Crossrail

CROSSRAIL ARCHAEOLOGY

NEW FRONTIER: THE ORIGINS AND DEVELOPMENT OF WEST LONDON

Richard Brown with Andy Shelley and Elizabeth Stafford

MAYOR OF LONDON

Department for Transport

TRANSPORT FOR LONDON

NEW FRONTIER: THE ORIGINS AND DEVELOPMENT OF WEST LONDON

CROSSRAIL ARCHAEOLOGY SERIES – 5

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FOREWORD

The construction of the tunnels, stations and vent shafts for Crossrail have afforded an opportunity to observe a section across central London at a variety of depths and locations. The archaeology found in the process allows a new set of artefacts to be added to the continuing interpretation of London's remarkable history.

Here Brunel's early locomotive depot jostles with 70,000 year old Bison bones and in Soho 12,000 pickle jars are left as another industry moved on through the ever restless economy of London.

Binding these disparate finds together is the (literally) underlying story of London's geology and geography; the influence of the lost rivers of Westbourne and Tyburn, the contours left after the Ice Age which guided later road builders and William Jessop's Grand Junction canal, followed by Brunel's Great Western Railway, all looking for flat straight routes to and from the west towards the ever growing metropolis.

The development of London beyond the twin historic and ancient cores of the Roman City and the Abbey at Westminster is one of transport and water supply being created from surrounding countryside with small farms and villages from the seventeenth century onwards being overwhelmed by phases of hectic development, very often overtaken by rebuilding to meet changing economic value and fashionable taste.

The routing and construction of Crossrail fits into a well-established pattern of connecting London and it's ever widening catchment. The finds presented here allow the context used to support the promotion, planning and funding of the latest transport project to be understood well beyond the terms of benefit cost ratio and also illustrate how such developments are utilised by passengers and business in ways that soon outstrip the parameters used to judge and justify its construction.

The value of what is revealed here is in its cumulative contribution to London's story and how the very latest technology and construction activity in a dense and complex environment can be coordinated for the wider public benefit.

This book provides a new set of finds and analysis to inform the continuing debate on London's history and its surprises prove that in its scale and

complexity there are still so many facts and stories to be told and interpreted to an audience insatiable to know more about where they work, live and visit.

Graham King is the Head of Strategic Transport, Planning and Public Realm for the City of Westminster

CHAPTER 1

INTRODUCTION

Crossrail

Crossrail is one of the largest single infrastructure investments ever undertaken in the UK, and was the biggest construction project in Europe at the time this book was being produced. The work started in May 2009

