

The Transformation of the Thames and the Port of London

by

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Strategic and economic factors favoured the location of London on the Thames, but it was the nature of the site that provided the basic ingredient. The river gave access deep into southern England and its mouth was opposite the Rhine, the great waterway leading into the heart of Europe. In the nineteenth century London was the capital of an empire that extended over a quarter of the land surface of the globe and the Thames was of enormous significance as a transport artery. However, from the Middle Ages it was also a magnet for industry and thus of increasing pollution until a crisis in the nineteenth century brought about huge changes, which continue to the present day. Changing perceptions have transformed the Thames from the city's back door into a showcase for new buildings and public spaces.

Nathaniel Hawthorne, the American novelist, who visited England in the 1850s, wrote that the Thames was 'the backside of the Town bordered with the shabbiest, blackest, ugliest, meanest buildings I ever saw'.¹ This was a view widely shared at the time and was to lead to a clamour for the creation of a city worthy to be the capital of the largest empire the world had then seen.

A Roman settlement on the strategic site that was to become London was founded soon after the invasion of AD 43 and became the major port and the focus of communications. The earliest development followed the creation of a river crossing. Initially, this was most probably a ferry, replaced shortly afterwards by a timber bridge. The first permanent crossing was located in roughly the same place as its Saxon and medieval successors. The establishment of the port was of equal importance in the story of the development of London. Rescue archaeology has revealed wharves which exceed in extent anything so far found at any coastal or river town in the western Roman empire. Within fifty years of its foundation, London boasted timber quays stretching over 500 yards (450 m) along the north bank. By the end of the third century, the waterfront had been developed on both banks and extended along the foreshore for over half a mile (0.8 km).² Thus began London's role as a natural focal point for commerce. The port prospered in early medieval times and the importance of the City was emphasised by the building of the first

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stone bridge in 1176-1209.³ This was to have a profound effect on development and became a famous landmark. London emerged in the later Middle Ages as the undisputed capital of the kingdom and its influence spread further afield. The sheer size of the capital always impressed visitors. In the medieval period it was, in the succinct words of Francis Sheppard, 'three times as large as Bristol or York, enclosed by landward walls two miles in length, and the skyline dominated by St Paul's and a forest of church towers and spires. Here was something totally different from anywhere else in the land'.⁴

The heart of the historic port lay within the bounds of the City along the stretch of the river known as the Pool of London (Fig. 1). The Corporation of the City of London is recorded as having certain rights over the river from at least the ninth century and its jurisdiction extended as far upstream as Staines. The revenue to the Corporation came from the dues paid by ships visiting the port, the tolls on vessels passing through the locks or using the piers and the rents from wharves, piers and landing places.



Fig. 1

The Pool of London before the building of Tower Bridge photographed by H. W. Taunt, 1870s
Taunt Collection, NMR

One of the more important developments of the medieval period was the extension of wharves and landing places into the river behind new timber revetments and later stone walls. For example, the Steelyard of the Hanseatic League, now covered by Canon Street Station, was built in the thirteenth century



Fig. 2
Queenhithe photographed by Francis Frith, c.1865
Wren Society Collection, NMR

on reclaimed land. Upstream was the principal quay at Queenhithe (Fig. 2), one of the earliest areas of growth on the waterfront, first recorded in 889. The word hithe is of Anglo-Saxon origin and means a small landing place on a river. However, the building of the great stone bridge across the Thames downstream from Queenhithe led to the dock's decline in importance, but it continued in use as a wharf for unloading grain from upstream. S. C. and A. M. Hall writing in 1859 commented on its ancient appearance even then: 'It retains more of the characteristic features of the Thames bank during the last century than are to be seen in any part of London. The old wooden wharves, the boats in the little dock, the high steps leading from the water, and the picturesque tree over-shadowing them, seem to belong to the days of [Queen] Anne, when the traffic in boats on the river was considerable, and the rich citizen and his wife would 'take water' here for Vauxhall or Ranelagh'.⁵

The construction of the most famous London Bridge made it difficult for sea-going vessels to reach the wharves upstream as the narrow arches of the bridge could be passed only by the highly skilled and specially licensed watermen. As a

result the focus of the port shifted downstream where only Billingsgate of the older hithes was situated. This had been a Saxon quay and the name may have Roman origins, referring to one of the two gates in the Roman river wall (the other being Dowgate). A dock had been created here by the thirteenth century and the associated market specialised in corn. By the time that the sixteenth-century building was destroyed in the Great Fire of 1666, the market had a monopoly in fish. Fishing boats continued to deliver directly to the market until the 1950s. On an adjacent site was the Custom House (Fig. 3), known to have been in this area



Fig. 3

The Pool of London showing the Custom House (centre) and Billingsgate (adjacent left)
photographed by H. W. Taunt, c.1890

Taunt Collection, NMR

since at least the fourteenth century. Here the customs officers of the Crown assessed and levied dues on merchandise imported into or exported from England, while the City's officers collected tolls on domestic produce for the upkeep of the port and the bridge.

