay Battersea Wharf, a site of busy interchange between the river and the railway yards of the London, Brighton & South Coast Railway. This is covered in Chapter 7.

Between Albert and Battersea Bridges

Before the building of the two bridges that frame this portion of riverfront, it had a much more irregular profile, occupied mostly by osier beds, 'tide meadows' and rudimentary docks. A great deal of the frontage now is made land, reclaimed from the river in the Victorian period. Its principal natural feature was a creek, since extended and regularized as Ransome's Dock.

Prince's Wharf and Albert Bridge Flourmills (demolished)

A barge builder's yard stood on the riverfront at Prince's Wharf, to the west of Albert Bridge, in the 1870s,[71] but the first big development here was not until 1882–3, when a large steam flourmills complex, the Albert Bridge Flourmills, was erected for the firm of Marriage, Neave & Company Ltd on the site adjoining to the west, next to the creek, which was then being rebuilt as a dock. The work of the Salisbury architect Fred Bath, this tall brick structure with pedimented gables and a machicolated tower was a rare example of the Queen Anne revival style applied to industrial fabric on a large scale (Ill. 381). As well as constructing the mill and granaries, the firm did much to improve the adjoining portions of dock and river wall. Later extended, the mills were latterly in the hands of Hovis Ltd, and were closed and demolished in the 1970s. Parts of Waterside Point and London House stand on their site.[72]

By the 1920s Prince's Wharf had been expanded for the Maidstone brewers Style & Winch as an ale store and bottling plant. Motorized river barges brought Kentish ale up the Thames from the Medway to Battersea for bottling, then returned with empty casks. One of the barges, *Atranto*, is still moored near by.[73] Today Albert Bridge House occupies this site.

Ransome's Dock and Wellington Road area

West of the creek, by the 1830s and 40s several chemical, lead and other works had sprung up at the end of a lane leading from Battersea Bridge Road, called Soap House Lane. This was subsequently renamed Wellington Lane or Road, and since 1937 has been known as Hester Road. By the late 1860s industrial buildings had spread all along its northern side.[74]

Foremost was the Battersea Foundry of the Pimlico engineers Robinson & Cottam, erected beside the creek in 1863–4 to designs by John Whichcord. It comprised long, lofty brick buildings, with iron-and-glass lantern roofs, smiths' and engineers' shops, a yard and wharfage. By the mid 1870s the site had been taken over by Allen Ransome, of the Ipswich-based engineering dynasty. Ransome & Company already had a works at Chelsea, where they made machine engines and wood-working machinery for foresters, and assimilating the Battersea Foundry enabled them to cast all their machine parts themselves from raw materials.[75]

Ransome also invested heavily in extending and rebuilding the adjoining creek into the dock that now bears his name. Excavated and constructed in 1884 by the local engineering contractors B. Cooke & Company, under the guidance of the civil engineer Edward Woods, the dock was designed to take not just lighters and barges but also coastal steamers. It was wide and deep enough to allow craft to turn, or two rows of vessels to pass and to leave on the lowest of tides. Such a facility had become scarce on both sides of this stretch of river since the making of the embankment in the 1860s and 70s, and though no longer in commercial use, it is still a rarity this far upstream (Ill. 382).[76]

Ransome's initiative opened up a large area of vacant land either side of the dock at its southern end, facing Park (now Parkgate) Road. Several works were constructed here from the 1880s, most of them connected with the food industry, including a creamery, Stevenson's steam bakery (from which buildings survive at 39–49 and 40 Parkgate Road, now converted) and, at the south-west corner, an underground store for the Natural Ice Company Ltd, which shipped ice direct from the Norwegian fjords without intermediate handling. The store was later taken over by Slaters Ltd and by 1902 had come under the control of the Gatti family following their amalgamation of several smaller ice-block merchants as the United Carlo Gatti Stevenson Slater Company. Soon afterwards they erected a new ice-making factory above the store, on the corner with Parkgate Road, parts of which still stand, converted to restaurant and other uses.[77]

Ransome had gone by about 1890, and in 1902 his foundry was taken over and partially redeveloped by Drew-Bear Perks & Company as their Battersea Steelworks, where they made all manner of steel stanchions, girders and beams for the construction industry. Today Ransome's Dock and its vicinity have been reinvented after years of neglect as a Docklands-style haven of houseboats, new apartments, business centres and restaurants. On the west side a little early twentieth-century warehousing and a factory chimney still survive near the kink in the dock. Further redevelopment is planned.[78]

Beyond the foundry and dock most of the old works of Wellington Road had been pulled down and rebuilt by the 1880s, though an exception was the Wellington Works of Joseph Bowley, a soap and candle maker and oil refiner, who had moved here from Westminster around 1868 and whose firm was still based here in the early 1960s. Next door to Bowleys was the Ozokerit Works, erected in 1871 by J. C. & J. Field & Company, a firm of wax-chandlers and soap makers from Lambeth, where their main candle factory was situated. The name Ozokerit came from the firm's trade-mark refining process and was applied also to their leading brand of candle, designed for tropical climes. Fields' factory closed around 1894 and was absorbed into Bowley's works.[79]

At the west end of Wellington Road, beside Battersea Bridge, a white-lead works had been established by the 1870s. In the late 1880s a stables and cab depot took its place, which in turn was taken over and redeveloped in 1896–7 by the London Road Car Company Ltd, at the time the capital's second-largest horse-bus operator after the London & General Omnibus Company (LGOC). Connected to the Wellington Road depot was a wharf with a string of red-brick riverside silos and fodder warehouses designed by the company's architect, Peter Dollar, where grain for the horses was brought by lighter from the docks. In 1908 the company amalgamated with the LGOC, which then rebuilt the depot as a motor-bus garage, with a large glass-and-iron roof; it later became part of the London Passenger Transport Board and continued to operate as an LT bus garage until its closure and demolition in 2000.[80]

Next to the bus garage from the 1880s at Bridge Wharf were old timber and brick buildings used by the Salvation Army as a social wing depot, or 'elevator'. This was a salvage yard, where destitute men were given work sorting used rags and waste paper for sale to processing plants.[81] Salvage also became a big business in the area around 1910 when Phillips, Mills & Company established their waste-paper mills in the by-then superfluous riverfront fodder warehouses; they also took over the Salvation Army depot at Bridge Wharf. Here waste paper was sorted, shredded, pressed into bales and stored before being loaded on to lorries or barges and taken to plants in Holland for pulping. The mills were demolished in 1973.[82] Foster & Partners' Albion Riverside development stands on their site and that of the bus garage.

383. Marc Brunel's sawmills of 1807, view before their partial destruction by fire in 1814

Battersea Bridge to St Mary's Church

Several major industries sprang up beside the church in the eighteenth century, including a distillery and maltings, and the horizontal windmill of Thomas Fowler, established in the grounds of Bolingbroke House. Both are considered in more detail below. At this time Battersea Church Road was but a short stub. By the 1830s more works and wharves had spread along the riverfront towards Battersea Bridge, encouraging the extension of the road eastwards in a zigzag pattern. By the 1860s rows of small houses had been built along this zigzag route, and the main road realigned and extended to its south (Volume 50).

Manufacturing chemists were common to this area from early on. When the Morgan brothers took over a small crucible factory at Garden Wharf in the mid 1850s they were flanked by older and bigger chemical wharves, those of May & Baker to the west (see Ill. 387) and Foot & Company to the east. Foots were later succeeded by H. Bollman Condy, purveyor of sea-salts, aromatic vinegars and Condy's Fluid, a popular antiseptic. Both sites were eventually swallowed up by Morgan's, though that company did make room at Garden Wharf for the Jesse Rust Vitreous Mosaic Company, which moved here from Battersea Park Road in 1895 and prospered until the 1930s, ultimately under the ownership of May & Baker.[83]

When Morgan's expanded as far as the bridge in the early 1900s they appropriated a steamboat works and sawmills that had occupied this end of the riverfront since *c*.1850. But the sawmill building had a longer and intriguing history as a brief and not altogether successful speculation by the engineer Marc Isambard Brunel. The description below is a reduced version of a longer account published in 2010.[84]

384. Undated plans by M. I. Brunel for a sawmill

Brunel's sawmills and army-boot factory (demolished)

Marc Brunel's Battersea sawmills evolved from his pioneering mechanized block-mill and sawmill projects for the Royal Navy at Portsmouth, where he had been engaged since 1802. The scheme originated as part of a highly ambitious plan of Brunel's to capitalize on Portsmouth's renown by establishing his own private block factory and sawmills to serve the merchant navy.

In 1805–6, as his involvement at Portsmouth was winding down, Brunel began experimenting there with new types of circular saws, made to his designs by Henry Maudslay. Brunel had by then acquired business partners and with them had apparently taken land at Limehouse for his private factory and sawmills, which were to be large enough also to supply all the blocks required by the Royal Navy, should an accident befall the Portsmouth mills.[85] By October the intended location for this factory had shifted to Battersea, to a riverside works a little west of Battersea Bridge. This appealed to Brunel greatly, principally for its proximity to Chelsea and good transport links: '476 feet

along the River and contiguous to two Turnpike Roads will always be of great value,' he wrote to his partners, 'where can you meet with such [a] spot?' He may also have been influenced by his connection with the 2nd Earl Spencer – lord of the manor and major local landowner – and his wife the Countess Lavinia, whom Brunel considered his friends. It was the Earl who, during his tenure as first Lord of the Admiralty, had been instrumental in securing Brunel's contract at Portsmouth.[86]

By November 1806 Brunel had set aside the private block-mills scheme in order to concentrate his and Maudslay's energies on establishing a specialized steam-driven sawmill for cutting veneers and thin boards. Acutely short of income, Brunel felt that, of all the private projects then under consideration, this promised the most 'handsome and speedy return'.[87] He had that year secured a patent for veneer-cutting saws, and some further patents for circular saws and sawmill machinery came in 1808–13. This period of his career was largely devoted to perfecting new machines for working timber, including stave-cutting machines for the victualling yard at Deptford, and steam-driven sawmills for the Navy at Chatham and the Royal Arsenal at Woolwich.[88]

Brunel's partners at Battersea were two City pocket-book makers, James Handford Farthing and William Farthing, of Cornhill and Cheapside respectively. James was also a manufacturer of writing machines and polygraphs, and William a jeweller. Brunel is thought to have sunk all his spare capital into the Battersea speculation, but J. H. Farthing also provided finance as well as much needed business acumen. By 1807 Brunel had moved his family to Cheyne Walk, Chelsea, to be near at hand.[89]

Of all Brunel's sawmills, that at Battersea was probably the most sophisticated architecturally, being in a severely simplified, astylar mode of neo-classicism (Ill. 383); his other plans generally made use of columns or pediments. One sheet of undated, unlabelled sawmill designs, bound with other dated drawings by Brunel for the sawmill at Chatham, appears to relate to it (Ill. 384). Characteristically, he placed his sawing machines in the main central mill area, with 'pavilions' to either side – one a boiler- and engine-house, the other workshops.

