CHAPTER 9

# Battersea Power Station

Battersea Power Station is the area's pre-eminent building – one of London's best-known landmarks. It ranks alongside the Houses of Parliament and Tower of London in the drama of its architecture and riverside setting, and stands as a symbol for Battersea and also for London itself. Eighty years have passed since it was built amid controversy and nearly thirty since it closed and was sold off amid further controversy. Left roofless and rotting for a quarter of a century – longer than it ever worked at full capacity – it remains London's most contentious historic building (Ill. 418).

The power station was built in two halves or phases, Station 'A' to the west, beside the commuter railway lines leading into Victoria Station, in 1929–35, and Station 'B' between 1937 and 1955, both following an exterior design provided by Sir Giles Gilbert Scott. It functioned until power generation in London moved east to the Thames estuary, Station 'A' closing in 1975, followed by Station 'B' in 1983. While still a public asset, Battersea Power Station was disposed of cheaply in 1984 by the Central Electricity Generating Board without restriction or safeguards. Since then the adjoining 32-acre site of the former South Lambeth railway goods depot and the old waterworks pumping station at Cringle Street have become attached to it, offering one of the biggest allures to development in central London. With no real public leadership or guidance, it has been left to private enterprise to exploit that opportunity, to restore the building and find a suitable new use for it and the surrounding land. This private enterprise has so far signally failed to do.

The redevelopment proposals that have come and gone are recounted below. They make gloomy reading, by and large failing to match the dignity of the building. As Rowan Moore has written, the history of the power station is a tale where 'great visions alternate with bathos'.[1] The collapse of yet another scheme in 2012 and the bankruptcy of the developers highlighted once again the failure of all parties involved, both public and private, to secure the building's future. It is to be hoped that early confidence shown in the long-term plans for redevelopment and restoration by new Malaysian owners – expressed in the sale of flats 'offplan' – is not misplaced.

This chapter concentrates in particular on the complex design process and the roles of the various individuals connected with it. It ends with an account of changing attitudes towards the power station.

418. Battersea Power Station, south front in 2011

## *The need for a new station*

Battersea Power Station was a product of the dynamic inter-war period of modernization and rationalization in electricity supply, both in London and nationally. Hitherto, London's electricity had been supplied by about sixty local authority or private distributors, mostly through low-capacity stations serving areas of limited size.[2] By the mid 1920s the mood had changed to one of co-operation and co-ordination, led by two government-created national bodies, an Electricity Commission and a Central Electrical Board (CEB), whose aim was to improve supply by concentrating electricity generation in a limited number of interconnected 'selected' stations via a national grid.

In London the industry had already been edging in this direction. The London County Council tried but failed to municipalize electricity supply in 1906–7 with a scheme that would have exploited the surplus capacity of its tramways power station at Greenwich and seen a large new station erected at Battersea on the site of the present building. One of the last throes of the LCC Progressives, this attempt to bring cheaper electricity to Londoners failed to win parliamentary approval.[3] By 1920 Francis Fladgate, chairman of the Charing Cross Electricity Supply Company, had brought together ten of the west and central London companies in a joint committee, which in 1925 became the London Power Company (LPC), with authority to build its own stations. LPC policies echoed those of the national bodies: centralized control; the interconnecting of better-situated, efficient power stations and closure of smaller, less economic ones; and the building of new 'super' stations with modern plant of large capacity. One of its first steps was to construct a new generating station at Deptford West (1926–9) alongside a pioneering station of the 1880s, established by Sebastian Ziani de Ferranti.[4]

Fladgate also realized that a new 'super' station was needed to serve the growing demand in central and west London, which accounted for sixty per cent of the capital's electricity consumption, his intention being that such a station should also be one of those selected by the Electricity Commission and CEB to feed the new grid. In the end the Battersea station became an essential feature of the grid scheme, sending electricity supply as far as Peterborough, Brighton and Reading.[5]

## *The Battersea site*

Originally the LPC had been negotiating for 34 acres at Brentford, near the gasworks there, as the site for its new

station. An easement would have been required across Syon Park to obtain water from the Thames for condensing, as the ground, on the north side of London Road, was removed from the river. A parliamentary bill was rejected on its second reading in April 1926. Within nine months the company had alighted upon the still largely vacant former waterworks site at Battersea, selected by the LCC for a power station twenty years earlier.[6]

Though close to Battersea Park, this had the advantage of a lengthy frontage on an already industrialized riverfront, easing the large-scale delivery of coal and access to water for cooling. Also, it was bounded to west and south by the Great Western Railway's South Lambeth Goods Depot, with sidings offering connection to many main lines. And it was close to the intended area of supply in west-central London – though in the end it was this proximity to Westminster and Chelsea that very nearly proved the scheme's undoing.

### *Objections*

Once the first design for a 400,000kW station – as big in output as the nine existing LPC stations combined – became public knowledge in March 1927, there were complaints, mostly from residents of Chelsea and Pimlico, worried about the potential depreciation of their property and the effects of smoke and grit from its proposed sixteen metal chimneys. A public enquiry in June 1927 drew little additional opposition and the Electricity Commissioners approved the LPC's scheme that October.[7]

At this time new power-generating stations required the approval of the Office of Works, which asked the Commissioners to include a condition that the LPC do all in its power to prevent harmful smoke and sulphur-dioxide emissions. Formal consent for the second half of the station was deferred until it had been proven that the first half incorporated a successful desulphurization system.[8]

It was not until the spring of 1929, once work had begun on the foundations, that the murmur of opposition grew to an uproar, particularly in the pages of *The Times*, which the magazine *Engineering* accused of engendering a 'mass' attack against the power station. A 'weighty' letter signed by 'influential men' and an accompanying *Times* editorial asked why such a large generating station needed to be located so centrally, and listed nearby historic buildings and amenities that would be damaged by its fumes. In the letters and reports that followed, some of the alarm was well founded but much was ill informed and prejudiced. One Chelsea resident thought Battersea Park would 'sink from a paradise to an inferno'.[9] Sir Edward Hilton Young, who became Minister of Health in 1931, wrote to Prime Minister Stanley Baldwin's private secretary, convinced that such a facility would 'kill every green thing within two miles of Battersea, rot all the buildings, and bleach all the babies'. Even George V, who had been reading accounts in *The Times* while recuperating at Bognor, added his twopenny worth, writing to Neville Chamberlain, Minister of Health, that the whole project was 'ill-advised'. Chamberlain replied that he had no authority to control the location of such buildings, and Baldwin, having been persuaded by the Electricity Commission of the strength of its case to keep the station in Battersea, where in any case work had already gone too far to stop, decided there was 'no step' he could take.[10]

### *Early designs*

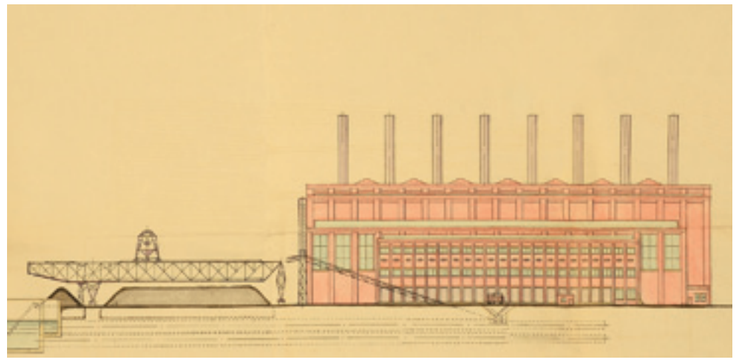
By this date power-station design in Britain had moved forward from its fledgling era of the small-scale, utilitarian local facility, designed by engineers, to a new one of the large 'central' generating station. Though many of these buildings remained functional in appearance, interest in their architectural treatment was growing, best exemplified by the American-style Lots Road Power Station (1902–4), the LCC's Greenwich Power Station (1906–10), and the work of C. Stanley Peach.[11] But no one had ever designed a British power station on a scale to match that envisaged at Battersea, or on as prominent a site.