In the sixteenth and seventeenth centuries England gradually developed the political and commercial systems to support an overseas empire. The first expeditions financed by merchants from the City of London challenged the Dutch

and Portuguese monopoly of trade with the Far East and established commercial footholds on the Atlantic seaboard of America. For example, the Newfoundland Company was set up to exploit the rich fishing grounds and the Hudson's Bay Company originated to take advantage of the lucrative fur trade. The latter was founded in London in 1670 and survives to this day. It is the oldest merchant trading company in the world.⁶

At the beginning of her reign Elizabeth I set up a Royal Commission to select and license wharves where all dutiable goods entering the country should be landed. This was to ensure that the Crown could exact its share of the wealth originating overseas. From 1558, the twenty 'Legal Quays', as they were called, enjoyed an official monopoly which lasted for two and a half centuries. All were sited along the north bank of the Thames between London Bridge and the Tower, seven to the west of Billingsgate and thirteen to the east. Sir Arthur Bryant described in his anniversary history of the Port of London Authority that: 'Here, in their little muddy creeks and in the warehouses that tumbled down to the river on either side of them, there flowed into London and England the ocean trade born of the discovery of the New World and of the sea-passage to the Far East'.⁷

Ships visiting the port of London had grown too large to berth at the Thames quays and hithes so had to moor in mid stream. Their cargoes were then transferred to shore by lightermen. The term 'lyghter' was recorded first on the Thames in 1391 and gradually the large box-like, swim-headed lighters, which still exist today, developed.⁸ An Act of Parliament in 1555 established the Company of Watermen and the Company maintained a strict discipline over its members. The lightermen, who formerly had been members of the Woodmongers' Company, joined the Watermen in 1700. From that time Freemen of the Company had a virtual monopoly on plying for hire and working between ship and shore. Henry Mayhew interviewed many watermen and lightermen during his investigations in the mid-nineteenth century and he described the complex hierarchy of their calling.⁹ However, by that time their numbers had diminished from around 20,000 in the sixteenth century to some 12,000.

Within less than one hundred years the volume of trade had become far greater than the legal quays could accommodate and of necessity the port of London began to expand down river into the Lower Pool and Limehouse Reach. Even the Great Fire, when every wharf and warehouse on the north bank was destroyed, proved only a temporary set-back. Following the fire, Sir Christopher Wren proposed to create an open quay along the north bank of the Thames from the Temple to the Tower. Although this would have eased the movement of traffic and separated the vessels, which presented a fire hazard, from the buildings, the principal reason was aesthetic. Wren's scheme for rebuilding the capital would have made London the grandest city in Europe. However, for reasons of cost as well as the many vested interests, his river embankment was never realised.

So-called sufferance wharves began to be licensed for lower value goods on the south bank, extending gradually eastwards to Rotherhithe. Here in 1696-9 the Howland Great Wet Dock was excavated on the marshland where land was cheaper.

However, despite the development of a few docks, the vast bulk of the shipping that carried London's trade continued to be accommodated in the open river. Such was the overcrowding that unloading a cargo could be delayed for weeks. Daniel Defoe claimed to have counted 2,000 sailing ships in the Pool of London on one occasion. Fleets of 500 to 700 collier brigs sometimes came up the river together to discharge their cargoes at Billingsgate and 3,500 lighters were employed in carrying loads to and from the wharves. In one year, 1794, 3,663 ships were recorded entering the Thames from abroad, the majority of them during the summer.¹⁰ The solution was to construct enclosed docks, but this was not achieved without opposition. As Harold Clunn noted: 'In those days river robbery was a thriving trade, and it was said that many a fortune was made by this systematic plunder. No wonder, then, that an outcry was raised by carmen, porters, waterside labourers, and lightermen, who profited considerably by the difficulties attending the removal of merchandise, and that from Wapping to Westminster the whole riverside was up in arms against the coming of the docks. In 1800 it was estimated that there were 11,000 riverside robbers making depredations to the value of half a million pounds a year'.¹¹

Alongside the rapid development of the port, which resulted in the Thames becoming London's 'tradesman's entrance', there were still buildings and sites that faced the river. For example, royal palaces were located on the banks of the Thames from Hampton Court to Greenwich for ease of communications with the seat of government at Westminster.