However, it was not the building but the beauty and efficiency of the machinery, made by Maudslay to Brunel's specifications, that struck most early visitors. Sliding cast-iron frames held logs of wood, which could be raised or lowered to make different thicknesses of veneer, and then moved against a cutting blade, which sliced the thin veneer 'like a roll of paper'.[90] There were also four circular saws at work, two of 18ft diameter, two of 9ft diameter, with teeth larger than usual to prevent the saw clogging with sawdust and tearing the fine veneers. One visitor watched these saws shave planks of mahogany and rosewood into veneers one-sixteenth of an inch thick, 'with a precision and grandeur of action which was really sublime'. With such machinery Brunel could provide raw materials for furniture and hat-box makers at a fraction of the previous cost. In addition to veneers, grooves and 'rabbets' were also cut from timber for the first time by machine, and for profit.[91]

To begin with the veneer and sawmill business was a success, with at one point orders for almost £5,000 over a five-month period. Also, the machinery itself attracted customers. In 1810 James Borthwick ordered similar equipment from Brunel for his sawmills at Leith near Edinburgh, which were installed in 1810–12 under Brunel's supervision; and the Duke of Atholl also invited Brunel and Farthing to erect a similar operation on his estate near Dunkeld. But soon a combination of factors shattered Brunel's already brittle finances, leading eventually to his arrest and imprisonment for debt in 1821.[92]

Perhaps the biggest blow was the Farthings' withdrawal from the business around 1812. They were replaced as partners by Brunel's brother-in-law Thomas Mudge junior, son of the prominent clock and chronometer maker of the same name, but apparently a less able businessman.[93] Also, by then Brunel – a prolific, restless inventor – had embarked on another private industrial speculation at Battersea, one that was to contribute considerably to his eventual ruin.

This was a factory making boots and shoes for the Army, established in 1810 in a new building alongside the private sawmill.[94] Once again the philosophy of mechanization and mass-production introduced by Brunel at Portsmouth prevailed: everything was cut or made on a production line of ingenious Brunel machines, operated not by skilled cobblers but by some 25 unskilled disabled army veterans, who could be trained in a matter of hours. The end result, as at Portsmouth, was greater precision, uniformity and economy.

Most Brunel commentators repeat the story that this venture was inspired by the sight of British soldiers returning from the Corunna campaign (1808–9), where the poor state of their footwear had caused terrible injuries during the winter retreat across the Galician mountains. But his own explanation of the boot factory's origins fails to mention this. In a letter to Earl Spencer he explained that it began when he was approached in 1810 by a 'respectable' army clothier to invent an apparatus for making military shoes, presumably with a view to entering into partnership. When the clothier withdrew shortly afterwards, Brunel decided to pursue the project alone. In this he was encouraged by Mudge, whom Brunel credited with the idea of employing only invalid ex-servicemen.[95]

It is not certain that Brunel had an official contract for supplying the Army's footwear. Following a few tentative purchases by the Government, he claimed later to have been 'prevailed upon and induced' by 'flattering encomiums' and verbal promises from high-ranking visitors to the factory – including Lord Castlereagh and the Duke of York, the Commander-in-Chief of the British forces – to invest in expanding the business to supply the whole army with new boots and shoes, increasing production from about 100 pairs a day in 1810 to 400 by 1812; Wellington's troops at Waterloo are said to have worn boots made by Brunel at Battersea.[96] But when peace came in 1815 the

385. Thames foreshore west of Battersea Bridge, *c.*1870, with former Brunel sawmills left of centre, when in use by the Thames Steamboat Company. *Demolished*

British government had no need for Brunel's boots on such a scale, leaving him with a stock of some 80,000 unwanted pairs.

He complained to Earl Spencer that 'no consideration' had been given to his service, which was 'of national importance', claiming to have spent some £15,000 on buildings, machinery and materials. Brunel eventually asked the Chancellor of the Exchequer for compensation, but none was forthcoming. Desperate for cash, he wrote to the Prussian government in 1819 with plans for a national army-boot factory along similar lines, but again to no avail.[97]

Brunel's desperation had been compounded by further misfortune in August 1814 when the Battersea sawmill was almost entirely consumed by fire. With exceptionally bad timing, this coincided with one of London's worst warehouse fires, at Bankside. Such was the scale of the latter inferno that only three fire engines could be spared for Battersea; and, with the tide at a low ebb, very little water could be brought into play. Much of the stock of timber and veneer was rescued but the result was the destruction of all but the right wing of the sawmill and its steam engine.[98]

Brunel reacted positively, viewing the disaster as an opportunity to make improvements. He told Joseph Field, with whom he was working on naval sawmills at Chatham when the news of the fire was brought to him: 'I can make better machinery now'. The sawmills were indeed rebuilt, in a slightly different form, and were fully operational again by 1816.[99] In plan the building was similar to its predecessor, repeating the arrangement of a central millhouse with flanking pavilions, but these now had pediments; this was basically the form the sawmill retained until its demolition in the late 1970s (Ill. 385).

But, rather than focus on the sawmills or boot factory, in 1816–19 Brunel became engrossed in new private ventures, including a circular-frame knitting machine, an experimental rotary printing press, and the manufacture of a new type of decorative tinfoil. The last of these also took place at Battersea.[100] By then Brunel had acquired new business partners: Samuel Shaw, a personal friend, and William Hollingsworth of Nine Elms (d.1825), a wealthy merchant and brewer, with one of his brothers, probably Samuel.[101] Shaw was certainly engaged with Brunel in the decorative tinfoil scheme, the Hollingsworths apparently only in the sawmills.

Brunel patented his tinfoil process in 1818. By smoothing a thin layer of foil on a heated plate and then applying additional heat, he was able to produce a delicately crystallized surface, which was then varnished and used to decorate all manner of objects – from small items, such as snuff or patch boxes, to lamp columns, urns and cabinets, even coaches. It was stocked and sold by Ackermanns on the Strand. That December Brunel presented the Prince Regent with a screen made of the patented tinfoil, and some of the rooms at Brighton Pavilion were apparently decorated in the material, which seems to have lent itself to Eastern designs, as it was also exported to Madras and Calcutta. Brunel then filed a further patent for a decorative metallic paper.[102]

Despite his patent, Brunel's new foil process was widely pirated, and failed to bring the economic success he had hoped. After his release from prison he eventually rid himself of the boot-making and tinfoil businesses, latterly retaining only a half-share in the sawmills. The Hollingsworths were last listed as ratepayers there in 1822; their successors Mudge & Company had gone by 1827, and with them went any lingering association with Brunel.[103]

The sawmills were subsequently acquired around 1828 by John & James Watson & Company, sawyers and veneer-cutters, who remained in business there until about 1849.[104] By then the site had become part of the steamboat yard of the Citizen (or City) Steamboat Company, established in 1845 to secure a slice of the then burgeoning and lucrative trade in Thames paddle-steamer services. Its boats plied between London Bridge and Chelsea every ten to fifteen minutes. Improved road and rail services badly affected business, and in 1875–6 the Citizen merged with the other small riverboat companies to form the London Steamboat Company. But the tragic sinking of the *Princess Alice* in 1878 undermined trade, and the company was wound up in 1884.[105] A successor company lasted only two years, and so in 1888 a new concern, the Victoria Steamboat Association, purchased the fleet and took over its wharves, including that at Battersea, but this, too, was short-lived.[106]

In 1897 the Victoria Steamboat's fleet and piers were acquired by another new company, the Thames Steamboat Company, owned by Arnold Hills, chairman of the Thames Iron Works & Ship Building Company. Hills attempted to revive riverboat services, to the annoyance of the LCC, which was hoping to introduce its own municipal fleet. Eventually, Hills's company failed and its Battersea yard was acquired around 1905 by the Morgan Crucible Company as part of its continuing expansion towards Battersea Bridge.[107] Apart from a new roof, Morgan's seem to have made few alterations to Brunel's sawmill, which they used as a store and workshop, and it survived largely unrecognized among much larger and later buildings until the works were demolished in the 1970s (see below).

Morgan Crucible Works, Church Road (demolished)

Today all that remains of Battersea's biggest riverside industry is the name of the housing estate that took its place: Morgan's Walk. At its height in the 1930s–50s the Morgan Crucible Company's works ran for 1,000ft along the river west of Battersea Bridge and was the centre of an international industrial empire.

386. Morgan Crucible works from the air in 1937. The former Brunel sawmills are in front of the U-shaped factory buildings with tall chimney. *Demolished*

387. Morgan Crucible works, Church Road, in 1910, showing the main factory building of 1872 (with clock tower) and office block of 1907 beyond. The building and yard in the foreground belong to May & Baker's Garden Wharf chemical factory. *All demolished*

Behind its creation and early success were six Morgan brothers – Thomas, William, Walter, Septimus, Octavius and Edward.[108] The business began in 1850 with William Morgan's acquisition of the City firm of a family friend, importing and exporting druggists' sundries and ironmongery; by 1855 the other siblings had joined him in Morgan Brothers. Among the items of stock-in-trade they inherited were crucibles of imported graphite (or 'plumbago'), used by metallurgists and jewellers to melt precious metals. The Morgans then acquired the selling rights for the British Empire of a superior American-made crucible, of plumbago mixed with clay, and before long decided to establish their own factory.