The basic design and specification for Battersea were formulated by (Sir) Standen Leonard Pearce, engineer-in-chief to the LPC. From the beginning he decided that the station should be built, like many others, in two phases – as two separately functioning stations joined back-to-back in one giant structure. His building plan was symmetrical and rational, with the three main plant areas – boiler-houses, turbine halls, switchgear and transformer houses – arranged side by side in parallel rows, corresponding to the successive stages of electricity production in a coal-fired station. Though the final form of the superstructure took several years to resolve, the underlying simplicity of the plan-form never altered (Ill. 423).

Prior to his appointment in 1926 Pearce had been chief electrical engineer and manager of Manchester City Corporation's electricity department, and had also served as an Electricity Commissioner. When it came to choosing a civil engineering adviser for the project, Pearce turned to a trusted associate from his Manchester days: Henry Newmarch Allott (d.1929), of the Manchester firm C. S. Allott & Son, with whom he had collaborated at the city's Barton and Stuart Street power stations. Allott was assisted by his partner A. C. Dean, who later claimed responsibility for the firm's design work at Battersea.[12]

Their first scheme, of 1927, followed the functional pattern generally seen in smaller stations, with an exterior of brick that expressed the underlying steel frame. Running in two rows some fifty feet above the boiler-houses were sixteen lightweight steel chimneys, stabilized by cables (Ill. 419). Short metal stacks like these were common in power stations at the time and had been used by Pearce and Allott & Son at Barton, but were more usually employed in less populous districts. By early 1928 the engineers had changed tack. Having given 'very careful consideration' to the building's form in the light of fears of nuisance, they decided that fewer and taller chimneys would be more effective in dispersing fumes in central London. At first they toyed with a layout of eight self-supporting





419. Battersea Power Station, proposed west elevation to Station 'A' from the first design by S. L. Pearce, engineer, 1927

steel chimneys (four for each half of the station), but the durability and convenience of steel for such structures then suddenly came into question. Those at Barton were corroding badly after barely five years in operation; others at Clarence Dock power station, Liverpool, had decayed even sooner. So Pearce, Allott and Dean revised their plans in July 1928 to accommodate six tall brick and concrete chimneys – three on each side – running from ground level to a height of 275ft. The upper parts, above roof level, were to be constructed using the Belgian Monnoyer system of pre-cast fluted concrete sections.[13]

During 1929, as the growing agitation over sulphur pollution reached Parliament and Buckingham Palace, Pearce and his assistants continued their experiments and by October had developed a novel process of gas-washing that satisfied the LPC's advisers and the Government Chemist. The length of contact between gas and water was all-important and brought a further change in the design of the exhaust flues and chimney shafts. Pearce devised long overhead flues running the full extent of the building, where the gases were to be sprayed with water and passed through wet metal grilles, or 'scrubbers'. At each corner these flues connected to large steel-framed washing towers, where the gases passed down through more sprays and metal scrubbers, then up through an alkaline wash and timber scrubbers prior to exit through the concrete chimneys above. Thus was born the distinctive four-cornered Battersea design.[14]

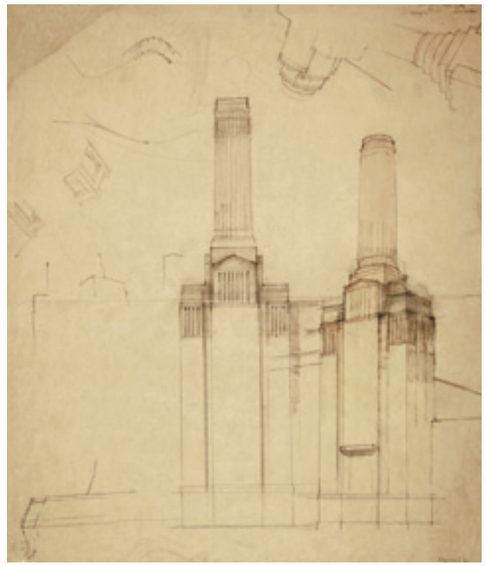
By this date, late in 1929, the foundations were well advanced, but alterations were still being made to the plant and switchgear house and, most tellingly, to the corner towers, which were enlarged to accommodate an additional uptake. The extra emphasis this gave to the towers was to be a key feature of the design. Only now could the architectural form of the station be finally addressed, and James Theodore Halliday (d.1932), of the Manchester firm Halliday & Agate, a practice employed frequently by Allott & Son, was called in to help.[15]

In its final form Pearce, Allott & Son and Halliday's design shared many features with the building as erected, particularly the vertical emphasis of the corner towers, but in detail and proportion it was cruder and less unified. Halliday had, however, improved the general massing. Before his involvement there had been a distinct stepping-down in size from boiler-house to turbine hall, and again from turbine hall to switchgear house, but his later drawings show these last two elements unified in height.[16] But before work began on the superstructure, the LPC at the last minute asked Sir Giles Gilbert Scott to act as architectural consultant for the exterior elevations.

### *Sir Giles Gilbert Scott's work on the exterior*

Giles Gilbert Scott is the architect for ever associated with Battersea Power Station. Yet, as he was at pains to point out at the time, it was not really his building. When the station opened and plaudits began to supplant earlier criticisms, Scott wrote to *The Times* to clarify his role in relation to Pearce and Halliday: 'My name seems to be more prominently associated with this building than theirs, and indeed it has sometimes been referred to as my power station; but my work was confined solely to the appearance of the exterior'. Brought in as a consultant by Francis Fladgate, the LPC chairman, very late in the building's genesis, once foundations were in place and the symmetrical plan with its four corner chimneys was set and deemed unalterable, Scott had the limited but vital job of giving the exterior some extra architectural élan.[17] It is largely due to his success that the building has acquired such significance and public affection.