As well as royal palaces, the houses of noblemen and merchants also were built close by the river, each with its own water-gate. A chance survivor is the early-seventeenth-century gate to York House.¹² York House stood adjacent to the site where Charing Cross Station would rise in the nineteenth century. A number of important houses once were ranged along the north bank of the river on the main road – The Strand – from the City to Westminster. Somerset House, belonging to the dukes of Somerset, was replaced by William Chambers' masterpiece (Fig. 4), designed as government offices, but with a grand river entrance, albeit now blocked by the Victoria Embankment. Upstream formerly stood Arundel House, its sprawling courtyards and gardens covering three acres (1.2 ha), acquired in the mid-sixteenth century by Henry Fitzalan, twelfth Earl of Arundel. The house lacked architectural pretension, having grown piecemeal since its medieval foundation, but it became the home of a remarkable collection of classical sculpture, assembled in the early seventeenth century by Thomas, the fourteenth Earl. Among the houses of the great magnates, perhaps the most distinguished architecturally was Northumberland House, built in 1605 and acquired in 1642 by the Percy family, earls, later dukes of Northumberland. This displayed an impressive seventeenth-century façade to Charing Cross and contained richly decorated eighteenth-century interiors by Robert Adam. The house was thrown open to the public to celebrate the Great Exhibition in 1851, when huge crowds thronged the magnificent rooms and the splendid garden. This ran down to the river, but was soon to be truncated by the building of the Victoria Embankment. Northumberland House survived to



Fig. 4

Somerset House photographed in the 1850s before the building of the Victoria Embankment
Howarth Loomes Collection, NMR

be photographed, but in 1874 it was purchased compulsorily from a reluctant sixth Duke and demolished for the creation of Northumberland Avenue.

All the great private houses along this stretch of the river have long since gone, commemorated only by modern street names. However, an impression of how they must have appeared may be seen at Lambeth Palace, the London seat of the archbishops of Canterbury since the twelfth century. As the *Buildings of England* observed, 'The river front ... close to the parish church must have been eminently

impressive when there was no embankment and one approached it by boat'.¹³ Although cut off from the river by the nineteenth-century road, the palace includes a secluded garden surrounded by imposing buildings, some dating from as early as the thirteenth century.

At one time, places of recreation, such as theatres and pleasure gardens, also were located for easy access by water. The newly reconstructed Globe Theatre at Bankside demonstrates this, having been built close to the site of the sixteenth-century original. In the seventeenth century, on the Surrey side of the river, opposite Somerset House, was a celebrated place of amusement, Cuper's Gardens, popularly known as Cupid's Gardens. Named after its creator, Abraham Cuper, former gardener to the earls of Arundel, the gardens were opened in 1678. John Aubrey was enthusiastic about their attractions and wrote that 'the conveniency of its arbours, walks, and several remains of Greek and Roman antiquities [from the Arundel collection], have made this place much frequented'. Early in the eighteenth century, an attempt was made to rival Vauxhall, but Cuper's Gardens acquired a bad reputation – as did so many pleasure grounds – and closed in 1753.¹⁴ New pleasure gardens opened further upstream as industry began to take over on both banks of the river in the City and Westminster.

The most famous or infamous pleasure gardens were at Vauxhall. The extensive grounds were laid out in 1661 and became a place of public resort for nearly two hundred years. There were avenues of trees, some well lit for promenading, others darker for illicit trysts. The numerous small pavilions, for suppers and other refreshments, were ideal for assignations and became a stock setting for Restoration dramatists. In about 1751, Canaletto painted a view of the Grand Walk at Vauxhall Gardens showing the octagonal orchestra pavilion, the Turkish Dining Tent and a golden statue of Aurora, goddess of the dawn, at the end of the walk.¹⁵ In the early days there was a high standard of musical entertainment and Handel became a favourite – a life-size statue of him (now in the Victoria and Albert Museum) was placed in the gardens in 1738. Later, firework displays and balloon ascents became popular. However, by the 1830s the gardens were in decline and were 'no longer patronized by the upper ten thousand, and by 1851 they had become the resort of the rabble'. Vauxhall Gardens closed eventually in 1859.

The state of the river in the middle of the nineteenth century was graphically recorded by S. C. and A. M. Hall in their *Book of the Thames*, where they quoted the following: 'The enormous traffic of London, its increased dirt, and even its increased and statutory habits of cleanliness, its sewage, coal-smoke and coal-gas, tiers of barges, and steamboat piers, have done their work; ... The lunging surf of the river steamers stirs from its oozy bed, in the rear of some friendly obstruction, the sleepy sediment of the tainted Thames. A ceaseless passage of steam-craft ploughs through the sludgy compromise between the animal, the vegetable, and the mineral kingdoms. Feeble rays from a clouded sun glimmer through the murky atmosphere, and play with tarnished glister over the dingy flood. Fishes, wiser in their generation than ourselves, have forsaken in disgust a medium which in these latitudes has long since ceased to be a definite element; poisoned by impurities to which their

simple natures are utterly averse, and scared by circumstances over which they feel they have no earthly control. Odours that speak aloud stalk over the face of the so-called 'waters'.¹⁶

Samuel Carter Hall (1800-89) and Anna Maria Fielding (1800-81), both prolific authors, were married in 1824. Their illustrated guide to the Thames was written for the inquisitive traveller and is a fascinating mixture of anecdote and factual information.