In 1856 they acquired the small riverside crucible factory of E. Falcke & Sons at Garden Wharf, midway between Battersea Bridge and St Mary's Church. The Falcke business dated back to about 1823, when the potter Wilhelm or William Gottlob Falcke (d. 1849) took a lease of land here.[109] Trading initially as the Patent Plumbago Crucible Company, the Morgans added new kilns, factory warehouses, chimney shafts and a wharf wall in the 1850s–70s; much of this work was overseen by the civil engineers R. M. Ordish and William Henry Le Feuvre.[110] In 1872 the Morgans bought up houses standing between their works and the main road, enabling them to erect a large six-storey extension. Italianate in style, with a 100ft-tall clock tower, the factory dominated the Church Road frontage and remained the focal point of the works throughout its hundred-year history (Ill. 387). It was designed by Charles Henry Cooke.[111]

As business grew, the brothers whenever possible acquired adjoining properties and expanded the works. In 1876–80 the wharves to the east, formerly of Condy's Fluid Company and the Bolingbroke Oil Works, were annexed, a large chunk of riverfront was reclaimed and embanked, and a concrete wharf wall constructed, with extensive cellarage behind, all overseen by W. H. Thomas, engineer to the company, which by the time work was completed had been renamed the Morgan Crucible Company.[112]

388. A section of Brian Barnes's mural, *Battersea: the Good the Bad and the Ugly*, painted on the wall of the Morgan Crucible factory, 1976–8. *Demolished*

During the early 1900s much of the surrounding riverfront fell to Morgan's, whose growth at the time must have seemed inexorable. To their east in 1904–5 they bought up the former boat-building yard of the Thames Steamboat Company, including 330ft of river frontage and Brunel's sawmills (see above), followed soon after by housing in Church Road and Little Europa Place. The buildings that took their place included a five-storey office block of 1907, built alongside the 1870s clock-tower factory, and several mill buildings of 1911–14 of ferro-concrete construction. To their west Morgan's swallowed up Phoenix Wharf in 1910 and also the old maltings site beside the parish church, which was used for storage. Indeed, by the mid 1920s only the Battersea Flourmills and May & Baker's chemical works stood between Morgan's and complete dominance of the riverfront from St Mary's Church to Battersea Bridge (Ill. 386).[113]

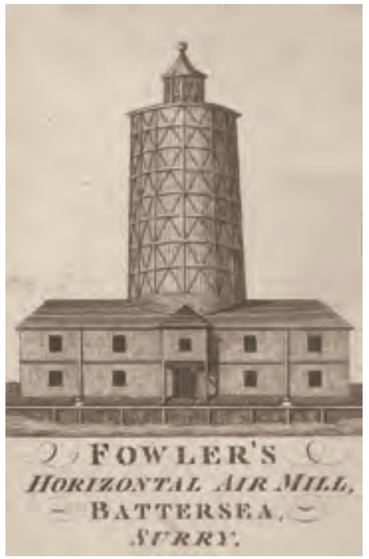
Expansion on such a scale ran hand in hand with the acquisition of other firms and diversification, and the growth of new products such as refractory materials and electrical carbons. Between and after the wars Morgan's set up subsidiaries abroad to supply a growing world market. At Battersea May & Baker's neighbouring chemical works were finally acquired, as was the last run of terraced housing at the east end of Church Road, and both sites built up in 1934–7 with large-scale reinforced-concrete factory buildings, the work of constructional engineers Lewis Rugg & Company of Westminster. The biggest block, on Church Road, included a 257ft tapering chimney erected by Holloway Brothers to designs by L. G. Mouchel & Partners, the tallest by far on Battersea's riverfront and a landmark for miles around.[114]

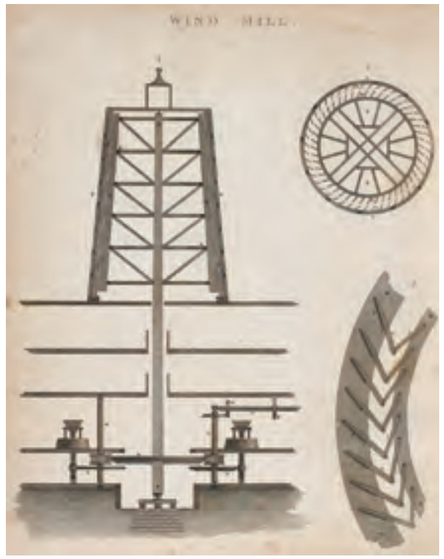
Such an accretive, congested site left the firm little scope for expansion. In 1967 Morgan's decided to transfer production to an existing second factory at Norton, Worcestershire (started as a 'shadow factory' during the war), and a new forty-acre complex at Morriston near Swansea. Unemployment around Swansea was high, and the move there in 1969–72 was sanctioned by Douglas Jay, Battersea North's MP, President of the Board of Trade and a keen supporter of regional development. After much debate plans for a private housing development by Wates Ltd for the vacated site were approved in 1978. Further controversy ensued during demolition when a 276ft-long mural, *Battersea: the Good the Bad and the Ugly*, painted on the boundary wall by artist Brian Barnes with the help of residents to illustrate aspects of local life and their hopes and fears at a time of socio-economic change (Ill. 388), was bulldozed by developers. Morgan's Walk was completed in 1984.[115]

The horizontal mill and Battersea Flourmills (demolished)

Montevetro is not the first large structure to loom over St Mary's Church. Its predecessor on the site – the Battersea Flourmills complex of Rank Hovis McDougall – was similarly challenging in its bulk and severity, and was as conspicuous a feature of the local landscape as the Richard Rogers Partnership's 'glass mountain' is today.

The continuity goes deeper, as the Rank mills, built in phases from 1915, were themselves the successors of a strange gasometer-like horizontal windmill of 1788, which for forty years monopolized the skyline around the church (Ill. 389). This was built by a certain Thomas Fowler on land reclaimed from the river in front of the formal gardens of Bolingbroke House, then recently sold and largely demolished save for its north wing, which was commandeered by the mill owners as a residence and offices. Fowler was probably an oil and colour merchant, as early accounts describe the mill being used to crush linseed.[116]





389 (*above*). St Mary's Church and the horizontal mill, sketch looking east towards Battersea Bridge by J. M. W. Turner, *c.*1797

390 (*below left*). Horizontal mill, riverside front, *c.*1805

391 (*below right*). Horizontal mill, showing (1) section, (2) plan of main turning mechanism and (3) detail of shutter or louvre system in outer frame

Fowler's mill was designed by Captain Stephen Hooper of Margate, a flourmiller and former master mariner in the West Indies trade. He had already been responsible for two smaller horizontal windmills: one at his own Margate mills, the other at the Ordnance works at Sheerness. A prolific inventor, he also developed experimental 'roller reefing' sails and extendable vanes for vertical windmills. He retired to Walworth around 1801, where he died in 1812.[117]

At Battersea the lower part of the mill, housing the grindstones and gears, was enclosed within a two-storey, shed-like structure. Above stood the cylindrical wind-driven machine that turned the 120ft-tall central shaft (Ills 390, 391). This consisted of ninety-odd 80ft-long perpendicular boards or vanes – called 'fliers' by Hooper – attached to the shaft by arms, rather like the spokes of a wheel. In order to regulate and direct the airflow to the vanes, the entire machine was encased in a timber framework with vertical shutters or slats, which could be opened or closed by the miller in the manner of Venetian blinds.[118] At the apex stood a small lantern or cupola, topped by a copper ball.

By 1792 the mill had been annexed by John Hodgson and put to grinding corn and malt for his maltings and distillery next door, erected on the other half of the Bolingbroke House site some ten years earlier. Around both premises Hodgson then built extensive ranges of bullock-houses, 600ft long, where he fattened as many as 650 bullocks at a time on waste grain and malt.[119]

Although the mill was described in 1794 as 'the most complete thing of the kind in the kingdom', some writers suggest that its machinery was not particularly efficient: Abraham Rees, in his *Cyclopaedia*, said it failed to work 'with much advantage', such was the need for repairs compared with those of a vertical windmill. Hodgson purchased a steam engine from Boulton & Watt of Birmingham in the late 1790s, presumably to give added power to the millstones. Eventually, in 1827, after Hodgson had gone, the upper part was taken down, but the lower portion survived and was used for milling by later occupants.[120] The adjacent maltings continued in separate ownership until their closure around 1921.

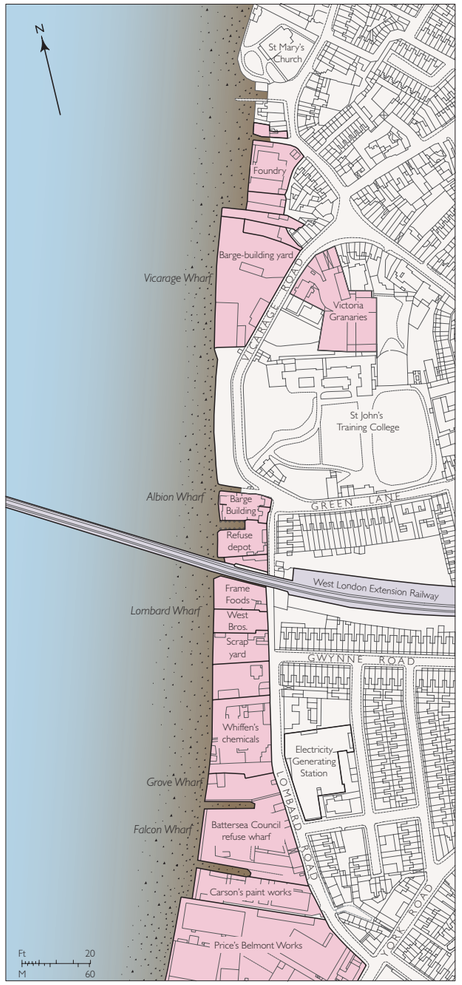
The reduced mill remained the focus of the flourmills site until 1887, when under Mayhew & Sons (later Mark Mayhew Ltd) a four-storey brick 'New Mill' was erected to the designs of C. A. Milner. This was a roller mill – using steel rollers to crush the grain, not millstones – operating on the latest 'gradual reduction' Simon system. It was extended in the later 1890s or early 1900s.[121] Mark Mayhew, who once stood as a Radical parliamentary candidate for Wandsworth, was a young motoring enthusiast and an unusually enlightened owner, drawing rebukes from the Master Millers' Association for paying his workers more than was usual in the trade at the time.[122]

The modern story of the site began in 1914 when Mayhew's business was acquired by Joseph Rank Ltd, the leviathan of British flourmilling, primarily as a vehicle for

392. St Mary's Church and grain silos at Battersea Flourmills in 1995. *Silos demolished*

Joseph's second son Rowland to practise his own theories on modern milling. This was a time of tremendous growth for the family firm, and increasing involvement and responsibility for Rowland and his two brothers, James and J. Arthur Rank. It was said that but for Rowland's early death in 1939, the success of his firm – which kept the name Mark Mayhew Ltd – might have rivalled that of his father's.[123]

Rowland began reconstructing the mills on Rank family lines, using his father's architects, Sir Alfred Gelder and Llewellyn Kitchen. In 1915–18 land was reclaimed from the river to add to the wharf, the remnants of the old horizontal mill were demolished, and a new range of mill, silo and screens buildings erected. Such was the company's success that within little more than a decade Gelder & Kitchen were planning a second, larger range for the old maltings site to the west, which was cleared and its wharf extended into the river to match. Taller than hitherto, with silos over 110ft high, the new mills could only be raised under waivers from LCC building regulations. Gelder, a veteran of British mill design, complained that he had never 'been subject to such severe conditions', which he thought stifled London industry. The additions, which connected to the existing range at its north and south ends to form a sort of quadrangle, were made *c.*1934–7. Further extensions followed soon after.[124]



393. Riverside industries, from St Mary's Church to York Road, *c.*1916

With their unrelenting verticality and old-fashioned stock-brick elevations, the Battersea mills were characteristic of the firm's work for the Rank family, and despite differences in date and modes of construction, the two ranges shared a unified and consistent appearance (Ill. 392). Bands and copings of red terracotta provided a modicum of decoration. The great height of the buildings – in particular the grain silos – was deemed necessary to enable an entire barge of imported grain to be unloaded at one time. From the silos it was taken to the adjoining screens for washing and purifying, then crushed in the mills by steel rollers powered by coal-fired steam engines.[125]

After Rowland Rank's death his company and the Battersea site were taken back into the Rank fold and after 1962, when Rank acquired Hovis-McDougall Ltd, became part of the Rank Hovis McDougall empire. The flourmills finally closed in 1992, and were sold and demolished in 1997.[126]

South and West of St Mary's Church

Vicarage and Lombard Roads area

Of all the Battersea riverside, this expanse between the old village centre and the big factory complexes of York Road held on to its pre-industrial character the longest, retaining riverside cottages and villas amid pleasant grounds into the 1860s, even after the West London Extension Railway had cut across it. Only in the 1870s and 80s did industry begin to make serious inroads; by the First World War it was dominant (Ills 393, 397).