Fig 1 Crossrail construction at Westbourne Park and Royal Oak Portal

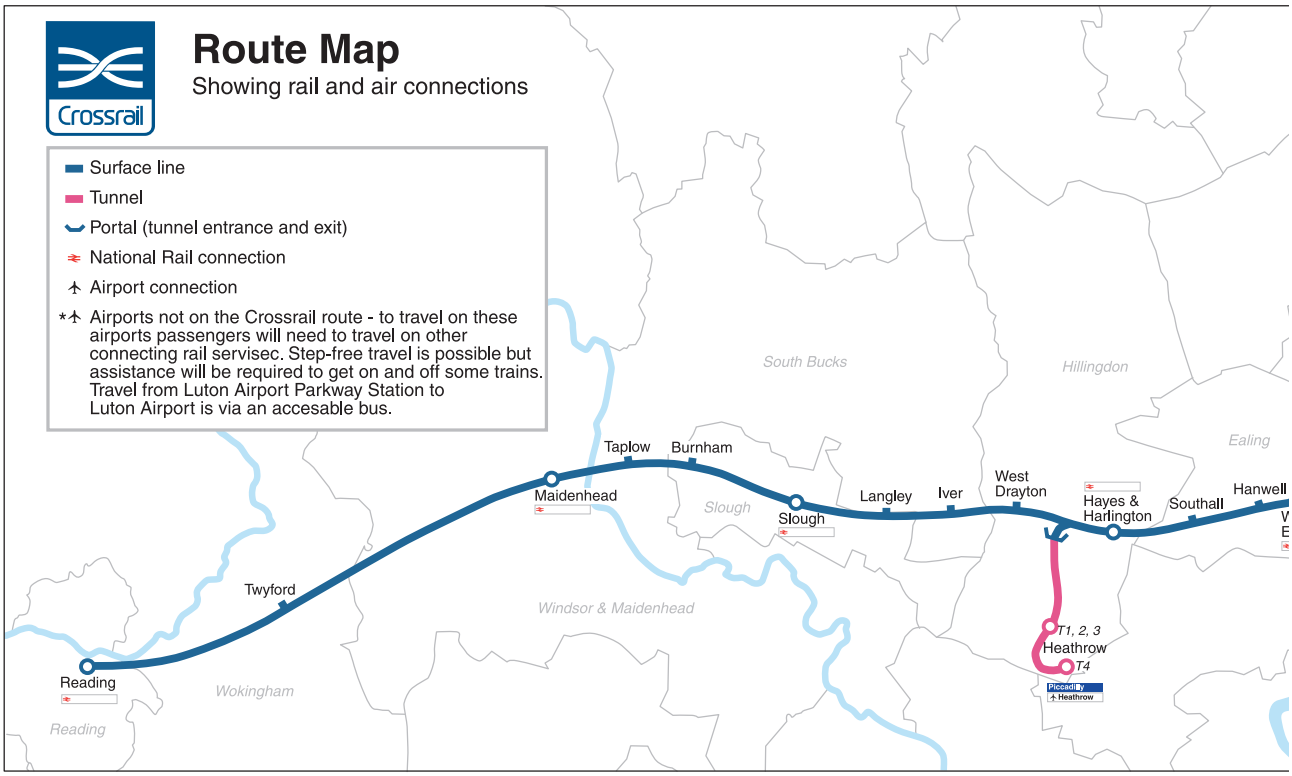


Fig 2 The route of Crossrail

at Canary Wharf. It comprises new east-west tunnels under central London connecting the Great Western Main Line near Paddington (Fig 1) and the Great Eastern Main Line near Stratford. An eastern branch diverges at Whitechapel, running through Docklands and emerging at Custom House on a disused part of the North London Line, and then under the River Thames to Abbey Wood. Trains will run from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east (Fig 2).

The construction of Crossrail is a formidable engineering achievement. It includes 42 km of new tunnels under London and ten brand new stations, made possible by the organisation of 10,000 people at over 40 construction sites.

When the Metropolitan line, London's first underground, was built in the 1860s it caused widespread chaos and the destruction of many homes (Fig 3). Today, Crossrail is being built in a modern city far more populous than its 19th-century predecessor, avoiding all the existing tunnels and building foundations, and operating within much more exacting 21st-century standards for environmental impact and noise pollution. It has had to minimise disruption to above ground traffic, cater to public interest, and mitigate its impact on the built heritage and archaeological remains. Careful preparation and planning, and efficient communication, has been vital to its success.