An equally memorable account of the river was given by Hippolyte Taine, the French critic, historian and philosopher, who spent ten weeks in England in 1861, and published an ambitious study, *Notes sur l'Angleterre*, ten years later. He recalled his voyage up the Thames to London from Gravesend: 'Vessels, warehouses, increase in number. One feels that one is approaching a great city. ... Every quarter of an hour, the imprint and the presence of man, the power by which he has transformed nature, becomes more visible; docks, magazines, ship-building and caulking yards, stocks, habitable houses, prepared materials, accumulated merchandise; to the right is seen the skeleton of an iron church which is being prepared here for erection in India. Astonishment ends by turning into bewilderment. From Greenwich, the river is nothing but a street a mile broad and upwards, where ships ascend and descend between two rows of buildings, interminable rows of a dull red, in brick or tiles, bordered with great piles stuck in the mud for mooring vessels, which come to unload or to load. Ever new magazines for copper, stone, coal, cordage, and the rest; bales are always being piled up, sacks being hoisted, barrels being rolled, cranes are creaking, capstans sounding. The sea reaches London by the river; it is an inland port; New York, Melbourne, Canton, Calcutta, are in direct connection with this place. But that which carries the impression to its height, is the sight of the canals through which the docks communicate with the sea; they form cross-streets, and they are streets for ships; one suddenly perceives a line of them which is endless; from Greenwich Park ... the horizon is bounded with masts and ropes. The incalculable indistinct rigging stretches a spider's web in a circle at the side of the sky. This is certainly one of the great spectacles of our planet; ... On the river to the west, rises an inextricable forest of yards, of masts, of rigging; these are the vessels which arrive, depart or anchor, in the first place in groups, then in long rows, then in a continuous heap, crowded together, massed against the chimneys of houses and the pulleys of warehouses, with all the tackle of incessant, regular, gigantic labour. A foggy smoke penetrated with light envelopes them; the sun there sifts its golden rain, and the brackish, tawny, half-green, half-violet water, balances in its undulations striking and strange reflections'.¹⁷

Two trades in particular illustrate the volume and importance of commodities arriving in London's docks. Foodstuffs were imported from all over the empire and later in the nineteenth century refrigerated ships brought meat and dairy products from as far away as Australia and New Zealand. This trade was concentrated in the Hay's Wharf area of Bermondsey and warehouses on the same stretch of waterfront specialised in the import of tea from China. Huge numbers of different

ships once visited the port of London, but perhaps the most famous were the tea clippers. They were acclaimed for their speed and elegance, and through a combination of good fortune and foresight, the most renowned – *Cutty Sark* built in 1869 – survived and is preserved at Greenwich. The words of Frank Carr, Director of the National Maritime Museum, who was instrumental in saving and restoring the ship, sum up the romance of the period: ‘Of all her lovely sisters that roamed the seven seas in the golden age of sail, only the *Cutty Sark* remains to show the world in which we live what a thing of beauty was a clipper ship in the fullness of her glory’.¹⁸ Joseph Conrad, sea captain turned novelist, lamented the demise of the clippers, which had braved the tempests of the southern oceans, but were ‘blown off the face of the sea by a puff of steam’.

The London tea auctions were held each year from 1679 and the last took place on 29 June 1998. Other wharves on the Thames specialised in necessities such as timber and bulk grain, or products as diverse as antlers and horns or exotic furs (Fig. 5). One of the most important commodities on the river, second only to food supplies in volume, was coal.

It is easy to forget that until the later twentieth century London ran on coal. Most of the fuel for the capital came from the coal-fields of the North East of England and as supplies arrived by boat it was known as sea-coal, a term which is



Fig. 5

Lep fur warehouse, Upper Thames Street, c.1910

NMR

found as early as the thirteenth century. It has been estimated that by 1650, some 8,000 miners, coal-heavers and sailors in and around Newcastle were engaged in the supply of coal to London. If their families and dependants are taken into consideration, the number reliant on the London coal trade could have been as high as 25,000.

The importance to London of the sea-coal trade was demonstrated by the splendid building of 1847-9 for the Coal Exchange (Fig. 6). It was situated on Lower Thames Street with its tower looking down on the Upper Pool of London. Since 1770, a coal exchange had stood on this site close to Billingsgate, which for centuries had been the main wharf for coal as well as fish. The new building was designed by the City Architect, J. B. Bunning, who



Fig. 6

The Coal Exchange, Lower Thames Street,
photographed by Herbert Felton
NMR

produced a remarkable iron and glass interior. The elaborate decoration celebrated two main themes – maritime transport and coal production. The floor of its rotunda was laid out as a mariner's compass and the ironwork of the galleries took the form of entwined ropes (Fig. 7). This design derived from ships' rigging and mine cables. Many other motifs were inspired by coal mining and included picturesque views of towns in the north east, collieries (Fig. 8) and jolly miners. There were more scientific panels showing the prehistoric plants that had fossilised into coal. The Coal Exchange was opened on 30 October 1849 by the Prince Consort. This was an historic event as it was one of the last occasions when the river was used for



Fig. 7

Interior of the Coal Exchange showing the 'rope' decoration, photographed by Helmut Gernsheim
NMR