The Smyth family had their sugar-houses here in the late seventeenth and eighteenth centuries, where they refined molasses shipped from Barbados. One riverside sugar-house was converted to a turpentine factory in the 1780s by Edward Webster and survived into the early 1900s at the heart of Thomas Whiffen's Lombard Road chemical works. Whiffen's story is a fairly typical one of organic growth under one company until its restricted site forced a move elsewhere (Ills 394, 395). When Whiffen joined Jacob Hulle in his chemical business at Lombard Road in the late 1850s, the site comprised an old roadside house (Lombard House) with the large former sugar-house in its garden by the river, where Whiffen and Hulle made strychnine and quinine. Hulle retired in 1868 and thereafter the business expanded under Whiffen, until by 1910 so many buildings had been added that barely any open space remained. Between 1875 and 1915 Whiffens spilled over into land adjoining to the north, at Lombard Wharf, but by 1933 had moved to Fulham, where they had built a modern factory in the 1920s.[127]

Whiffens was probably the biggest and most crowded of the riverside wharves here, which generally did not compete in size with those further west or east towards Battersea Bridge. Other works established in the area before the 1890s included an alum and ammonia works; a foundry at the north end, off Church Road; and the firebrick and sanitary ware manufactory of West Brothers, at Lombard Wharf from the mid 1870s until the 1950s. Walter Carson & Sons' paint and varnish works at the bottom of Lombard Road, the Grove Works, was the longest lasting, surviving into the 1960s.[128]

Boat and barge building were associated with this area from the 1870s. There were a couple of yards off Vicarage

394. Whiffen & Sons' chemical works, Lombard Road, from the south-east, *c.*1915. *Demolished*

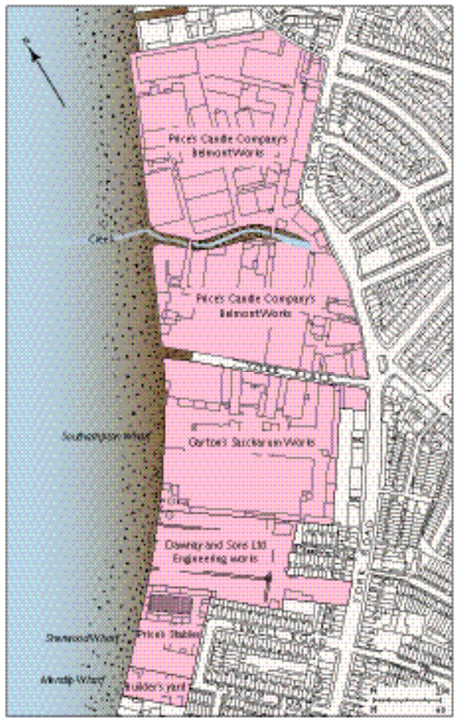
395. Mill room at Whiffen & Sons, *c.*1915. *Demolished*

Road, including that of Nash & Miller, formerly of Lambeth, at Vicarage Wharf (Ill. 396). A third, Albion Wharf, stood further south beside the White Hart inn, where Vicarage Road met Lombard Road. As described in 1915, it was typically old-fashioned and rudimentary: a lofty old brick workshop, a lean-to at the side, an earthen floor and a slipway into the river from which to float barges. A fourth yard, that of Alfred H. Keep, was situated halfway down Lombard Road. Most had gone by 1916.[129]

Latterly, the southern end of this district took on a municipal character with Battersea Borough Council's construction in 1901 of an electricity generating station beside the Caius Mission on the east side of Lombard Road (extended in the 1920s), and its annexation of Grove and Falcon Wharves opposite, next to Whiffens, as stables, coal-storage yard and refuse wharf (page 60). The Council had another refuse wharf north of the railway bridge, at Albion Wharf, and took over the Whiffens site on their departure in the 1930s. Almost none of this remains; the riverfront is dominated by large apartment blocks, and the municipal electricity site has been reduced to a small modern sub-station.[130]

Some new industrial initiatives took place along this sector of the river as late as the 1950s. At Valiant Wharf a ready-mixed concrete plant with offices on Vicarage Crescent (Ham River House) was set up in 1955–8 by Ham River Grit Co. Ltd, processing cement and aggregates brought by road and river from Kent and Essex. It was then one of only about fifty such plants in the country, with the relatively modest output of 300 cubic yards of concrete daily.[131] Associated with Ham River Grit in the

396. Nash & Miller's barge-building yard, Vicarage Wharf, *c.*1860. *Demolished*



397. Riverside industries west of Lombard Road, *c.*1916

1950s–60s was the 'concrete consultant' Victor S. Wigmore, whose testing laboratory formed part of Ham River Wharf. A noteworthy figure in the development of concrete construction, Wigmore had been a consulting engineer on the wartime Mulberry Harbour.[132] Hall and Ham River Ltd, as the firm became following a merger, expanded into marine aggregates and in 1968 was taken over by the giant Ready Mixed Concrete. Reorganization swiftly led to Valiant Wharf's closure and redevelopment with the Valiant House flats, while Ham River House was let.[133] From about this time the idea that riverside wharves should give way to a belt of public open space started to take hold, though it was years before much could be accomplished.

* * *

South and west of Lombard Road were two riverside plots of a very different character. Until the mid nineteenth century each had a larger than usual residence – Sherwood Lodge and York House – set in extensive grounds, with a deep creek at the mouth of the Hydeburn or Falcon brook flowing into the Thames and forming a natural boundary between them. Industries were drawn to the area in the 1740s and 50s, and eventually both sites were swallowed up to form the factory of one of Battersea's biggest and best-known companies, Price's Patent Candle Company.

York House area: Battersea enamels and other industries

The York House site had been a focus for industry since medieval times. For some 250 years before the Archbishop of York built his palace here in the 1470s, this stretch of riverfront, then known as Bridges or Bridgecourt, was crucial to the success of London's Reigate stone industry. It was to a wharf or wharves here that stone and other materials were brought by road from Surrey for stockpiling before being loaded onto ships for transportation to major ecclesiastical and royal building projects, including Westminster and Waltham Abbeys, Windsor and Rochester Castles, and Westminster Palace.[134]

By the mid eighteenth century the site was again ripe for industrial use. It was bounded by the navigable creek, suitable for barges carrying heavy goods, and what remained of the former archbishop's medieval palace was by then in poor repair, its outbuildings adaptable for manufacturing or warehousing. Also, as freeholders, the archbishops seem to have exercised little control over rebuilding by tenants and sub-tenants.[135]

One of the longer-lasting early works was just outside the archbishops' estate: the riverside malt distillery of Mark Bell, established by 1741 at York Place on manorial land immediately west of York House. Bell himself was living in part of the old palace in 1741, and later occupied a house in its grounds. He also fattened pigs and cured bacon, feeding the animals on the 'wort' left over from the distilling process. In 1743 the archbishop's surveyor complained that two new houses built recently in the grounds would have been worth more 'were there not a great distiller next to them who keeps in different stores a thousand hogs'. Distilling and hog-fattening continued under Bell and his various associates – including Joseph Gosse and Joseph Benwell – until Bell's death around 1789, after which they were carried on by Benwell in partnership with William Waymouth until about 1820.[136]

By 1745 York House had been leased to Alexander Gordon.[137] He seems to have been the man responsible for sub-letting the property in 1753 to Sir Stephen Theodore Janssen, Captain Henry Delamain and John Brooks as the site for their short-lived but historically important factory producing *objets de vertu* and other wares in what became known as Battersea enamel.

These were small luxury items – snuffboxes, patch boxes, bottle tickets, watch and toothpick cases, coat buttons and miniature paintings – moulded from thin copper and applied with a white vitreous coating, which when fired gave the appearance of porcelain.[138] Fine-quality engraved illustrations, usually of royal portraits or picturesque scenes, were then inked on to paper, transferred to the items by a special process and fixed by further firing. Finally, additional details in enamel colour were applied by brush. The relatively cheap materials and partly mechanical nature of the processes allowed for production at speed and on a considerable scale, the intention being to undercut the trade in similar but expensive items in gold and porcelain from the continent. As well as enamels, the factory also produced decorative earthenware tiles known as 'Dutch tiles'.[139]

It was the coming together under Janssen of a group of technically innovative artists and craftsmen, many of them Irish or with Irish connections, that brought the factory into being.[140] Janssen was the operation's figurehead and chief financier. A baronet's son, prominent member of the Stationers' Company and Lord Mayor of London (1745–6), he had many business and social contacts, and was well placed to acquire the special transfer papers and inks needed. Brooks, a Dublin-born mezzotint engraver and publisher, was a pioneer and possibly inventor of the revolutionary transfer-printing process that was fundamental to the factory's output.[141] Delamain, a former captain in the Duke of Saxe-Gotha's army, was owner of Ireland's foremost Delftware factory and a potter with a particular expertise in kilning. He seems to have been a partner with Brooks in the Battersea project, but his Irish commitments may have curtailed his involvement.[142]

Also closely involved from an early stage was the French-born artist and engraver Simon François Ravenet, who had come to London in the 1740s to engrave part of the *Marriage A-la-mode* series for William Hogarth. Ravenet has also been credited with developing the transfer process and was certainly responsible for engraving many of the copperplate illustrations used on Battersea enamel wares. The English engraver Robert Hancock is also sometimes associated with the factory in a similar role to Ravenet, preparing and engraving copperplates for illustrations, regularly using designs made for him by Louis-Philippe Boitard, a French engraver then resident in London.[143]

Judging by its impact on English enamelling, the Battersea factory must have enjoyed success. Nevertheless by 1756, after only three years in operation, Janssen was bankrupt, and all of his personal property as well as the factory and stock were put up for auction. York House was described as fitted up 'at a very great Expence with Every kind of Conveniency' for factory production.[144] Although Brooks's 'dissipated habits' and poor management have been cited as contributing to this failure, it seems that Janssen's financial troubles were spread wider than Battersea, and included 'unexpected disappointments of considerable sums of money' and unpaid debts. Brooks was declared bankrupt later that year.[145]

The Battersea sale included unfinished pieces and blanks, and copperplates 'beautifully engraved by the best Hands'.[146] The dispersal of materials and workmen to provincial centres, especially Bilston, Birmingham and Liverpool, saw a flowering of Battersea-style enamels, often bearing the same printed decorations. This has complicated the authentication and dating of works from the original factory.