420. Battersea Power Station, first sketch design by Giles Gilbert Scott, January 1930



421. Battersea Power Station, sketch by Scott for chimney tower designs with segmental pediments, *c.*1930–1

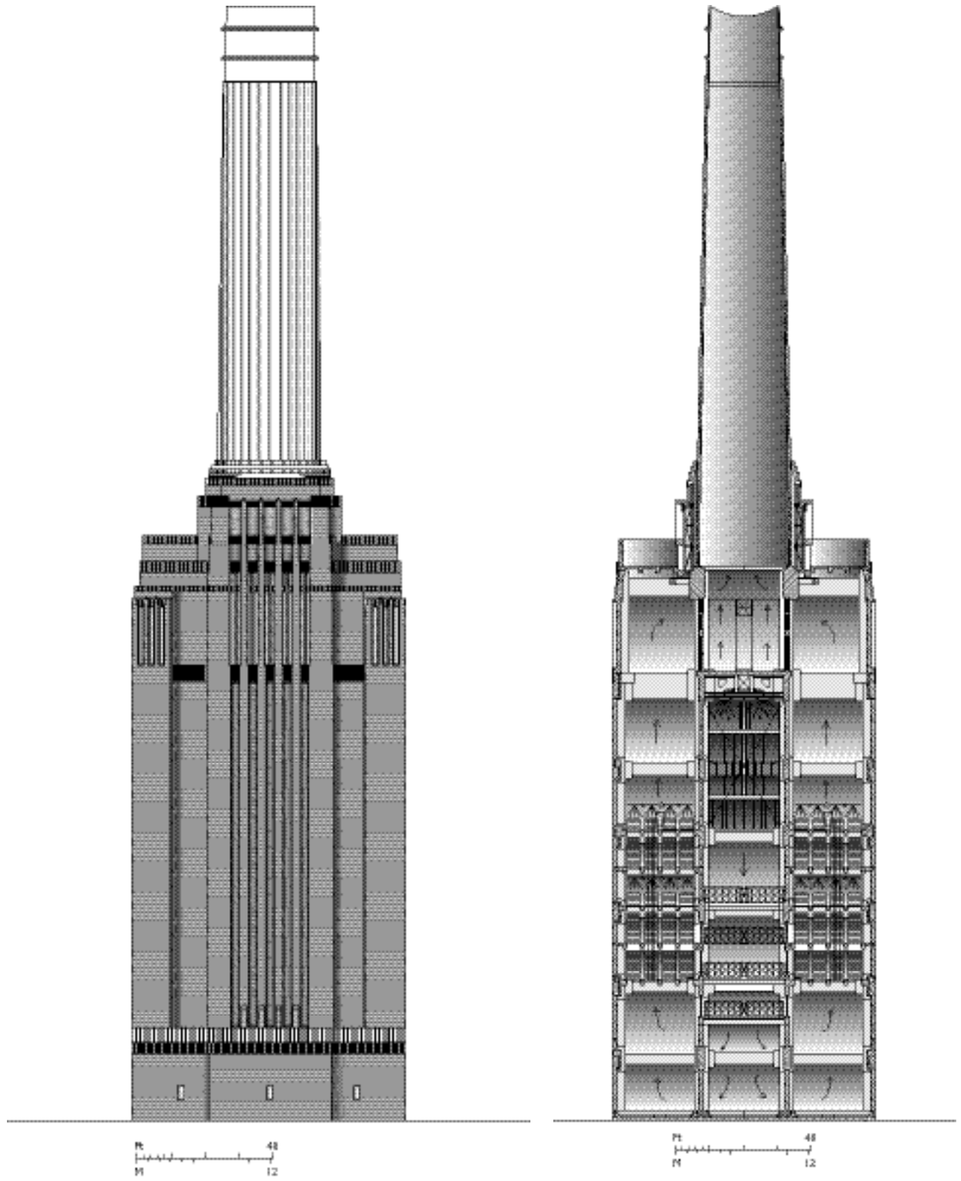
The reasoning behind Scott's employment is not known, but it seems likely that Fladgate hoped to counter negative publicity by bringing in a well-respected, high-profile architect. This follows an established pattern for employing distinguished architects as consultants to add external coherence to others' designs; Scott himself took on more consultancies later in life. At Battersea he was an inspired choice. Although an establishment figure, his work was far from conservative, and he had a rare ability for handling massive wall surfaces, as his designs for Liverpool Cathedral had demonstrated. Also, unlike most of his contemporaries, Scott's approach to the battle then raging between traditionalists and modernists was balanced and conciliatory, earning him the respect of both camps. Finally, Scott knew the area, having lived next to Battersea Park in the early 1900s when he was working on his designs for Liverpool Cathedral.[18]

From the start Scott seems to have disapproved of the agreed four-columned plan. At the later Bankside Power Station, where he had a free hand from the outset, he chose to concentrate all the exhaust flues in a single square-section chimney. He had wanted square chimneys at Battersea, too, as is shown by his first sketch design of January 1930 (Ill. 420), but this would have placed too great a load on the already completed foundations. For the same reason the use of brick for the cylindrical chimneys, which Scott turned to next, and which might have given the building a more consistent and monumental appearance akin to Bankside, could not be countenanced either.[19] From his first sketch it is clear that Scott had settled for Halliday's revised and simplified massing, unifying the turbine halls and switchgear houses at the same height either side of the taller central boiler-houses.

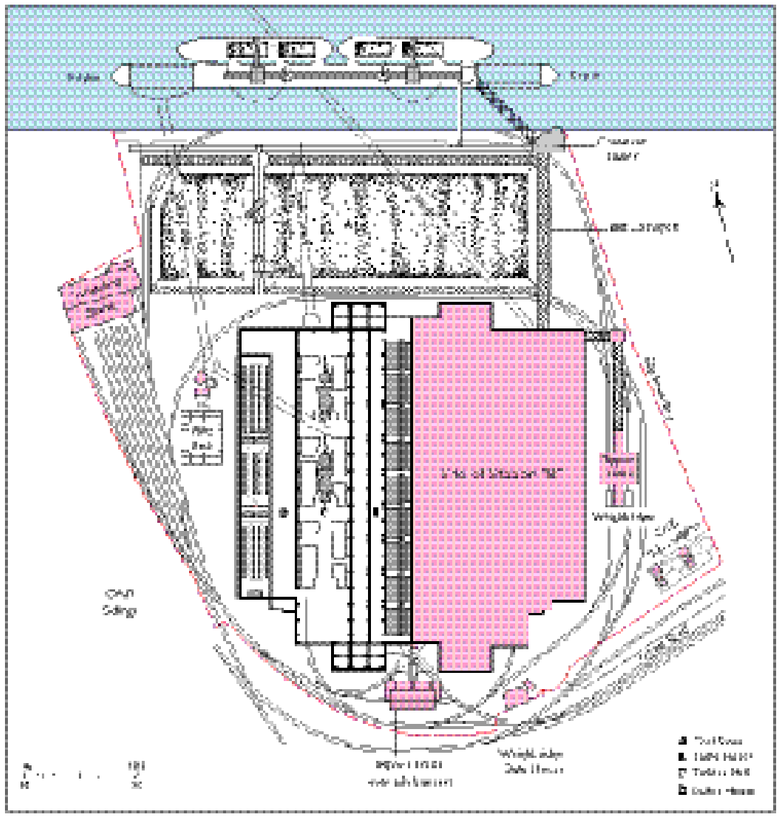
The area of design that concerned Scott most in 1930–1 was the junction of the four brick corner washing towers with the tapering concrete chimneys above. Sketches and elevations show him experimenting with pediments, triangular and segmental, to resolve this transition from rectangular to cylindrical forms (Ill. 421).[20] By April 1931 he had decided on segmental pediments, and a perspective of the finished station in this style was published in *The Times*. It drew severe criticism from the art critic Herbert Furst, who disapproved of the 'decapitated trunks' of columns sitting above 'a pseudo-classical portico'.[21] Scott then shelved this version, and by July had devised a new tower design that was to be one of the building's strongest architectural features.