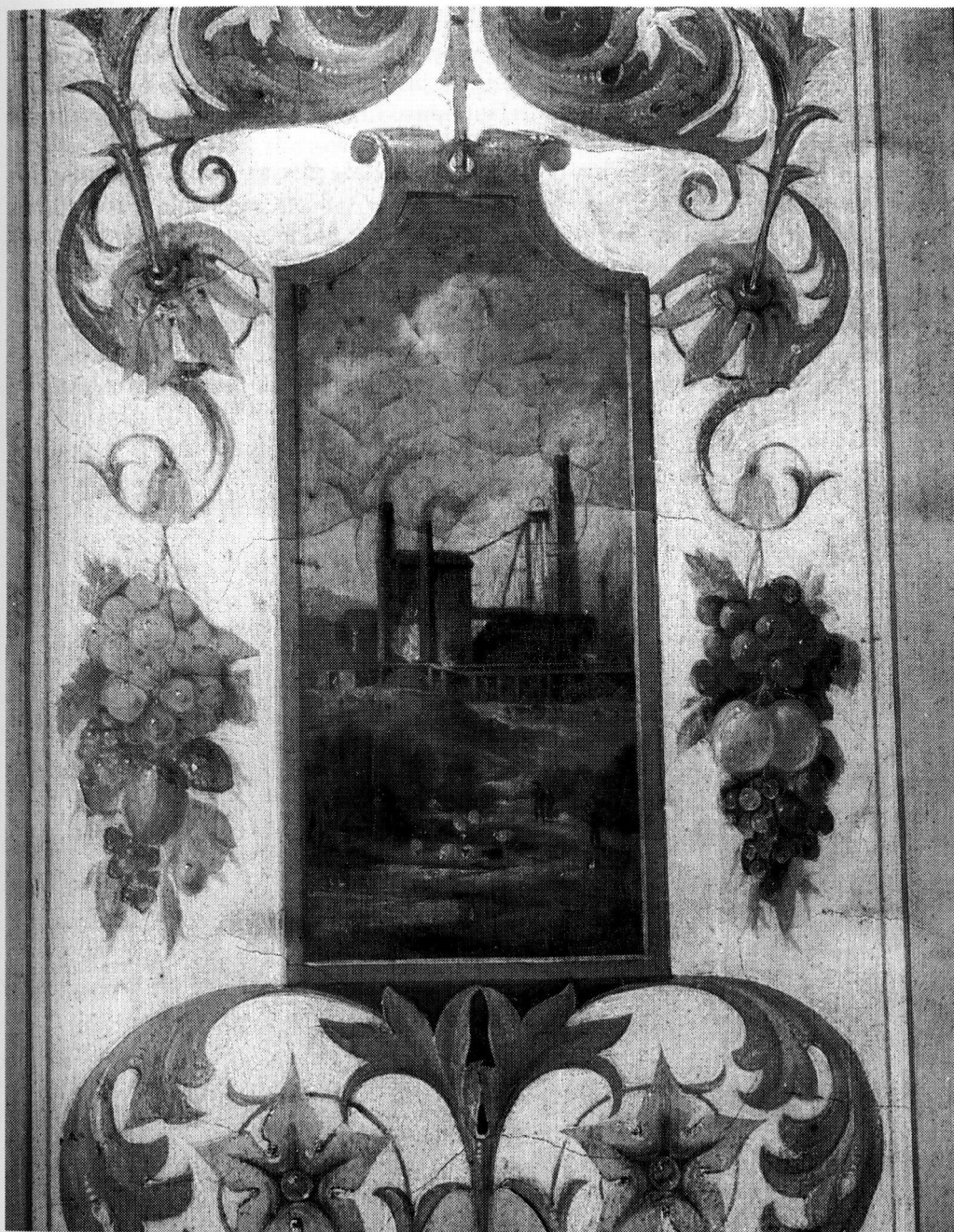


Fig. 8

The Coal Exchange, detail of one of the decorative panels, photographed by Helmut Gernsheim
NMR

a royal procession. Lamentably, in 1962 Bunning's masterpiece was demolished for road widening. There had been a four-year battle led by the newly-formed Victorian Society to save the Coal Exchange, but eventually the City Corporation had its way. In the words of Hermione Hobhouse in *Lost London*, 'its destruction is one of the great conservationist horror stories'.¹⁹

Henry Mayhew in the 1840s observed the arrangements for coal supplies to be delivered to the capital. 'As soon as a collier arrives at Gravesend, the captain sends the ship's papers up to the factor at the Coal Exchange, informing him of the quality and quantity of coal in the ship. The captain then falls into some tier near Gravesend, and remains there until he is ordered nearer London by the harbour-master. When the coal is sold and the ship supplied with the coal-meter, the captain receives orders from the harbour-master to come up into the Pool, and take his berth in a particular tier. The captain, when he has moored his ship into