After the auction York House lay empty until 1758, when it was taken by the druggists Kingscote and Walker, apparently as new sub-tenants of Alexander Gordon. They set about pulling down coach-houses, stables, brewhouses and other outbuildings, as well as part of the old palace itself, and erected an extensive brick 'Laboratory', nearly 290ft long by 85ft wide, in the garden facing the house.[147] Kingscote and Walker are widely credited as the first London manufacturers of sulphuric acid, though hitherto the date of their factory at Battersea has been given as 1772. So radical were their early alterations in the 1750s that the Archbishop of York considered suing them. In the end any disagreement was resolved and they took over Gordon's head lease in 1764.[148]

Their factory was described as 'the most curious and expensive establishment . . . ever formed in these kingdoms for a similar purpose'. Barge-loads of lead were brought up the Thames for the construction of 71 cylindrical chambers, each 6ft high, capped with domes of lead, in which the acid was made by burning sulphur with saltpetre. These stood in rows in 'one large brick building' – the laboratory built to the archbishop's annoyance in 1758. As well as the cylinders, there were four 'perfect cubes' of lead, 12ft square. By January 1773 the partnership had been dissolved, though John Walker renewed the lease that year and stayed on at York House until about 1775. All the vessels were then taken down, the materials sold at auction and what remained of the factory was destroyed.[149] Chemical making reappeared, however, in the 1830s and 40s, when William Goetze, a verdigris manufacturer, held the two houses built between York House and the river (Wolsey House and Tudor Lodge); and a tenant of his, Martin Hippolyte Bellemois, a manufacturing chemist, had a small factory built there *c.*1838–40.[150]

One other industrial site close to York House in the eighteenth century was a mill to its south-west, beside the creek known generally as the Creek Mill or Mills. By the early 1800s this had come into the possession of Joseph Benwell, owner of the York Place distillery (see above).[151] The mills remained in business into the 1880s, though by then they had been surrounded by the factory buildings of Price's Patent Candle Company, which had been buying up the York House and Sherwood Lodge properties piecemeal since the 1850s.

Price's candle factory, York Road (mostly demolished)

From the 1850s till the 1950s the huge riverside site bounded by Lombard Road and York Place was home to the manufacturing works of Price's Patent Candle Company (Ill. 432). Their first London factory, of *c.*1830, had been located at Vauxhall, to which a small plant at Battersea was

398. Price's Patent Candle Company's factory, York Road, advertisement, *c.*1860

399. Price's factory and York Road area from the air looking south-east, 1928. *Mostly demolished*

added in the mid 1840s. Its subsequent growth into one of the area's biggest riverside factories came through technical innovation and the use of cheap materials for mass production on an industrial scale. After 1945, bomb damage and a changing market saw Price's contract greatly, though candles were still being made here in the traditional manner until final closure in 1998. A retail outlet is now the site's only link with its long history of manufacturing.

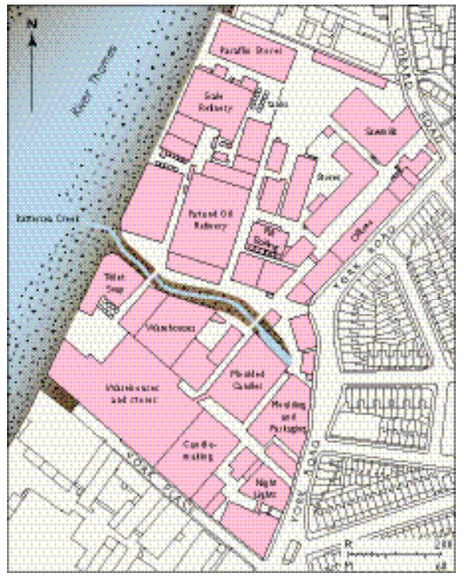
Like Morgan Crucible, Price's was essentially a family business, founded by William Wilson (1772–1860) and a partner, and run by Wilson and his three sons for much of the nineteenth century. Wilson originated from Cleuch in Lanarkshire, where his family owned the Wilsontown Ironworks, which failed in 1812.[152] He then came south, where he gradually built up a partnership as a Russia broker dealing in, among other things, Russian tallow. Dissatisfied, Wilson and his partner Benjamin Lancaster in 1830 acquired a recent patent for hydraulically separating coconut oil into its liquid and solid constituents, with a view to using the latter (stearine) as a cheap and cleaner substitute for tallow in candle manufacture, the former as a lamp oil. The curiously unrelated company name – E. (sometimes Edward) Price & Company in its original form – was apparently taken from a relation of Lancaster's to preserve his and Wilson's anonymity, candle making at the time being generally considered a low undertaking.

Until the mid 1860s Price & Company's main factory, the Belmont Works, remained at Vauxhall. Company tradition has it that a small mill for crushing coconuts shipped from Ceylon had been established *c.*1830 near York Place on the Battersea riverfront, but there is no evidence for this.[153] Wilson first appears as a ratepayer there in 1845, as occupant of the former chemical factory of M. H. Bellemois and the two adjacent houses (see above). This early Battersea works seems to have been a distillation or purification plant.[154]

Price's grew quickly and, in order to secure regular supplies of raw materials, established a branch house in Ceylon. Subsequently, the Wilsons bought a coconut plantation and erected steam-crushing mills there so that the oil could be processed before export. Money for these operations came from the sale of shares and the creation in 1847 of a joint-stock enterprise, Price's Patent Candle Company.[155]

By then, as a result of further technical innovations, palm oil from West Africa was becoming the company's main raw material. This was shipped to Liverpool – port of entry for all West African goods – where it was unloaded, then reloaded on to boats bound for London's docks, and finally taken upriver by barge to Vauxhall. After treatment there it was sent by barge to Battersea for final purification with sulphuric acid before returning to Vauxhall for production.[156]

During the 1850s Price's rationalized this procedure, building an extensive factory at Bromborough Pool near Liverpool where palm oil could be processed before shipment to London. With no spare land at Vauxhall, the company decided to concentrate its London operations at



400. Price's Patent Candle Company's factory, York Road, site plan, *c.*1916

Battersea. Between 1851 and 1856 it acquired the rest of the York House estate, and shortly afterwards the adjoining Sherwood Lodge estate on the east side of the creek, thus increasing its holding to some 11½ acres. By 1861 six of these had been covered with buildings, mostly on the western half of the site, with 800 people employed in candle making. Within another five years operations had increased enough for the Vauxhall works to close. Known initially as the Sherwood Works, the Battersea factory later adopted the earlier name of Belmont Works.[157]

The York Road site had several advantages, including 287 yards of river frontage and 329 yards of road frontage, as well as the navigable creek running through its centre (Ill. 398). Among Battersea's riverside factories, Price's was not only one of the biggest, but also the most distinctive-looking. Given the volatile nature of the materials stored and worked on their sites, the firm had evolved a particular 'house style' based on the need to minimize the risk of fire. The Battersea complex of the 1850s and 60s followed a model already established at Bromborough Pool. Nearly all the buildings were long, single-storey structures of yellowish stock brick, with large Venetian or recessed semi-circular windows. Only a few – generally the road-front subsidiary buildings – had any upper floors; and nearly all were topped with giant curving roofs

401. Price's factory, self-fitting and fancy candle-moulding room, *c.*1904

of fire-resistant galvanized corrugated iron.[158] Together the Battersea and Merseyside factories were thought to possess some nine acres of these roofs. At Liverpool they were the work of John Walker of Millwall, a specialist in galvanized-iron roofing, whose father Richard had been the first manufacturer of corrugated iron for building. It is likely that he also erected the roofs at Battersea.[159]

During the 1870s further improvements enabled Price's to produce cheaper candles made of paraffin wax, which thereafter became their primary raw material. With this came further expansion and diversification. Many new buildings were erected in the 1880s and 90s following the established pattern, particularly on the freer eastern half of the site, which thereafter was largely given over to refining and storing paraffin wax and lubricating oils. Also at this time the Creek Mill site was finally absorbed into the factory, providing room for new candle-moulding and packing rooms. And more new buildings for printing, cardboard-box making and other activities replaced the old structures at the west end of York Road, thereby improving the main frontage.[160]

Price's was now at its height, exploiting by-products such as benzine and kerosene, branching into the manufacture of motor oils and opening subsidiary factories in Africa and Asia. But after the war business steadily diminished. Two V1 rockets hit the factory in 1944 and several buildings had to be reconstructed. British Petroleum (BP), one of a consortium of oil companies that had owned Price's since the 1920s, removed the motor-oil side of the business to Grangemouth in 1954, prompting the sale of the bomb-damaged north-eastern half of the Battersea site and its redevelopment as a heliport (page 410) and small industrial estate. Lever Brothers had already left the consortium in 1936, taking the soap-manufacturing rights and Liverpool factory with them. By the early 1990s new owners had transferred the bulk of Price's remaining production to factories in Oxfordshire and Sri Lanka, and finally relocated its offices to Bedford in 2001. The Price's brand is now owned by an Italian company. Most of the factory site was redeveloped by Fairview Homes in the early 2000s as upmarket apartments, known as the Old Candle Factory and Candlemakers.[161]

Today, only an uneven row of buildings on York Road survives. Those at the far west have been renovated as part

402. Remains of Price's factory, York Road, in 2008: the former cardboard-box factory, paper-wicks and night-light store of 1891–2 in the foreground, and the curved roof of the printing room behind (left)

of the recent residential developments. Most prominent is the former cardboard-box factory, paper-wicks and night-light store, of 1891–2, on the corner with York Place, now with a modern third storey and French-style pavilion roof (Ill. 402). Alongside in York Place, the old printing room, again of the 1890s, has also been re-roofed. Back in York Road, the future for the remainder is bleak, with further renewal plans in the offing. At No. 112 only the boarded-up ground floor remains of the sole structure from Price's first phase of development in the 1850s and 60s, a night-light factory that originally had a matching cardboard-box factory above. Next door stands a former taper-making and box-making building (No. 110) of the 1890s; and to its east, at No. 100, large round-arched windows mark the candle-moulding and other rooms added in 1893–4 on the site of the old Creek Mill.[162] The retail candle shop is situated here.

Other York Road factories

Between Price's and the parish boundary stood a handful of other riverside sites, the two largest of which are discussed here.