His solution was a bold build-up of cubic masses, with the towers gradually stepping up as they rise above the boiler-house walls towards the chimney bases (Ills 418, 422). The technique was derived ultimately from the work of American skyscraper architects like Raymond Hood,






422. Battersea Power Station, elevation and section of typical corner tower and chimney as built



423. Battersea Power Station, plan of Station 'A' as built in 1929–35, with railway sidings, coal-handling plant and jetty. Site for station 'B' shown in outline

and was a device Scott experimented with in other monumental brick towers, as at Cambridge University Library (1931–4). This mounting verticality was emphasized by shadows cast by the tall, decorative flutings of recessed brickwork, which ran also in a frieze between the towers along the end walls of the boiler-houses.

The chimneys themselves were massive cylinders of reinforced concrete, over 28ft in diameter at base. Originally the plan was to use the Monnoyer system of reinforced pre-cast fluted concrete blocks, called *claveaux*. Common in France for chimneys and cooling towers, the technique was then little known in this country, and the LCC doubted its stability on such a scale in high winds. The LPC commissioned reports in defence of the system, which was endorsed by Scott, who could not understand the Council's objections. In the end in-situ reinforced concrete was used instead, each chimney being cast using a system devised by L. G. Mouchel & Partners. The reinforcing rods were anchored to an octagonal plate-girder at the top of each tower frame, and the tapered fluted sides of the chimneys were cast using special moveable shuttering. Without the Monnoyer system there was no need for the flutings but, according to A. C. Dean, Scott 'was so pleased with the ribs that he retained them'. Also, at the last minute the proportions were changed with the addition of an extra ringed 'cap' at the top, to conform with a government report asking for the chimneys to be increased from 300ft to 326ft in height. Finally, Scott achieved greater unity by having the chimneys painted in a buff shade of the French-devised 'Stic B' matt paint, to complement the brickwork and straw-coloured mortar, but



424. Battersea Power Station, steel frame of Station 'A' under construction by Sir William Arrol & Co. Ltd, *c.*1931

425. Battersea Power Station, lunch break on the roof of Station 'A' in 1931

this was lost after the war when they were painted the present cream colour.[22]

Overall, it was Scott's bold revision of the proportions and ornamentation that was his significant contribution. Enormous blank wall-masses of brickwork were balanced and offset with bursts of simple decoration: recessed flutings, as on the chimney towers; cornices of bricks in soldier courses; simple rectangular window openings; brickwork piers covering the main steel uprights of the boiler-house walls – all in his favourite high-quality thin, pinky-brown Blockley brick from Worcester, complemented by tinted mortar. Also, near the base a sort of plinth was created by a deeply ribbed string course of buff-coloured concrete, partly concealing a large steel beam beneath.

426. Battersea Power Station, Station 'A' Turbine Hall in 1934

General responsibility for the construction of the Station 'A' exterior was left to Halliday & Agate. Scott later wrote of his approach to power-station commissions, in which, he said, 'there is not nearly as much to do as might be anticipated from the size of the buildings'.[23] His comments, already widely published, are worth repeating for the insight they provide into his probable working method at Battersea:

> I confine my work entirely to matters of appearance . . . I am usually supplied with a preliminary layout of the building, and discuss this with the promoters, in order to ascertain what can or cannot be varied. Having arrived at a satisfactory grouping, I prepare elevations, and when these are approved I do ½" scale details and full sizes, select the materials, visit the job occasionally to see that these materials are used in the right way, and inspect sample walling etc., but I do not superintend the erection, nor transact the business side. All this is done by the promoters' architectural staff, or another architect, who also prepare the necessary working drawings embodying, of course, my details in them.[24]

427. Battersea Power Station, west flank in 1933, with Battersea Wharf in the foreground

Such was the impact of Battersea that it set the tone for power station design for a generation. Although there were functionalist and Modernist initiatives, it was Scott's monumental 'brick cathedral' style that came to dominate the genre by the 1950s, seen, for example, at Fulham (1934–6), Croydon 'B' (1939–50), Skelton Grange (*c.*1950), Staythorpe (1950–1), and in some earlier works by specialist firms later associated with the functionalist approach, such as Farmer & Dark (Brunswick Wharf, Poplar, 1947–56; Keadby, 1951) and Merz & McLellan (Poole, 1951). Its final expression was in Scott's own last masterpiece in the architecture of electricity, Bankside Power Station (1947–60).

### *Construction of station 'A', 1929–35*

As the site was badly permeated with water, the first step in May 1929 was to build a protective ring of steel-sheet piling and concrete around it, allowing water to be pumped out while permanent concrete retaining walls were founded directly on to the underlying clay.[25]

Most of the steel framework was designed and built in Glasgow by Sir William Arrol & Co. Ltd, sent by steamer to the docks, then brought by barge to Battersea; the remainder came by rail. Arrols erected the frame between October 1930 and July 1932 (Ill. 424). As the work predated the new LCC Code of Practice of 1932, in parts the frame had to be much heavier than the engineers had intended, to comply with the existing outdated legislation. The boiler-house steelwork was designed as a rigid frame, without diagonal bracings, to ensure ease of access. The corner washing towers were also without diagonal bracings, in box form, which was said to have been of 'some value' in developing the architectural design.[26]

On the exterior the brick superstructure also went up in stages as the steel frame was completed, between March 1931 and May 1933 (Ill. 425). Inside, much of the wall surface was covered in Phorpres or Fletton brick. Special Accrington 'NORI' hard engineering bricks were used inside the washing towers and main flues, set in acid-resisting mortar.[27]

The biggest space – about 480ft by 105ft, and 150ft high – was devoted to the boiler-house, which at first took six of the nine intended Babcock & Wilcox boilers. This area was entirely functional in appearance. Giant furnaces, with water pipes embedded in their ceilings, backs and sides, were fed mechanically with special small low-sulphur coal from 700-ton coal bunkers above. The high-pressure steam thus created passed via forged-steel reservoirs to the turbo-alternators in the adjoining turbine hall.[28]

The **Turbine Hall** in Station 'A' was one of London's finest 1930s interiors (Ill. 426). Although smaller than the boiler-house, at 475ft long by 80ft wide it was nevertheless vast and provided Halliday with his sole opportunity for a decorative scheme on a scale comparable to Scott's elevations.[29] He devised a monumental, temple-like interior, cladding the piers that lined the central space with giant Art Deco fluted pilasters faced in greyish-brown faience tiles, given a blue marbled or mottled finish by being sprayed with pigment shortly before firing. The other wall surfaces were faced in slabs of the same material, jointed to resemble masonry. All the ceramics were manufactured by Shaw's Glazed Brick Company Ltd of Darwen.