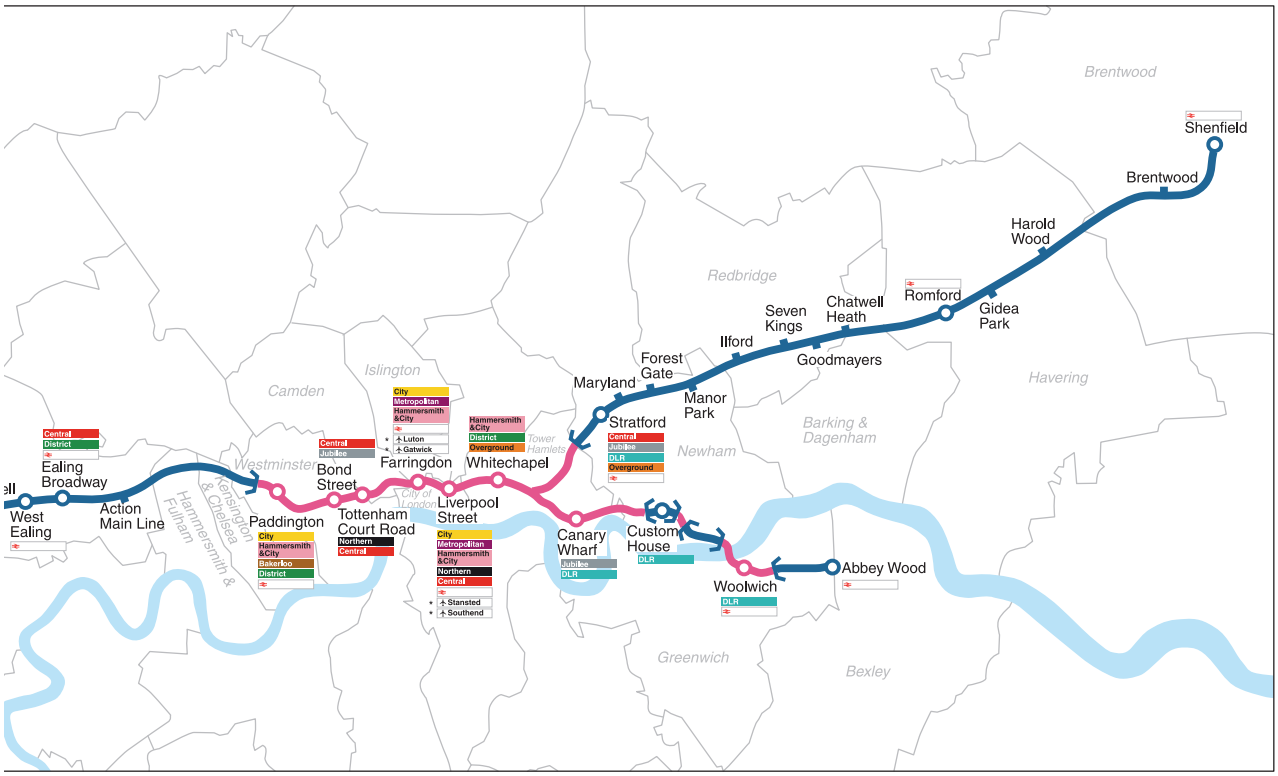


Fig 3 Construction of the Metropolitan Railway in Praed Street London, 1866 (© Science Museum)

Crossrail and archaeology

RESEARCH AND PREPARATION

In the heart of London, it was inevitable that Crossrail would have an impact on archaeological remains and historic places and buildings, and it has resulted in one of the most extensive archaeological projects ever

undertaken in the UK. Long before construction began, known and likely sites of archaeological remains were identified in a series of 'route window assessments', which were compiled in 2005 by archaeologists from Museum of London Archaeology (MOLA).

As the design of Crossrail was refined, more detailed site-specific desktop studies were undertaken, carefully considering geology and the levels at which Crossrail tunnels would be constructed. Comprehensive methodology documents were produced, which included plans for early on-site investigations comprising trenching, test pitting, and the monitoring of pre-construction below ground works such as utility inspections. Figure 4 shows the mapped data for Tottenham Court Road Station and is an excerpt from the methodology strategy. Where these early investigations showed that archaeological remains existed, excavations were incorporated into Crossrail's construction plans. Where there was some doubt about the presence of archaeological remains at a site, archaeological monitoring was scheduled to take place during construction, with contingency plans in place if archaeological remains were discovered. The level of organisation involved has been impressive. As a Project Manager for an archaeological sub-contractor on a single section on the Central London part of Crossrail, the present writer was involved in approximately 12,000 email communications over the period 2010–2014.