After Benwell & Waymouth's distillery closed, the York Place site was expensively rebuilt in 1823–4 by John Ford as a woolcloth manufactory. Ford is described at this time as an engineer from Lambeth but may be identical with the John Ford, woollen yarn manufacturer of Gloucester, who had experimented with spinning machinery in 1820 but went bankrupt the following year.[163] The complex included 450ft of wharfage, warehouses, a dye house, counting-house, engine- and boiler-houses, foundry and blacksmith's forge, and a residence for Ford. But it was the

403. John Ford's woollen manufactory of 1823–4 when in use as a silk factory, *c.*1830

three-storey brick-built woollen mill, over 150ft long, that dominated the site and the riverfront (Ill. 403). Each floor was supported on hollow iron pillars to take gas tubes or pipes, gas at the time being introduced into textile mills for lighting (as a safer and cheaper alternative to oil lamps and candles), singeing thread and finishing fabric. Ford therefore must have had his own gas-making plant on site. As well as the factory, he also erected on vacant land between it and York Road a row of 39 four-roomed dwellings, known as Ford's Buildings, presumably to house his expected workforce.

404. Pollution from Garton's starch factory, York Road, in 1977. View from Gaitskell Court (Battersea High Street) looking south-west across the York Road (Stage II) Estate and York Gardens to the riverside industries

405. Orlando Jones & Company's Starch Factory and wharf, York Road, *c.*1850; at far left, beyond the gates, are cottages of Starch Factory Road

Despite the effort and expense, Ford's enterprise was doomed from the beginning. In 1823, before construction was complete or the lease signed, he discovered that his financial backers were insolvent, and was forced to borrow heavily. Whether his factory ever went into operation is unclear. Such were Ford's commitments – estimated at £75,000 – that by the winter of 1825–6 there was a warrant out for his arrest and he was forced to sell everything, even his tools and bed.

The purchasers of Ford's factory in 1826 were Ames & Brunskill, a City firm of silk and ribbon makers, who occupied the site until around 1850, followed by another ribbon manufacturer, Cornell, Lyell & Webster.[164] In 1875 the glovemaking firm of Fownes Brothers, having outgrown their premises in Falcon Road, acquired the site, but increasing industrialization along York Road jeopardized their delicate wares, and by 1884 Fownes's had removed to a new factory in their home town of Worcester, a centre of gloving.[165]

Their successors at York Road, Garton, Hill & Company (later Garton & Sons) were a Southampton firm originally specializing in the manufacture of sugars for brewing, particularly invert sugar, or 'saccharum'. Gartons gradually introduced new buildings until they had an extensive works covering some five acres.[166] The firm later became part of the larger Manbré Group of sugar and starch producers.

In 1944 a flying bomb caused damage here, and after the war Gartons invested heavily in a modern plant for starch-processing. Left-over fibre was piped across the yard to the older buildings where it was superheated to make cattle feed.[167] It was this process that created the notorious 'Battersea Smell' – a cloying, unpleasant stench that hung over the area for nearly thirty years (Ill. 404). Local residents complained of chest illnesses and applied for rate cuts, and though Gartons claimed that they had spent £4 million reducing the nuisance, little improvement was noticeable. 'You don't see any squatters breaking in here', said a resident of Wilberforce House, which stood opposite in York Road directly in front of the factory.[168] Tate & Lyle bought Gartons for £44 million in 1976, but the factory had closed by 1980 and most of its buildings were demolished shortly afterwards for the Plantation Wharf housing and office development.[169]

West of Gartons stood another starch factory, established in 1848 by William Evill senior and junior, owners of Orlando Jones & Company, holders of a US patent for a process to manufacture starch from rice or corn. Jones's patent rice-starch was found to be particularly effective in laundering, and the extensive Battersea site, with road and river frontages of over 200ft, allowed its production on a large scale (Ill. 405). Many of its buildings were designed by the younger Evill, who had an engineering training and was prominent in Battersea affairs.[170]

The Evills' business was later acquired by Colmans, the mustard manufacturers, and transferred to their Norwich works in 1901. Next year the engineers Archibald Dawnay

406. Archibald Dawnay & Sons workshop, Steelworks Road, under construction in 1924. *Demolished*

& Sons Ltd bought the site and demolished most of the buildings, spending £2,000 on a new engineering works centred on a giant open iron-and-steel shed. An even larger workshop was added alongside in 1924 (Ill. 406). The Evills had also built workers' cottages (Starch Factory Road) lining the short access road to the factory. This was renamed Steelworks Road in 1907 and eventually demolished in the 1960s for an office block. Dawnays left around 1970 and the site was cleared in the mid 1980s, partly to help accommodate the enormous Plantation Wharf development spilling over from Gartons next door, partly for a trading estate and hotel on Gartons Way and York Road.[171]

Inland sites

There was little discernible pattern to the distribution of industries away from the Thames, beyond a general tendency to congregate in the northern part of the parish, close to main roads and the railway tracks. As with the account of riverside sites, this gazetteer follows a roughly north-east to south-west route.

Gasholder Station, Prince of Wales Drive

After Battersea Power Station this is the most prominent of the area's few remaining historic industrial sites. It was developed from the early 1870s by the London Gas Light Company (LGLC) as an outstation, storing gas piped from its main works at Nine Elms, and is now the only relic of the gas industry's strong presence in Battersea for some 150 years, though at the time of writing (2012) its demise is expected imminently as part of the regeneration of the Vauxhall-Nine Elms Opportunity Area. It includes two significant Victorian gasholders – No. 5, a rare late example of a single-order classical cast-iron guide frame; and No. 6, perhaps the first use of iron box-lattice standards as a framing structure.[172] In addition there is a towering 1930s steel holder of German design – a local landmark and foil to the power-station chimneys – and an engineer's house of the 1880s (Ill. 407).

In 1871 the LGLC acquired a small field here, hemmed in by railway viaducts north of Battersea Park Station, as a site for gasholders to supplement those at Nine Elms (hence the site's original name, the Field Gasholder Station). Excavations for two 185ft-diameter, brick water-storage tanks were carried out in 1872 by John Aird & Sons, and the first holders, designed by the LGLC's engineer Robert Morton, were supplied and built by Joshua & William Horton of Smethwick: No. 4 (now demolished) in 1872–3, No. 5 in 1875–6.[173] Both were broad and shallow, with guide frames of giant cast-iron Tuscan columns in a single order, connected at the top by perforated wrought-iron girders – a style common to London in preceding years but rare by this time for holders of such large capacity (1.5 million cu. ft).[174] They closely resembled the earlier gasholders at Nine Elms, though one variant is the ring of diagonal tie-rods with plaques in the form of the gas company's shield covering the tensioning rings.

By January 1880 Morton had produced designs for a third holder, No. 6, of larger capacity. Once again Aird & Sons built the water tank, but in this instance the framing structure was contracted to Ashmore & While of Stockton-on-Tees. Construction took place in 1882–3.[175] In the few years since the first works at Battersea much had changed in the design of gasholder guide frames. With the No. 6 holder, Morton seems to have been one of the first gas engineers to experiment with a wrought-iron skeleton of tapering box-lattice standards, in this case 92ft high, strengthened by two intermediate rings of I-section lattice girders and a top ring of box-lattice girders. This sturdy but elegant structure was further strengthened by diagonal bracing-rods throughout, creating a 'panelled' effect when the bell behind had risen.[176]

Contemporary with holder No. 6 is the substantial two-storey stock-brick house at the south end of the site. Now subdivided and known as Nos 1 & 2 The Field, this was designed by Morton as a residence for the LGLC's assistant engineer, John Methven, using materials from his previous house at Nine Elms, which had been made uninhabitable by dust from wharfside coal deliveries.[177] In 1883 the company was merged with the Gas Light & Coke Company (GLCC), which thereafter ran this and the Nine Elms site until nationalization in 1949.[178]

407. Former Field Gasholder Station, Prince of Wales Drive, in 2011

In 1930–2 a fourth gasholder, No. 7, was shoehorned on to open ground at the south-west end of the site, formerly used as a balloon ground (see below). The tallest by far of all the structures here, at 295ft, this was made of steel on the waterless M.A.N. system, designed and patented by the German company Maschinenfabrik Augsburg-Nürnberg AG; the building contractors were R. & J. Dempster of Victoria Street, M.A.N.'s chief licensees in the UK (Ill. 407).[179] Large-capacity M.A.N. waterless holders were a key feature of the GLCC's growth in the late 1920s and early 30s, during Thomas Hardie's tenure as chief engineer; that at Battersea, and an almost identical twin at Southall, each with a capacity of about 7 million cu. ft, were the biggest of the seven erected and are now the only survivors.[180]

The last major change to the site came in 1963 when the North Thames Gas Board replaced No. 4 holder with the present spiral-guided steel holder, again built by Dempsters.[181] Though still in use in the early 2000s, the Battersea station has since been run down and – despite its rarity value in terms of industrial heritage – granted immunity from listing. National Grid has commissioned plans from Make Architects for a redevelopment scheme of thirty-storey towers to take its place.[182]

408. Balloon ascent from the Short Brothers' balloon ground at The Field gasworks, 1910

Balloon and aeroplane factories, Queen's Circus

Among Battersea's pioneering aeronautical engineers, pride of place goes to two sets of brothers who for a short period in the early 1900s occupied adjacent railway arches at Queen's Circus.[183] First came Eustace and Oswald Short, balloon makers, who in June 1906 rented two arches close to the gasometer station. The brothers' presence there was probably due to their patron, the motorist and aviator Charles S. Rolls, who had been negotiating with the gas company to use its site for filling and launching his balloons. The Shorts made Rolls a 78,500 cu. ft balloon, *Britannia*, for the first Gordon Bennett international race in 1906, where he won a gold medal.[184] Shorts then became aeronautical engineers to the Aero Club, storing members' balloons in their arches and directing ascents at The Field (Ill. 408). They also branched into aeroplane construction in 1908 with a third brother, Horace, as designer, making planes for gentlemen aviators like Rolls and J. T. C. Moore-Brabazon, as well as under licence from Orville and Wilbur Wright. But lack of space forced this side of the business to move to the Isle of Sheppey by December 1909, and thereafter the Shorts' arches were used solely for ballooning work until they left for good around 1919.

In 1907 the Wright brothers, Howard and Warwick (no relation of the Americans Orville and Wilbur), set up as aircraft engineers in an arch beside the Shorts, later expanding into adjacent arches. They specialized in welded tubular-steel craft, and by 1909–10 were building commercial monoplanes, the 'AVIS' type, to designs by O. W. Manning; one was bought and flown at Brooklands race circuit by T. O. M. Sopwith, after whom a nearby road is now named. The Wrights were later taken over by the Coventry Ordnance Works and by 1914 had moved aircraft production to the Isle of Wight.