Fig. 9
Paul's Wharf, 1860s
Gordon Barnes Collection, NMR

the Pool as directed, applies at the Coalwhippers' Office, and 'the gang' next in rotation is sent to him. There are upwards of 200 gangs of coalwhippers. The class, supernumeraries included, numbers about 2,000 individuals... The coalwhippers, previous to the passing of the Act of Parliament in 1843, were employed and paid by the publicans in the neighbourhood of the river, from Tower-hill to Limehouse. Under this system, none but the most dissolute and intemperate obtained employment; in fact, the more intemperate they were the more readily they found work. The publicans were the relatives of the northern ship-owners; they mostly had come to London penniless, and being placed in a tavern by their relatives, soon became ship-owners themselves. There were at that time seventy taverns on the north side of the Thames, below bridge, employing coalwhippers, and all of the landlords making fortunes out of the earnings of the people'.²⁰

Many nineteenth-century photographs of riverside wharves show lighters laden with coal illustrating how common this cargo was (Fig. 9). The men working at loading and unloading were recorded less often (Fig. 10). Mayhew reported that those engaged in this back-breaking toil should properly be called 'coal-backers'



Fig. 10

'Coal backers' unloading at Mortlake photographed by H. W. Taunt, c.1897

Taunt Collection, NMR

rather than coal-heavers, a term 'usually given by those who are unversed in the mysteries of the calling'. Accidents were common and even the strongest man could not continue at the work for more than three days in a row. After the age of forty, men were considered past it and none could last more than twenty years at the business.



Fig. 11

Cannon's Wharf, adjacent to Westminster Bridge (the site now covered by Portcullis House), showing Moore's patent coal carriages, photographed by Charles Thurston Thompson, c.1856
Gerald Cobb Collection, NMR

Although coal was equally important in other areas to fuel industry and heat homes, it is interesting to note that it was only in London that a special type of waggon was developed to move supplies around the city. The bow-fronted coal trolley or waggon, frequently misnamed a 'coal cart' (carts have two wheels, waggons have four), first appeared in the late eighteenth century (Fig. 11). It was known as Moore's patent Coal Carriage – named after its designer and patentee, Francis Moore. This type of waggon remained current throughout the nineteenth century and some survived in use even into the 1950s.²¹

Coal also contributed towards another product for which the capital has become famous. In any Hollywood film about Sherlock Holmes or Jack the Ripper, London is synonymous with fog. As early as the Middle Ages, records refer to London fogs. In 1306 the problem of air pollution was so noticeable that the public nuisance of burning smoke-producing coal was punishable by a sentence of death. However, such laws restricting the fouling of the air appear to have been widely ignored. By the seventeenth century the problem had become much more serious. Several diarists noted the effects. John Evelyn reported to Charles II in 1661 'That this glorious and ancient city ... should wrap her stately head in clouds of smoke and sulphur, so full of stink and darkness, I deplore with just indignation'. Evelyn was especially critical of some riverside industries, taking particular exception to the smoke arising from the premises of brewers, dyers, lime-burners and salt- and soap-boilers. Anthony Wood noted in 1667 that there was 'such a great mist in London that ... Horses ran against each other, carts against carts, coaches against coaches, etc'. Two years later, Evelyn wrote that 'There happened this week so thick a mist and fog that people lost their way in the streets. ... At the Thames they beat drums to direct the watermen to make the shore'.²²

Throughout the eighteenth and nineteenth centuries, visitors to London remarked on the phenomenon. Fog became so common that from the early nineteenth century it was known familiarly as a 'London particular'. The phrase was first documented in 1807, but it was popularised by Charles Dickens in *Bleak House* (1852-3). In the same novel, Dickens provided the most evocative description: 'Fog everywhere. Fog up the river, where it flows among green aits and meadows; fog down the river, where it rolls defiled among the tiers of shipping, and the waterside pollutions of a great (and dirty) city. Fog on the Essex marshes, fog on the Kentish heights. Fog creeping into the cabooses of collier-brigs; fog lying out on the yards, and hovering in the rigging of great ships; fog drooping on the gunwales of barges and small boats. Fog in the eyes and throats of ancient Greenwich pensioners, wheezing by the firesides of their wards; fog in the stem and bowl of the afternoon pipe of the wrathful skipper, down in his close cabin; fog cruelly pinching the toes and fingers of his shivering little prentice boy on deck. Chance people on the bridges peeping over the parapets into a nether sky of fog, with fog all round them, as if they were up in a balloon, and hanging in the misty clouds'.