Above the pilasters an architrave was provided by a steel crane gantry-runner supporting the two massive overhead travelling cranes that were needed to manoeuvre the heavy plant. High up in the west arcade were half-a-dozen metal-framed bay windows and two balconies, allowing the men in the adjacent control room a clear view of the turbines. At floor level the arcades gave access to side aisles in the boiler- and switchgear houses, for auxiliary plant and switchgear.

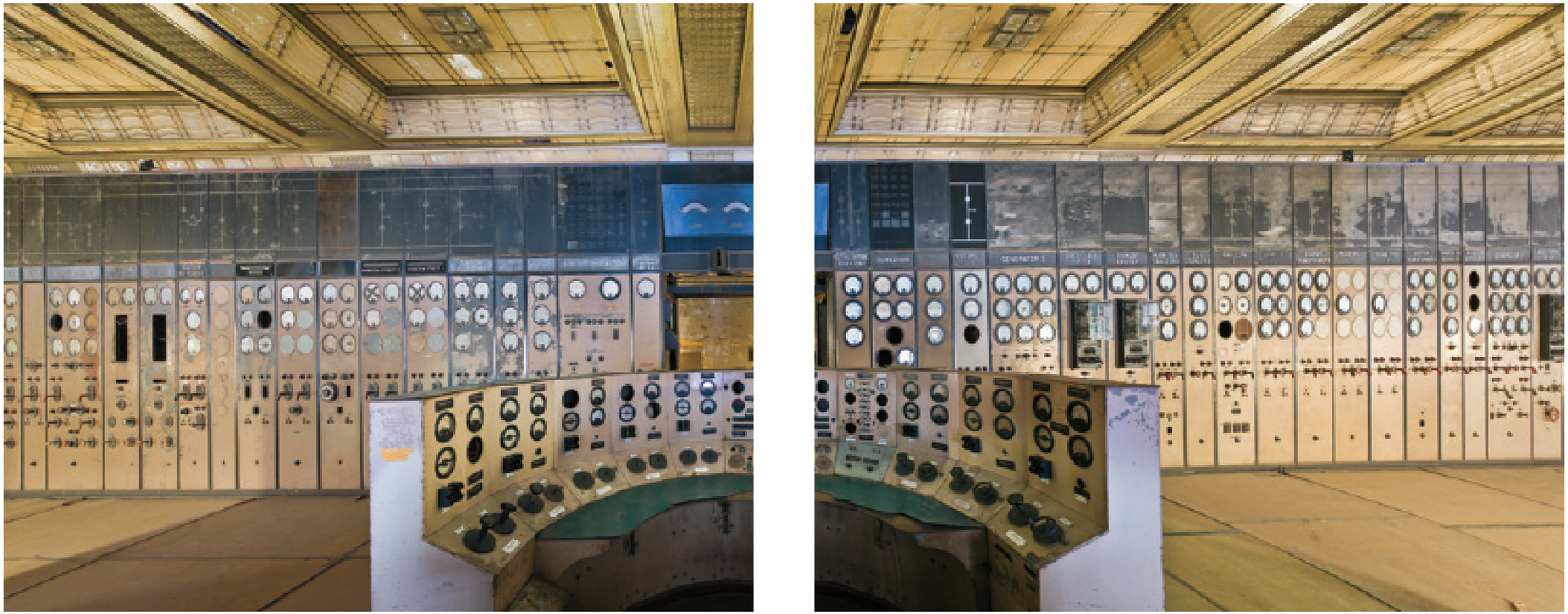
Greek key-patterned steel balustrades and polished-steel handrails continued the Art Deco theme, as did the casings to the turbines themselves, which were sprayed with cellulose paint and polished regularly to gleam like motor cars. At first only two turbo-generators were installed, in 1932, each of 67,200kW, with space at the south end reserved for the third.[30] The main floor of the hall was not continuous: the turbines stood on massive foundations and were surrounded by walkways, with gangways leading to the annexes, but in between were open wells allowing natural light to reach the basement floor, where the condensers, circulating pumps and other secondary plant were housed.

Equally elaborate, though smaller in scale, was Halliday's **Control Room** in the upper section of the switchgear house, overlooking the turbine hall (Ill. 429). Here the walls were lined with grey Italian marble, set off by trimmings of black Belgian marble, and the floor was of polished teak parquet. Most striking of all was the 'Jazz Age'-style steel-and-glass ceiling light running the entire length of the room, divided into bays by transverse beams of the same materials. Originally, this allowed natural light into the room from lanterns set in the concrete roof above, but has been covered over since the war. Additional lighting came from stylized 'Hedralite' ceiling fittings made by the Holophane lighting company, who provided all the light fittings for the station.

As the operational centre for both halves of the station, the control room was dominated by long banks of panels ranged along its west and north walls covered in switches and dials and, above them, diagrammatic lights showing



428. Battersea Power Station, detail of bronze entrance gates, made in 1930 by Morris Singer to designs by Halliday & Agate



429. Battersea Power Station, Station 'A' Control Room in 2011

the status of each circuit. There were also hand-operated telegraphs, similar to those used in ships, for the controllers to signal orders immediately to the men in charge of the turbines.[31]

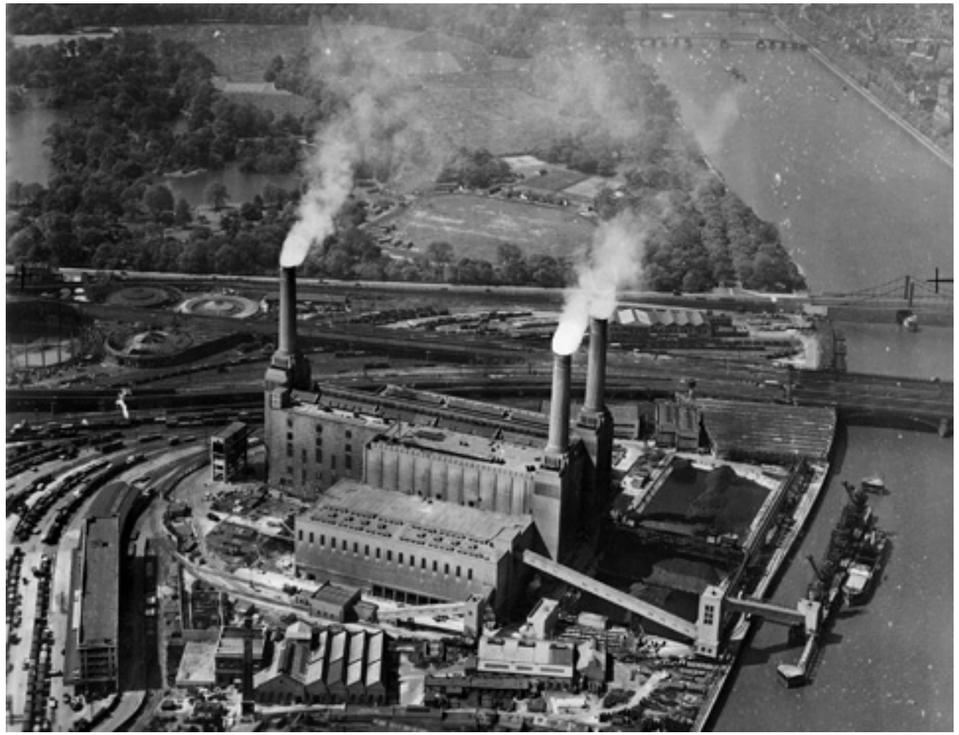
The only other decorated area was the so-called **Directors' Entrance**, the main entrance hall and staircase in the south wall of the switchgear house, which led up to the offices and control room. Set in a pink granite architectural surround was a pair of ornamental bronze entrance doors, cast in 1930 by the Morris Singer Company to designs again provided by Halliday (Ill. 428).[32] Each door panel had simple, geometric motifs with, in the centre, naked muscular figures, probably symbolizing 'Power' and 'Energy', evidently copied by Halliday from the bronze relief panels in the lobby of Sloan & Robertson's Chanin Building in New York City (1928–9), designed by René Paul Chambellan. (The bronze doors have since been removed and are currently on display in the developers' offices at Cringle Street.) Inside, the entrance hall continued the grey and black marble decor of the control room. Otherwise the switchgear house was notable for the oversized transformers and switches that controlled and modified the electrical pressure and sent current at various voltages to an adjoining National Grid station and to the LPC's other generating stations and high-tension network.[33]