409. Former Hamptons' Depository, Ingate Place, view from the south in 2012

Stewart's, Silverthorne and Queenstown Roads area

Stewart's Road. Between around 1888 and 1965 a munitions factory stood behind the houses on the east side of Stewart's Road, beside the parish boundary, on the site of a former horse-nail factory.[185] It belonged to the Projectile Company, a leading supplier of shells to British forces during the Boer War and also to the Spanish, American and Japanese governments. Though hemmed in, the factory expanded greatly during and after the First World War, and by 1938 had doubled in size, swallowing up streets of houses across the parish boundary. It was a natural target for German bombers during the Blitz but seems to have suffered less damage than the surrounding streets. After the war the Projectile & Engineering Company, as it was latterly known, turned its back on munitions to concentrate on commercial wares such as motor-car chassis. Following a takeover by Guest Keen & Nettlefold in 1964, production was moved to Wolverhampton, the company having already agreed to sell the Battersea factory to the LCC for housing.[186] The Carey Gardens Estate now stands on its site.

Unlikely though it seems today, the west side of Stewart's Road was once solidly residential. The present utilitarian buildings of the 1950s and 60s belong to the LCC's Patmore Estate, which aimed to consolidate the area's scattered industrial and commercial premises in one spacious location between Stewart's Road and the railway.[187] Apart from the Nine Elms Telephone Exchange at No.180 (page 72), the main currency towards the south end is the metal-clad modern warehouse unit.

To the south and west the area fades into a chaotic netherworld of scrapyards, rubbish tips and waste-transfer stations. At the north end, off Linford Street, is the Linford Street Business Estate. Here in 1992 the British Rail Property Board squeezed fourteen metal-sheet business units under the arches of the new Waterloo-line Eurostar viaduct as it was nearing completion; three additional units stand in the forecourt.[188]

Havelock Terrace and **Bradmead** (formerly Stewart's Lane West) is another former residential district hemmed in by railway lines. Having failed to persuade private developers to take the lead, Wandsworth Council reinvented it as a light-industrial area as part of their attempt in the late 1970s to promote manual employment hereabouts. The principal buildings are Avro House and Hewlett House, two three-storey, brick factory-warehouse units of 1976–7, and the South Side Industrial Estate (MWT Architects, 1981).[189]

Stewart's Lane Goods Depot Industrial Estate is a busy site between Silverthorne Road and the mess of rail tracks at Stewart's Road Junction. It was formerly part of the Stewart's Lane Rail Depot (page 303). After its closure the central part of the site became a bus depot, which still operates today. In the early 1970s the north-west corner, next to Silverthorne Road, was turned into a concrete-batching plant. Though Wandsworth Council intended this to be temporary, the manufacture, trading and storage of building materials have taken hold and become the dominant trade here, with two large and unsightly concrete plants and an aggregates supplier's yard. As a result, noise, dust and heavy traffic are endemic along Silverthorne Road and have taken their toll on the houses and residents of the Park Town Conservation Area near by.[190] Otherwise the estate is home to characteristic light-industrial and commercial buildings of the later twentieth century.

Close by is an industrial-commercial area formerly called the Milford Estate, adjoining Queenstown Road railway station and approached via Ingate Place.[191] Much the most commanding structure here is the former **Hamptons' Depository** (Ill. 409). A familiar landmark for passing train travellers, this massive warehouse, curved to follow the railway tracks, was built in 1900–3 as a furniture store and workshops for Hampton & Sons, the Pall Mall East cabinet makers and furniture dealers, to designs by Robert L. Hesketh and Walter Stokes.[192] Its monumental façade of red brick and terracotta is tricked out with details taken from Wren's work at Hampton Court on the raised central attic, no doubt in a conscious play on the firm's name, which was displayed in powerful letters at roof level. Next to it stands an independent structure, which was probably a hydraulic pumping station. The internal ferro-concrete columns and floors of the depository were the work of L. G. Mouchel & Partners, licensee of the Hennebique patents – an early example of reinforced concrete in London. This structure successfully withstood a direct hit by a flying bomb in the Second World War, the damaged portions being carefully rebuilt to the original design. Opposite the depository, hard up against the main LSWR line, low ranges were added in stages between 1924 and 1955. Hamptons was sold at the end of 1956. Soon afterwards the record company Decca was occupying part of the site and in 1968 took the remainder, staying on until 1980. It is now a self-storage facility.[193]

The central section of **Queenstown Road**, where regular interruptions by railway structures forced it into pronounced curves, was home to a small cluster of industry. Early remnants are still visible. A group of simple stock-brick warehouses, sheds and stables in a mews on the east side, at **Nos 274–276**, was built around 1870 as a mineral-water factory for the Pure Water Company Ltd. Further south, at the corner with Ingate Place, **Nos 220–220A** is a pair of solid late-Victorian warehouses; their unusually canted main elevations adopt a pungent combination of red brick with white-brick dressings (Ill. 410). They were built in 1889–90 as factories and warehousing by Holloway Brothers for R. Z. Bloomfield & Company, army contractors and outfitters, and named Queen's Road Works; the architect was Thomas Massa of Old Kent Road. Glazed penthouse offices and roof gardens to both buildings, and a connecting high-level glazed bridge, were added in 1988 (Stefan Zins Associates).[194]

On the west side scruffy roadside former office buildings of 1882 at **Nos 233–235** are all that remain of the Victoria Works of the Holloway Brothers (Thomas & Henry), one of south London's most successful building-contracting

410. Nos 220–220A Queenstown Road in 2012

411, 412. Beaufoy's vinegar and acetate factory at Pays Bas Farm, watercolours by J. D. Wingfield, 1848

firms. South of this site, squeezed between the backs of houses and the railway, stands 1A–E **Broughton Street**, the pared-down bulk of a plant that began as King's Bread and Biscuit Company's works. The first or southern phase of this factory (architect unknown; Charles Wall, builder, 1882–3) sported some unusual quirks, including a bulbous tile-hung turret in one corner. It was soon transferred to the Army and Navy Co-operative Bread Company, renamed the A1 Bread (or Biscuit) Company and substantially added to by Holloways in 1888.[195]

Beaufoy's Vinegar and Chemical Works, Pays Bas Farm (demolished)

The Beaufoys were a Quaker family from Evesham, who in the 1760s established a factory making vinegar and 'sweets' or 'mimicked wines' at Cuper's Gardens in Lambeth. When that site was needed for Waterloo Bridge, the Beaufoys built a new factory and family house on the South Lambeth Road.[196] The firm's success – due largely to securing the contract for supplying vinegar to the Navy – led to the purchase by Henry B. H. Beaufoy in 1828 of the fifteen-acre Pays Bas Farm in Battersea (and shortly afterwards a wharf and warehouse at Nine Elms) to help increase their production of improved white vinegar. They also later made soaps, alkalis and acids, in particular acetic acid.

In 1848 Henry Beaufoy commissioned the artist J. D. Wingfield to paint a series of views of the Pays Bas Farm factory, which lay in the area north of Lavender Hill and west of modern Queenstown Road; these suggest a bucolic environment at odds with the usual perception of Victorian industry in north Battersea, as minimal equipment was required for acetic acid production beyond a handful of sheds and barrels (Ills 411, 412). Avid collectors of antiques and statues, the Beaufoys scattered pieces about the Pays Bas site, hinting at Arcadian qualities.

Meadow land surrounding the factory was gradually sold off, northwards to the railways, southwards for housing, a board school and St Bartholomew's Church. The factory closed in 1900, Beaufoys thereafter concentrating production at South Lambeth; the firm later became part of the British Vinegars conglomerate. The factory site is now occupied by John Burns School.

Parkfield and Broughton Street industrial estates

Two industrial estates were slotted between the raised east–west railway tracks in the 1980s, exploiting land hitherto partly industrial in character but otherwise underused. The Parkfield Estate, of brick and metal light-industrial units beside the railway viaducts at Culvert Place, occupies the former site of a municipal waste disposal works, the Culvert Road 'dust depot', erected in the 1880s (page 59). Further east was a masons' yard, redeveloped in 1987–8 with two large metal-clad warehouses designed by Maurice Phillips Associates. The Broughton Street development was the work of the British Rail Property Board, which refurbished the railway arches there in three phases in 1985–90. Over the same period seven new brick and steel warehouses were built on vacant land to the north.[197]

Battersea Park Road

This road has always been predominantly commercial and residential in character, but pockets of industry existed along its considerable length, with a particular concentration on the north side between Beechmore Road and Alexandra Avenue, including two big Victorian laundries.

No. 140 (*demolished*) was the first of the road's steam laundries, erected in 1879 by the caterers and hoteliers Spiers & Pond. Samuel Kemp, the company's engineer and architect, designed the buildings in a plain neo-classical

413. Former Spiers & Pond Steam Laundry, entrance block, Alexandra Avenue, in 2011

414. Former Propert's blacking factory, 142 Battersea Park Road, in 2011

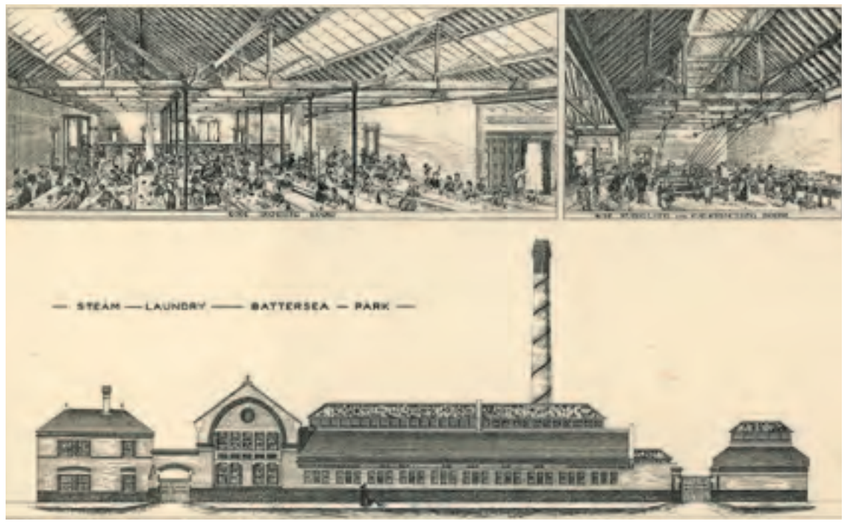
style, with a facing of yellow stock brick set off by dressings of stone and white moulded brick.[198]