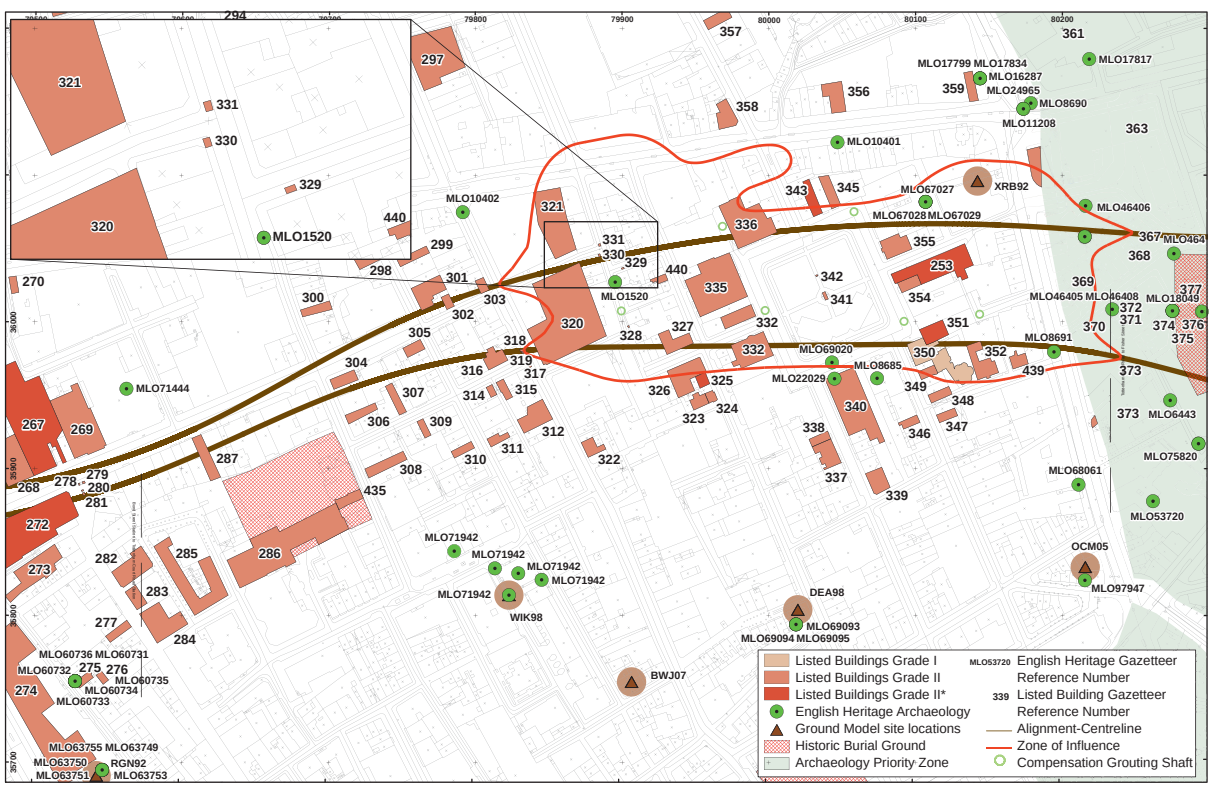


Fig 4 Mapped historic data for the vicinity of Crossrail Tottenham Court Road Station

West London lies outside the Roman and medieval city walls and it remained largely undeveloped until the late 17th or early 18th centuries. The first residential squares and streets were laid out in the 17th century, and building work accelerated dramatically during the 18th century. Excavations and observations made during monitoring carried out for Crossrail at Paddington, Bond Street and Tottenham Court Road indicated dense post-medieval remains but a general absence of earlier material. This lack of early evidence may reflect an absence of settlement, but the interpretation needs to be tested when opportunities for further investigation arise. The building-up of West London caused significant below ground impact with landscaping and basement construction, which was preceded by quarrying. The area was later effected by the construction of services, drains and sewers and the building of the underground railways. All these activities will have removed archaeological evidence. Few large excavations have been carried out in West London in modern times and often the archaeological evidence, or lack of it, comes from small 'keyhole' observations during development. The preparatory research work done for the Crossrail project showed that more early evidence does survive in green spaces such as Hyde Park. At Hyde Park, the potential rewards of investigating relatively undisturbed areas with modern archaeological techniques were demonstrated by archaeological investigations in advance of the construction of the Diana Memorial fountain. A sequence of pits, ditches and postholes and artefacts showed occupation of the site during the Mesolithic, in early Iron Age and throughout the Roman period.[1]

CROSSRAIL RESULTS AND REPORTING

Crossrail has now carried out more than 40 archaeological excavations across the Central London area. In 2012 over 100 finds were displayed in the *Bison to Bedlam* public exhibition, held during July and October 2012 to celebrate the halfway point in the archaeology programme. Over 3,000 people attended the exhibition to see the finds and hear about the discoveries first-hand from members of Crossrail's archaeology team.