Although only half the station was erected in 1929–35, some aspects such as the water conduits, railway sidings, river jetty and coal-handling plant were built to full capacity. Most of the station's coal came by river. Colliers berthed at a reinforced concrete jetty over 430ft long, where travelling cranes transferred the coal to belt conveyors leading either to a control tower, and thence to the boiler-house bunkers, or to the 75,000-ton coal store situated between the river wall and the power station.[34]

Some parts of the 'A' station were not finished until 1935, but it was sufficiently complete to begin operation in June 1933 (Ill. 427). The entire east side of the building was covered with a temporary 'wall' of protective corrugated sheeting. By 1936 the three final boilers and the third turbo-alternator – at 105,000kW the biggest in Europe – had been installed.[35]

### *Construction of station 'B', 1937–55*

Once it had been decided that Pearce's flue-gas washing system in the 'A' station was effective, work began in 1937 on the construction of Station 'B'. Such was Arrols' progress with the steel frame by 1939 and the need for uninterrupted power supplies during the war that the LPC decided to continue the work throughout the hostilities, albeit at a reduced pace. The first part of the generating plant, a 100,000kW turbo-alternator, was brought into service as early as 1941 by being connected temporarily to the Station 'A' boilers. By this date the new north chimney and about half of the 'B' station superstructure had been built. Shortly after the war, work began on the



430. Battersea Power Station from the air in 1946, with Station 'B' partly completed

second phase (Ill. 430). With the nationalization of the industry in 1948, completion of the station was put in the hands of the new British Electricity Authority. Five years later the last 100,000kW generating set came into service, boosting Battersea's final total output to over 500,000kW. Londoners had to wait until 1955, when the fourth chimney was finished, to see the building in the full form intended by Scott, Pearce and Halliday.[36]

The 'B' station followed its neighbour in design and construction, but there were discernible differences. The boiler-house, for instance, though similar in plan, had its outer walls built some sixteen feet higher, in order to accommodate larger boilers of an improved design by Pearce.[37] There were variations in fenestration and door surrounds; and even the external bricks, though again supplied by Blockleys, were slightly different in size, texture and colour. Also, an additional entrance to the south of Turbine Hall 'B' with offices above made this flank of the building more heavily fenestrated, and out of keeping with Scott's original vision. Technologically, the engineers had learnt already that the acid-resisting bricks and mortar of Station 'A' were insufficient to protect the structure from the desulphurization process, and so in Station 'B' the washing system and flue linings were modified. For this reason (as well as the building's relative youth) the eastern half of the power station has fared better than the west, suffering less damage and corrosion to its walls and chimneys.[38]

Station 'B' Turbine Hall, largely complete by September 1940, was comparable in layout to Halliday's in Station 'A', with similar blue-grey faience wall-tiles by Shaw but a more restrained decorative scheme. Built during the blackout years, the hall had no roof lights, as in Station 'A', but an elliptical ceiling of pre-cast concrete tiles (Ill. 431). Here and throughout Station 'B' all lighting was artificial. In the switchgear house adjoining was an auxiliary control room,



431. Battersea Power Station, Station 'B' Turbine Hall in 2011

432. Battersea Power Station, Station 'B' Auxiliary Control Room in 2011

opening on to the turbine hall at turbine level. This was also lined in blue-grey faience and dominated by a semi-circular suite of control panels in stainless steel (Ill. 432).

One innovative feature of the completed station was the use of its surplus heat, channelled through water pipes beneath the Thames, to run a district heating and hot-water system for flats in the Churchill Gardens Estate (1947–62), where Powell & Moya's scheme included a tall glass-walled electrical accumulator tower, and also in nearby Dolphin Square.[39]

### *Closure and redevelopment proposals*

By the 1970s the science of electricity generation and power-station design had evolved, and in London the focus was shifting to new expansive stations on the Thames estuary. The CEGB closed Battersea 'A' in 1975, and thereafter the 'B' station seems to have operated only at peak times to relieve pressure on the National Grid until it, too, closed in October 1983, when the district heating contract came to an end.[40]

Before the power station was finally wound down, two key events occurred that greatly influenced its fate. First was its listing in 1980 by the Department of the Environment, under pressure from conservationists keen to secure such a significant inter-war structure, having just seen the magnificent Firestone Factory on the Great West Road hastily demolished by its owners before it could be protected. Then in 1981 the pressure group SAVE Britain's Heritage published its own account of

the building, drawing attention to its precariousness and suggesting an alternative use as a sports arena and leisure centre, for which SAVE sought (and gained) planning consent in 1982.[41] With demolition no longer an easy option, the CEGB in 1983 launched a competition for developers (significantly not for architects) to find the best alternative use for the power station, the aim being to sell it to the winners. Wandsworth Borough Council devised a planning brief which, perhaps influenced by SAVE's work and the Council's own strategy for restricting commercial redevelopment to established town centres, steered competitors away from office or retail uses while emphasizing a receptiveness to leisure and recreation. Compliance with the Wandsworth brief was made a condition of the competition.[42]

**John Broome and the Battersea Leisure scheme**. Thus perhaps it was no surprise that the winning entry announced in 1984, from a consortium led by Sir David Roche, was a scheme for a leisure theme park by Mark Leslie (of Peter Legge & Associates) – though, significantly, this was also the least popular design with the general public. However, Roche and Leslie soon washed their hands of the project in the face of increasing intervention from John Broome, creator of the Alton Towers theme park and a latecomer to the consortium. Broome then took sole control through a new company, Battersea Leisure Ltd, and in 1986 obtained planning permission with a revised design by a Texan firm of theme-park specialists that was entirely American in conception, featuring a waterfall, balloon ride, Chinese Emporium, Henry VIII restaurant, a 'Ye Olde Souvenir Shoppe', a recreation of a typical Battersea pub, and so on (Ill. 433).[43]