After what was said to be the longest period of fog on record, which lasted for nearly five months from November 1879, the clamour grew for legislation to regulate the nuisance. However, it was not all bad news – the French Impressionist painter Claude Monet came to London in order to experience the effects of the multi-coloured fogs. In Paris in 1904 he exhibited thirty-seven views of Hungerford Bridge, Waterloo Bridge and the Houses of Parliament, selected from nearly 100 paintings of London and the Thames. Monet had visited London first in 1870, but these paintings dated from a trip made in 1899 especially to record the changing light effects of 'brouillard sur la Tamise'. Another artist, the American-born James Whistler, who lived in Chelsea, painted innumerable views of the river and wrote lyrically about his inspiration: 'And when the evening mist clothes the riverside

with poetry, as with a veil, and the poor buildings lose themselves in the dim sky, and the tall chimneys become campanili, and the warehouses are palaces in the night, and the whole city hangs in the heavens, and fairy-land is before us – then ... Nature sings her exquisite song to the artist alone'.²³

The word 'smog' was coined in 1905. It was derived from a conflation of 'smoke' and 'fog' to describe the atmospheric conditions caused by sulphur from coal burning combining with the water particles of a normal fog. As the century progressed the



Fig. 12

Battersea Power Station photographed by Eric de Maré, 1950s
Eric de Maré Collection, NMR

worst pollution arose from the huge new coal-burning power stations in central London (Fig. 12). When in 1927 the London Power Company applied for permission to build a generating station on the river at Battersea, the objections came from every quarter, including the *Architects' Journal*, which lamented 'a civilisation condemned to live under a pall of smoke and in the shadow of ugly buildings of its own devising'.²⁴ Power stations were located on the banks of the Thames as unlimited supplies of cooling water could be taken from the river and coal supplies could be delivered directly by ship.

However, it was not air pollution that precipitated the greatest changes, but the pollution of the river, so graphically described by the Halls in 1859 (above). Resulting problems came to a head in the 1850s, which became notorious as the 'Great Stink'.²⁵ London had grown apace with the industrial revolution, but the lack of any organised system of drainage other than natural watercourses had resulted in the effluent from houses and industries being dumped directly into the Thames (Fig. 13). By the middle of the nineteenth century the river was little better than an open sewer. Sittings of Parliament had to be suspended on occasions owing to the noxious fumes rising from the waters outside the Palace of Westminster. With the problem so patently obvious, Parliament passed an Act in 1862 to authorise the construction of a system of sewers to serve the whole of London.



Fig. 13

Houses in Fore Street, Lambeth, showing yard privies discharging directly into the river, photographed by William Strudwick, *c.* 1860, before the building of the Albert Embankment

Peter Jackson Collection, NMR

Sir Joseph Bazalgette, Chief Engineer to the newly-formed Metropolitan Board of Works, devised a scheme to build three main sewers running west to east, both north and south of the Thames. These would intersect with the existing drains and watercourses and remove the effluent far to the east. At the ends of the system he built two magnificent pumping stations, which still exist. Although Bazalgette's scheme only removed the problem downstream, it resulted in a huge improvement in the quality of the water in central London and led to a virtual end to the numerous cholera epidemics which previously had plagued the capital.

One of Bazalgette's principal problems was to decide where the main sewer closest to and parallel with the river should run. His inspired solution was to create the Victoria Embankment as a new thoroughfare, thereby relieving traffic congestion in nearby streets and providing ample space for the low-level sewer beneath. Soon after, it was seen that a new underground railway also could be accommodated below the road, although this resulted in a long delay in completion.

After the passing of the Act of Parliament in 1862, the first task was to acquire the many wharves and other properties from Westminster Bridge to Blackfriars. Work began on the massive construction in 1864 and it was opened in 1870. A broad tree-lined thoroughfare had been created with new landing stages for river steamers along its route (Fig. 14) and the Embankment Gardens, opened in 1872, where the largest area had been reclaimed from the river. The extent of the reclamation may be appreciated by the present position of the York Watergate, which is some 500 yards (450 m) from the river. One of the disadvantages was



Fig. 14

The newly opened Victoria Embankment at Westminster photographed by H. W. Taunt, *c.*1875
Taunt Collection, NMR

that the great houses formerly lining the banks of the Thames were cut off from the river. This is most noticeable at Somerset House where the huge river entrances are blocked by traffic.

The Victoria Embankment, providing a grand route from Westminster to the City, was the most prominent of Bazalgette's achievements, but also he constructed other routes giving access to and new views of the Thames. In 1862 he proposed to construct an embankment on the south side of the Thames from Vauxhall to London



Fig. 15

Barge builders and repairers at Bishop's Walk, Lambeth, photographed by William Strudwick, c.1860 (the trees on the right are in the gardens of Lambeth Palace)

Peter Jackson Collection, NMR

Bridge. However, opposition from the wharf owners and other vested interests on the south bank proved too powerful and this scheme was realised only in part. The Albert Embankment from Vauxhall to Westminster Bridge also swept away a multitude of wharves and small businesses (Fig. 15) as well as cutting off Lambeth Palace from the Thames. Work began here in 1866 and was completed three years later with a grand opening ceremony on 24 November 1869. The Albert Embankment did not accommodate a main sewer beneath, but was designed to prevent flooding in the low-lying areas of Lambeth. On land reclaimed behind the new river wall, St Thomas's Hospital was built, a suitable adornment for a capital with imperial aspirations.

When Sir Joseph Bazalgette died on 15 March 1891 he received glowing tributes in the national papers and professional press. His most conspicuous monuments were the Victoria, Albert and Chelsea embankments, built in only a dozen years, but the far greater achievement in scale and complexity was the main drainage system, which was invisible to most Londoners. However, a new view and appreciation of the Thames resulted in its metamorphosis from tradesman's entrance to front door.