The site comprised about an acre, with the mostly single-storey buildings arranged around a courtyard at the eastern end. The main entrance elevation – a symmetrical composition rising to a three-storey central block of offices – was turned to face Alexandra Avenue (Ill. 413), the longer Battersea Park Road frontage being given over to a mostly blank 7ft-high boundary wall, with a 70ft chimney shaft and glimpses of the boiler-house and stable-block beyond. In the quadrangle were the sorting, washing, drying, folding, mangling and ironing rooms, fitted with patent machinery (by Bradfords of Manchester). Most of the western half of the site was left open as a bleaching and drying ground; extensions were added there in the 1890s. Although it catered primarily for Spiers & Pond's own establishments, the laundry also took in linen from local businesses and private domestic work.[199]

After the Second World War, Spiers & Pond closed the laundry, which then became a research laboratory. In about 2006 the site was cleared for 'The Quadrangle', a residential development completed in 2008. The rear laundry wall along Warriner Gardens was retained, and the façade of the old entrance block on Alexandra Avenue rebuilt as part of the new apartments.[200]

No. 142, former Propert's blacking factory. Propert's was a Mayfair firm of blacking, polish and hunting-goods manufacturers, displaced from their South Audley Street heartland by redevelopment there in the mid 1870s. By that date the Propert name was owned by Benjamin Beddow of Ealing, who presumably chose the architect George Ashby Lean and contractor W. H. Waters (both of Ealing) to design and build the new Battersea factory.[201]

The main factory was L-shaped, with a two-storey Gothic stock-brick façade to the road (Ill. 414), and a two-storey and basement return wing on the west side of



415. London & Provincial Steam Laundry, elevation to Battersea Park Road and views of ironing and mangling rooms. Ernest Turner, architect, 1881

the yard. Another wing was added to the east in 1893. At the rear, facing Warriner Gardens, was a separate three-storey building for 'compo' work, also with Gothic touches, and a small turreted caretaker's lodge (since demolished). Propert's became well known for its shoe polishes and creams, and continued in business at Battersea Park Road under Beddow & Son until the Second World War. The factory has been converted to offices and business use (Mandeville Courtyard) and the 'compo' building on Warriner Gardens is now an independent school.[202]

Nos 152–154. By 1879 this large site to the west of Propert's had been taken by the London & Provincial Steam Laundry Company Ltd, the first of its type to be listed on the Stock Exchange. Still in laundry use in the 1980s, the buildings, though converted, remain an unusually complete survival in Battersea of a Victorian industrial complex. Said to be the largest of its type in the world when built, it employed twenty men and 150 women, of whom more than thirty (mostly orphaned young girls) lived in dormitories on the premises, presided over by a 'pleasant motherly lady'.[203]

The buildings, completed in 1880 by the builders Scrivener & Co. to the designs of Ernest Turner, were characteristically long and low (Ill. 415) with skylit roofs supported on rows of old fashioned-looking, timber king- or queen-post trusses (wood was preferred because it could resist condensation). The *South London Press* thought them an 'agreeable feature in a long and not very interesting road'.[204] The main laundry was divided into three sections, like a nave and aisles, with the largest central space given over to ironing, the women working at long rows of ironing tables. As with Spiers & Pond, all the machinery was made and fitted by Bradfords of Manchester. A 400ft-deep well in the drying and bleaching yard provided a daily supply of 15,000 gallons of water. The site was taken over in 1966 by the Marie Blanche Laundry Company, which sold up around 1983, and the buildings were converted shortly afterwards to a centre for arts and design businesses, called the Old Imperial Laundry.[205]

No. 353, a site behind the south frontage of Battersea Park Road just west of St Saviour's Church, was occupied briefly in 1892–5 by the works of Rust's Mosaic Ltd. The firm had been founded in Lambeth in 1856 by Jesse Rust, an inventive chemist and glassmaker who lived for most of his adult life at Hyde Grove (later Randall Street), Battersea. Rusts were known chiefly for their vitreous mosaic flooring, but they evolved a type of glass mosaic for artistic compositions, and a textured glass for stained-glass windows. By the time the works transferred from Wandsworth Road to Battersea, Rust's son Henry Jesse Rust was in charge of the firm, which moved to Garden Wharf in 1895 (see above). It was during their Battersea Park Road years that Rusts made the mosaic floor of 'busy bees' in the former Battersea Town Hall (page 40).[206]

Industry in the Old Battersea area

As Battersea became urbanized, industry took hold on a range of inland sites around the old village. Businesses included the Albion Works of Thomas Hunt & Sons, millwrights, in Westbridge Road (1854), a dye-works at Althorpe House (1850s), a cigar factory in the High Street (1875), size and sweet making, coconut-fibre processing and several laundries. The Falcon Pencil Works in Gurling's Yard off York Road was built in 1878 for the established London manufacturers E. Wolff & Son. The factory closed in the early 1920s following Wolffs' absorption into the new Royal Sovereign Pencil Co. Ltd, when production moved to Neasden.[207]

Victoria Granaries are almost the only substantial industrial structures surviving in the area. They were established in 1891–2 by Augustus Hall in the grounds of Devonshire House, where he himself resided. The original buildings – warehousing and stables, plus a shop and offices at what is now 34 Battersea Square – were designed by Robert Burr.[208] Additional warehousing by J. H. May, architect, was built at No. 35 in 1907.[209] A. F. Hall & Sons, corn and flour merchants, continued here until the Second World War. In 1984–5 the main four-storey granary, No. 36, was converted to dance studios for the Royal Academy of Dance. Ship House at Nos 34 & 35 became offices in 1989–91.[210]

Less survives of the former cigar factory in Battersea High Street, much of which was demolished when the site was redeveloped for housing as Restoration Square in *c*.2000.[211] 'St John's Factory' was built in 1875 by Merritt & Ashby for Allen and Ernest Lambert, younger sons of the founder of Lambert & Butler, who traded as Allen Brothers. It was extended in 1878 by Drury & Lovejoy, architects, and Higgs & Hill, builders. The L-shaped block of two and three storeys, comprising workshops and offices, was considered 'excellent' in 1915.[212] Imperial Tobacco closed the works, latterly a pipe factory, in about 1930. For some years in the late 1950s they were occupied by the Ductube Company Ltd, makers of inflatable tubing for laying ducts in concrete.[213]

During the post-war years various small printing works arrived at the village end of Battersea Church Road. A larger concern was the equestrian and racing specialist Welbecson Press, which relocated from Notting Hill to Battersea. In 1962 the newly amalgamated Welbecson printing and publishing group concentrated its letterpress and litho printing at its works at Nos 37–43 Battersea High Street, seeing scope for expansion there.[214]

The decline of industry in this area resulted from a combination of factors, including the re-zoning of some sites for housing (along Battersea Church Road) and natural migration by firms seeking more convenient sites. For instance, relocation to Basingstoke of the machine-tool maker Gaston E. Marbaix Ltd, which had offices, showrooms and stores spread between Devonshire House and the former Victoria Granaries in Battersea Square, was made possible when the LCC agreed in 1965 to buy its old

416. Printing wallpapers by machine at Essex & Company's paper mills, Lavender Hill, *c*.1899

premises and pay towards removal costs.[215] At the former Cotswold Laundry adjoining, the Delyn packaging group closed its plastics factory in 1970, moving to Caerphilly.[216]

Other industrial sites

The **Latchmere Grain Distillery** was a sizeable but short-lived enterprise founded in 1850–1 on a long, narrow site on the west side of Latchmere Grove, probably by T. R. & J. W. Denny, corn merchants, on land that had been leased to the soap-maker John Hunt. The idea seems to have been to distill spirit from any kind of grain available. Besides the mill and its machinery, a pub, the Latchmere Arms, was built adjoining to the north, and at the same time Hunt and his son developed the east side of the road with twenty semi-detached cottages, eight of which were owned by the distillery. The Dennys sold up in 1855; their successor, Edward Gill, did not stay for long and passed the ownership on in 1858. The distillery was for sale in 1861 and still to let in 1863, when it was said to be able to produce a million gallons per annum. It was probably demolished soon afterwards for the West London Extension Railway.[217]

Industry was marginal and scattered in the overwhelmingly residential streets around and south of Lavender Hill. The most substantial surviving premises are those currently occupied by the **Battersea Business Centre, 99–103 Lavender Hill**, on a site set back behind the frontage. The original three-storey building here, end-on to the road, was built in 1891 as paper-staining and printing works by the wallpaper manufacturers Essex & Company, founded in 1887 by R. Walter Essex.[218] Both machine-printed and hand-blocked papers were made here, some by leading designers such as Voysey. Essex told Charles Booth's investigators in 1894 that although most wallpaper

firms were located in the provinces, he preferred London in order to be 'more in touch with culture and art'. The building's ground floor was taken up by an office in front, a colour shop behind, and a machine department at the back housing a sixteen-colour rotary printer, claimed by Essex as the largest of its kind in the country (Ill. 416). The hand-printing department was on the floor above, reached by an external iron staircase and operated on old-fashioned principles involving teams of a man and boy using blocks suspended on pulleys over a flat bed for the paper. The complement of employees around this time was about thirty.[219] Lower extensions to the east of the main building dating from the early 1900s may have arisen from expanded production, following Essex & Company's amalgamation with Wall Paper Manufacturers Ltd in 1899.[220] But the firm did not survive the First World War, for by 1919 Arding & Hobbs were using the premises in part as a furniture depository, in part for their vans and cars (Ill. 417).[221] At a later date a further westward extension was made.

Further west, a plain factory building of 1874–5 still extant at **1–3 St John's Hill**, built by William Read for Arthur R. Stevens & Sons, billiard-table manufacturers, was one of the first industrial works in the Clapham Junction area.[222] In the 1890s this firm, under the management of Richard Stevens, moved its production to the west side of Falcon Road, and later to premises at the corner of Chatham Road and Webb's Road, built in 1864 as a printing works by George Stiff. Here Stiff had printed his popular magazine, the *London Reader*. Some buildings survive as part of a live-work redevelopment on the site, now 58–64A Webbs Road and Hughes Mews, Chatham Road.[223]

There were at least two piano workshops in Battersea. One was built for William and Edward Munt in Falcon Terrace off Falcon Road in 1882, but abandoned when the firm relocated to larger premises in Eltringham Street,

417. Former Essex & Company's paper mills (now Battersea Business Centre), Lavender Hill, in 1964, when in use by Arding & Hobbs

Wandsworth, around 1898 (page 402) . A smaller factory, occupied by Spiller, Boult & Company from the 1890s, is extant behind the frontage at **80A Battersea Rise**.

Off St John's Hill a short-lived roller-skating rink at 2–16 Vardens Road was turned into a factory making Blériot-type aircraft in 1910 by Colonel Mulliner, a motor-car body manufacturer. When Mulliner abandoned aircraft production the following year, his factory was taken over by Mrs Hilda Hewlett and Gustave Blondeau, co-owners of a flying school at Brooklands racetrack, and christened the Omnia Works.[224] The building, in use as a snooker club in the 1980s, has since been demolished.