In 1987 Battersea Leisure finally secured financial backing and bought the site from the CEGB for £1.5 million. Work then began on removing the disused generating plant. Prime Minister Margaret Thatcher, an admirer of Broome, arrived by helicopter in a personalized hardhat to officially launch the redevelopment in June 1988.[44] By January 1989 the contractors Sir Robert McAlpine & Sons had removed the roof and demolished most of the badly corroded west boiler-house wall. But within months Broome's backers had pulled out and work had stopped, never to resume, leaving much of the building an empty shell open to the elements. A temporary steel support system that was designed to last two years is still in place today. Heavily in debt, Broome sold his interest in Alton Towers to raise capital, and returned to Wandsworth Council in 1990 with new plans for offices, a hotel and shops for the adjoining vacant land to help finance the main project. Though permission was granted, no further work took place. In 1993 Broome sold up to Parkview International, a Hong Kong-based development company.[45]

**The Hwang family and the Parkview scheme**. Parkview was a family company, owned by the Taiwanese George and Victor Hwang and their brothers. When details of their first proposals eventually emerged three years later, they seemed on paper more achievable than Broome's, being based on a more financially viable mix of shopping, leisure and media facilities in the power station itself, with two large hotels planned for the surrounding land. But Parkview's commitment was doubted by local groups concerned about the lack of community involvement, the most vociferous critics being the Battersea Power Station Community Group. Also, Parkview was linked with financial scandals and insider dealing in Hong Kong; and their original backers, who included British Airways and Warner Brothers, soon pulled out, leaving the project in jeopardy.[46]

433. Battersea Power Station redevelopment scheme for John Broome's Battersea Leisure Ltd, 1988



Designers came and went as the restless Victor Hwang habitually changed his mind. By 2000 he had persuaded the veteran architect Sir Philip Dowson to mastermind a revised scheme, which was accepted by Wandsworth Council. Others brought in to assist included Sir Nicholas Grimshaw and Benson & Forsyth. Grimshaw's scheme had imagination: there were to be offices, apartments, cinemas and hotels; restaurants in the control room and one of the chimneys; a new glass west wall; a helipad; an 'air bridge' to Battersea Park railway station; and a footbridge across the river to Pimlico.[47]

But still nothing happened and the building continued to deteriorate. On a whim Hwang bought the Serpentine Gallery's 2002 summer pavilion, designed by the avant-garde Japanese architect Toyo Ito in association with Cecil Balmond of Ove Arup & Partners, and had it rebuilt next to the power station as a marketing suite. It remains the only visible evidence of Parkview's thirteen-year tenure. Balmond was subsequently taken on as yet another masterplanner. Shortly afterwards, in 2004, Wandsworth Council's former borough planner, Ian Thompson, joined Parkview as a planning consultant.[48]

By October 2005 Parkview had received planning consent from Wandsworth Council, with English Heritage's support, to demolish and rebuild the four iconic concrete chimneys as 'beyond repair', despite opposition and evidence to the contrary.[49] A year later Hwang asked for new permission to build 750 extra homes and offices on the land adjoining the power station at an estimated value of £900m, before beginning work on the decaying building itself. Local pressure groups took this as a further sign of Parkview's disingenuousness and were proved right when only days later the Hwangs sold the site, which they had acquired from Broome for £10½ million, to the Jersey-based company Real Estate Opportunities (REO) for a greatly inflated price of £400 million, about half of which came in the form of a loan from the Hwangs.[50]

**Treasury Holdings and the Rafael Viñoly scheme**. The majority stake in REO was held by Treasury Holdings, a Dublin company owned by Irish developers and entrepreneurs Johnny Ronan and Richard Barrett. By April 2007 Treasury had dropped the Parkview scheme and secured the services of Uruguayan-American architect Rafael Viñoly as masterplanner.[51]

Viñoly's plans were radical and ambitious. Aside from apartments, and retail and hotel elements planned for the station itself, his initial £4 billion scheme included an office development on the former railway land that was to be covered with a plastic 'eco-dome' and crowned by an enormous 1,000ft-tall ventilation chimney – apparently the key to the site's carbon-neutral pretensions. Unbelievably, given that a prerequisite of previous applications was that no buildings should exceed the height of the power station, this chimney dwarfed it entirely and, if built, would have been the tallest structure in London.[52] Such was the outcry that by January 2009 Viñoly had revised his plans, reducing the chimney in height and diameter, and cutting the overall size of the office development by half. But this was not enough. With the power station's future becoming increasingly entangled with the proposed regeneration of the Nine Elms area, Treasury Holdings had little choice but to scrap such an unachievable design.[53] Further revised plans by Viñoly were given planning permission in November 2010 for a 'neighbourhood' of hotels, offices, restaurants and 3,700 homes, all grouped around the power station, which was to be restored as a cultural and creative centre, and accessible via a developer-funded extension to the Northern Line. For some time REO had been labouring under enormous debts, and at the end of 2011 its bankers finally called in their loans, putting the power station's holding company into administration.

In 2012 the site was sold to yet another owner – a consortium of three Malaysian development and investment companies, in all of which the Malaysian Government has interests. Viñoly's masterplan has been retained as a framework for new architects to work within, ensuring considerable continuity (Ill. 438). The ten-year scheme is scheduled to begin in September 2013 with the erection of 800 new apartments west and south-west of the power station, to designs by Ian Simpson Architects and de Rijke Marsh Morgan Architects (dRMM), leaving the east side (where a marketing suite has been built) for later development. The restoration of the power station itself is intended to follow on soon after the first housing has been commenced. The new owners have made it clear that this will require the demolition and rebuilding in facsimile of Scott's four chimneys, which is likely to be implemented one by one.[54] And so the circus begins again.

### *Changing attitudes to the power station*

Battersea Power Station holds a special place in Londoners' imaginations today. But it was not always so. It took time and strong architecture to win over a capital city shocked by the idea of a large coal-fired power station built in its midst. Of this reversal Rafael Viñoly, architect of the most recent failed redevelopment scheme, claimed: 'It was hated to death when it was built; now everyone talks about it as if it was the Taj Mahal or something'.[55]

In fact the outcry that accompanied the early phase of construction in 1929–30 focused largely on the station's situation in central London and the possible effects from pollution. Scarcely a mention was made of its appearance. Nonetheless, it seems to have been taken for granted that the building would be functional and devoid of aesthetic value. In a letter to *The Times* warning that the power company was untrustworthy, Lord Dawson of Penn, the King's physician, anticipated a 'gigantic and necessarily ugly structure'.[56] The *Architects' Journal* likewise thought civilization's thirst for electric power and progress had condemned it 'to live under a pall of smoke and in the shadow of the ugly buildings of its own devising'. And yet by 1933 the same magazine was proclaiming that London had 'a new landmark'.[57] What had changed?