A graphic example of the changing face and outlook of the Thames waterfront in the twentieth century is the Hay's Galleria (Fig. 16), even the name is indicative. The imposing warehouses for the Hay's Dock Company were built in 1851-7 and specialised in foodstuffs. As early as 1867, the first refrigerated butter and cheese from New Zealand arrived here, to be followed in 1882 by frozen lamb. In the 1980s, the dock between the two ranges of warehousing was drained to create an underground car park and the street formed above has been converted into an elegant arcade with offices and flats over the shops.



Fig. 16

Hay's Galleria, Tooley Street, opposite the Custom House, photographed by Derek Kendall, 1997
Crown copyright, NMR

This transformation from working river to commerce and consumerism is exemplified by the Isle of Dogs.²⁶ No other area of London has witnessed such a stupendous change in such a short time. Before the nineteenth century it was sparsely populated and largely given over to grazing land for animals destined for the London markets. The site was ideal for the excavation of huge enclosed docks devoted to the rapidly expanding trade with the West Indies. This trade flourished

for a century and a half. However, the docks were unable to cope with the size of vessels in the post-war period and all had closed by 1980. With the establishment of the Docklands Development Corporation in the following year, the Isle of Dogs was transformed by the construction of offices, flats and houses on a huge scale. Britain's tallest building – No. 1 Canada Square, popularly known as Canary Wharf Tower – is the most prominent landmark. Other developments on the riverside

followed and there are now numerous office and residential blocks up and downstream that face the water to give exciting views of the Thames. The Manhattan-style skyline (Fig. 17) is designed to overawe, no longer with political power as it might have been in the past, but with economic prowess. A new awareness of the attractions of the river was displayed in the 1999 James Bond film *The World is not Enough*, where the MI6 Headquarters at Lambeth and the Millennium Dome at Greenwich featured prominently. During one of the obligatory chase sequences the Thames played a starring role and new housing developments fronting the river were seen to advantage.

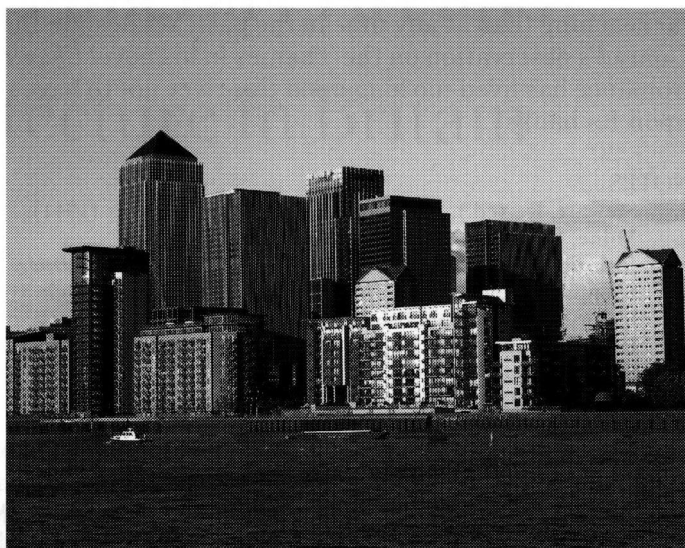


Fig. 17
Docklands showing Canary Wharf Tower (left) photographed by
Derek Kendall, 2004

Many changes in the same period have been fuelled by cash from the national lottery. Tate Modern, housed in the former Bankside Power Station, is a wonderful adornment to the river and an added attraction is the adjacent Millennium Bridge. This was the first bridge built on a new site in central London since Tower Bridge, more than a hundred years before. The footbridge was constructed to a revolutionary design by Sir Norman (now Lord) Foster, who described his inspiration for a 'blade of light' spanning King's Reach as stemming from a childhood memory of 'sci-fi' hero Flash Gordon. The effects of lighting also inspired the architects Lifschutz Davidson in their designs for new footbridges flanking the old Hungerford railway bridge into Charing Cross. Nearby on the South Bank is another imposing addition to the London skyline, a great wheel known as the London Eye. It is cantilevered out over the water next to Jubilee Gardens and provides visitors with spectacular views of London. The husband and wife architectural team of David Marks and

Julia Barfield were the creators of the wheel, which at 443 feet (135 m) high is the largest in the world. Many of these creations were prompted by celebrations to mark the year 2000. The most notable being the Millennium Dome. The Dome, a triumph of 'high tech' design, was designed by the Richard Rogers Partnership and was conceived and built in only two years on a derelict site on the Greenwich Peninsula.

At the dawn of a new millennium, changes on the Thames are perhaps more far reaching than at any time in the past. Yet despite these transformations, Joseph Conrad's observation on the Thames in his novel *Chance* (1913) remains appealing: 'romance has lived too long upon this river not to have thrown a mantle of glamour upon its banks'.

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