A second exhibition, Portals to the Past, was held in February and March 2014 at the Crossrail Visitor Information Centre at Tottenham Court Road. More than 50 archaeological finds were put on display for the first time, including skulls from Roman London, a Roman cremation pot, which still contained cremated

Fig 5 The *Bison to Bedlam* exhibition

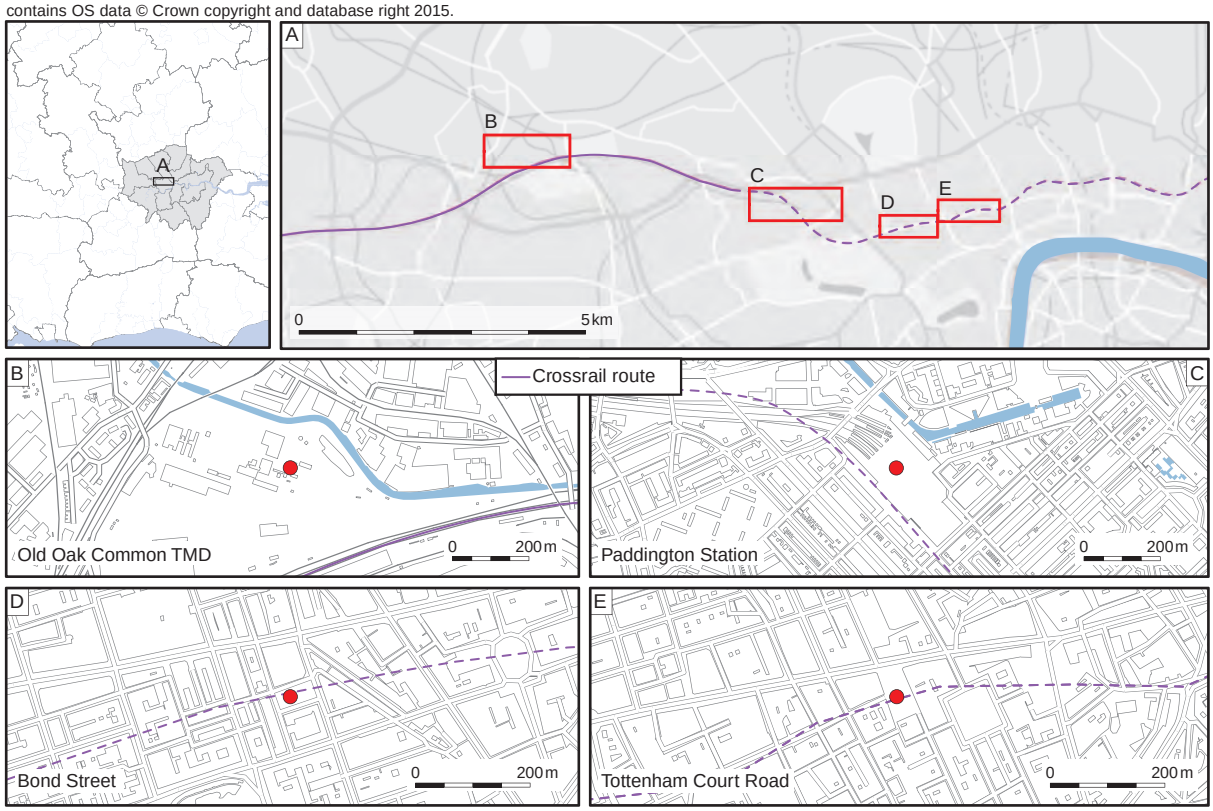
remains, flint used 9,000 years by the inhabitants of what is now London, and items found in a suspected Black Death plague burial ground.

For the longer term, results from the Crossrail archaeological investigations are being reported in a variety of different ways. An extensive series of detailed technical reports on the interventions will be available for free download from the Crossrail website. All significant artefacts will be deposited with the Museum of London or the Natural History Museum for Londoners to study and enjoy in the future. In addition, a series of publications will present the project's most important archaeological results, and set them in the wider context of the story of London. This book forms part of that series, and focuses on the Western Central section of Crossrail, where it runs through West London.

Crossrail in West London

The Western Central London section of Crossrail runs from the boundary of Inner London as far as the City (Fig 6). It provides a transect through West London, an area that remained largely undeveloped until the 17th century and has seen much less archaeological research than the Roman and medieval walled City.