434. Battersea Power Station in the early 1930s, watercolour by Cecil Hunt

Undoubtedly, the main factor was the wide appeal and fine quality of Scott's exterior design. It was neither modernist nor historicist, and succeeded in being monumental without being inhumane. Its size, distinctive silhouette and position on a bend in the river gave it a particular presence. Thousands of railway commuters passed it daily, which perhaps more than anything else earned it 'a place in the affections of many who care nothing about architecture'.[58] It became an irresistible lure for photographers, being the most popular subject at the Professional Photographers' Association exhibition of 1933. Floodlighting, in place by March 1934, enhanced its dramatic and photogenic qualities (Ill. 436).[59] Painters and engravers, too, were drawn to it (Ill. 434), their handling of the ethereal effects of steam, mist and water, combined with the building's strong silhouette, evoking the work of Whistler and an earlier generation of artists inspired by Battersea's industrial riverscape.

Even before the 'A' station was completed, attitudes were changing. The sheer scale and impressiveness of the civil engineering had an effect. In 1931 *The Times*, lately in the vanguard of the assault against the power station, devoted a whole page to a photograph of its steel frame to illustrate the launch of the new national British Steel mark. The apparent success of Pearce's gas-washing system also appeased doubters. A *Daily Telegraph* reporter, visiting as the station began 'tuning-up' in September 1933, described the delicate wisps of white vapour that were all that remained of the 1,000 tons of coal consumed each day. The 'riverside Moloch' of a few years earlier had become an 'ogre that was taught to swallow its own smoke'.[60]

Once Station 'A' went into service, the muted praise turned to glowing tributes. Scott's presidential address to the RIBA in 1933 elicited effusive comments from fellow members. The politician and art connoisseur Lord Crawford and Balcarres was taken by Scott's brand of modernism: 'I am much more excited by a Cathedral or a power-station built by Sir Giles than I am by any house I have ever seen constructed of Vita glass and aluminium'. Charles Marriott added that the power station would be recognized 'as one of the finest recent buildings in London', and W. G. A. Ormsby-Gore, Commissioner of Works, declared it 'one of the most excellent buildings that have ever been built by man'.[61]

The general press followed suit. To *The Star* it was 'The Miracle of Battersea', to *The People* simply 'Majestic!'; *The Sphere* thought it 'a decorative asset to the neighbourhood in which it stands'.[62] Given its great size and vast internal halls, the most common association was with a cathedral or temple – comparisons that Scott himself is known to have disliked. It was 'Battersea's Cathedral of Electricity' (*The Sphere* again), 'A Temple of Power . . . sanctuary of some great pagan cult glorifying and deifying those two monster generators enthroned in the centre' (*Daily Herald*).[63]

Many in the architectural press admired the building's integration of architecture and engineering. Even Pevsner thought it 'one of the first examples in England of frankly contemporary industrial architecture'.[64] Scott's brand of 'popular modernism' also found favour with artists and intellectuals. Sir Kenneth Clark, Director of the National Gallery, was among a group of such 'celebrities' who placed it second when asked by the *Architects' Journal* in 1939 to select the five best modern buildings in Britain. (The Peter Jones department store at Sloane Square came first.)[65]

There were also critics. Few Modernists took to the building, arguing that power stations should be more obviously functional in design, more 'open, integrated and honest'. Robert Furneaux Jordan later compared Scott's role at Battersea – concealing 'fine machines under ten million bricks in Gothic flutings' – to his grandfather's use at St Pancras of a Gothic hotel 'to hide a fine train hall'.[66]

Though opinions of its aesthetic value may have differed, there was consensus that Battersea more than any other power station captured the public's imagination as the great symbol of the electrical age, encapsulating the excitement of a power that made possible trains, cinema and other thrilling aspects of modern life. For two generations it remained a 'wonder' of a new industrial age and of modern heavy engineering (Ill. 436). Its size, renown and central London location made it the industry's showpiece. It provided the backdrop to media coverage of any electricity-related story, from coal production to strikes and power cuts. One LPC member commented: 'It seems to be the only station the press knows anything about'.[67] In this way Battersea was kept perpetually in the public eye.

Yet the station's days were soon numbered. Even when it was completed in the mid 1950s its technology was out of date and increasingly environmentally unfriendly – a view that was bolstered with the discovery in the 1970s that Pearce's desulphurization system was pumping more pollution into the Thames than was removed from chimney gases. As a result gas-washing stopped for the short remainder of its working life. By the time the CEGB began to close down the power station in 1975 it was obsolete, decaying and apparently unwanted.

Once threatened with destruction, the building again became cherished, and a campaign began in earnest to save it. While it was being wound down in the 1970s and



435. Battersea Power Station from Grosvenor Road in 2011


436. Battersea Power Station on the cover of *Wonders of World Engineering*, 1937

437. Battersea Power Station from the air in 2010

438. Battersea Power Station redevelopment scheme, 2012. Rafael Viñoly, masterplanner



8os, the architectural historian Gavin Stamp produced several works on Scott, Battersea and power stations generally, which stimulated interest and have provided a rigorous intellectual basis for all subsequent studies.[68] SAVE Britain's Heritage also produced a report and redevelopment proposals of its own. Listing of the building in 1980 elicited surprisingly little adverse reaction, and by 1981 the power station was, according to the *Illustrated London News*, again 'a much-loved landmark'. As one newspaper put it, the 'ugly duckling turned into a swan'.[69]

At the same time the image of the power station began to take hold in the realm of popular culture. It became a recurrent setting for feature films and music videos, most famously appearing on the cover of Pink Floyd's 1977 album *Animals* with a giant inflatable pig strung between its columns. Its instantly recognizable silhouette found its way into tourist souvenirs and memorabilia, gracing tea towels, T-shirts, ashtrays and the like. Even Wandsworth Council, which in 1978 wanted the site for its housing programme, now uses a silhouette of the ravaged building as part of its logo.[70]

The more precarious the power station's future became, the more its significance was recognized. In 1991 Jonathan Glancey referred to it as one of the 'great monuments of twentieth-century industrial civilisation', a view endorsed by the building's inclusion in 2004 on the World Monuments Fund's list of 100 Most Endangered Sites of international cultural importance and by English Heritage's recent (2007) upgrading of its listing status to Grade II*.[71] As in the 1930s, it still features regularly in popular media polls to find London's or Britain's greatest building.

As it continues to crumble, Battersea Power Station is acquiring a new status and symbolism, akin to that of a ruined ancient monument (Ill. 437). To Tim Teeman, writing in *The Times*, its empty, ravaged interior has 'the air of the giant's castle, something mythic even'.[72] The writer Will Self suggested stabilizing the building and leaving it as an abandoned ruin, to become perhaps 'a kind of inner-city nature reserve', as a more exciting solution than the ubiquitous mixed-use riverside development.[73]

But it is also 'one of London's most celebrated white elephants', a symbol of the grand building project that never seems to happen.[74] For the journalist Richard Morrison it highlights a particular facet of British life, 'our naive willingness to believe – or at least devote acres of newsprint to – grandiose plans that are clearly not going to come to fruition in a century of Sundays'.[75] Perhaps more than any other structure today it represents the impotence of the heritage lobby and planning system when faced with big business at its most rapacious, and also a surprising lack of imagination and drive in what should be a landmark conservation case. As the local architect and campaigner Keith Garner says: 'I tend to ask, "you have this world-famous iconic building, on a beautiful riverside location in one of the world's greatest cities. What is the problem?"'[76]