Fig 6 Detailed maps for the West Central section of the Crossrail route



Crossrail's West Central section includes Old Oak Common in the London Borough of Hammersmith and Fulham. Here the sections that form the Crossrail concrete tunnel linings are fabricated. The line continues east, over ground to Royal Oak where the western tunnel portals are located, and then underground to new stations at Paddington, at Bond Street (with Crossrail's new western and eastern ticket halls) and at Tottenham Court Road (also with new western and eastern ticket halls). The below ground works that impact on archaeology at these sites include the station and tunnel excavations but also excavations for grout shafts, air vents and utility diversions. Most of the archaeological work for this section of the line was carried out by archaeologists from Oxford Archaeology-Ramboll UK, a joint venture company created for the Crossrail project.

At Old Oak Common the remains of the world's first fully enclosed railway engine maintenance workshop were recorded, along with subsidiary buildings. At Westbourne Grove, Royal Oak and beneath Lord Hill's Bridge, remnants of Brunel's original Great Western Railway infrastructure were revealed. Monitoring of earthworks at the Crossrail tunnel entrance at Royal Oak Portal, near Paddington Station, located ancient deposits containing animal bones from the last Ice Age, adding to our knowledge of the fauna of that remote period.

Paddington Station is a Grade 1 listed building and records were made of the canopy and railings at the Eastbourne Terrace entrance to the station during their removal and an original wooden sett roadway buried beneath the surface of the present entrance was recorded. The remains of a cobbled ramp, which provided access for horse-drawn carts collecting milk churns from the milk platform (Platform 12) and which was constructed between 1909 and 1916, was also recorded. The excavation of Eastbourne Terrace for the construction of the Crossrail Paddington Station was monitored to track the orientation of the Ice Age deposits, which were recorded at Royal Oak and which extended towards Paddington underneath the historic line of the Westbourne River.

At Crossrail's Bond Street eastern and western ticket halls an excavation revealed the infilled remains of the River Tyburn and the first structures to be built over the river, which comprised 18th-century stables and a well.

The partial remains of St Anselm's Church and School in turn overlay these. Monitoring of utility diversions around the ticket hall construction sites and grout shafts exposed earlier street surfaces and associated features as well as the vaults of Georgian and Victorian buildings under the roads.

To the north of Bond Street, a medieval culvert of mid-13th century date with an early post-medieval brick-vaulted arch roof was recorded by

Fig 7 Archaeologist surveying the remains of St Anselm's Church in the Crossrail excavations at Bond Street

MOLA in a watching brief during grout shaft works at No. 2 Stratford Place.[2] This is believed to indicate the location of the medieval Great Conduit, which tapped the Tyburn River and supplied medieval London with fresh water.

At the Tottenham Court Road eastern and western ticket halls, the archaeological sequences illustrated the development of the West End, from the exploitation of open countryside for building materials including localised brick-making, to the development of the area's famous streets and squares. During monitoring of utility diversions and grout shafts, a post-medieval brick kiln was found beneath Soho Square. From under the western ticket hall at Tottenham Court Road a large quantity of residual Roman finds was recovered, as well as evidence of post-medieval quarrying and the remains of the original buildings of Soho Fields. Works beneath the eastern ticket hall uncovered the remains of the Crosse and Blackwell factory and warehouse complex. The company were world leaders in modern food packaging techniques. The factory of 19th- and 20th-century date incorporated 17th- and 18th-century structures and its site produced large quantities of historic ceramic containers and product packaging.[3]

Taken as a whole the recorded below ground profiles show how West London has been built up and how it transformed from rural fields to urban metropolis.

Fig 8 The Crossrail tunnel entrance being formed at Royal Oak Portal

This book aims to use the information gathered for the Crossrail project to illustrate that history, provide an educational resource, and give benefit to the community of West London and beyond. It will also be a celebration of the achievement that is Crossrail, and serve as an introduction to the detailed technical archaeological reports, which will be available online at: www.crossrail.co.uk.

NOTES

1 PCA 2002; PCA 2003, also *The London Archaeologist* **10**, supplement 2, 2003, 60.
2 MOLA 2012
3 See Jeffries *et al.* 2016.

CHAPTER 2

LANDSCAPE OF THE ICE AGE IN WEST CENTRAL LONDON

Introduction

This chapter focuses on the natural history and evidence of human occupation in the vicinity of the Crossrail route through West-Central London during the long period known as the Pleistocene epoch – the Ice Age. The beginning of the Pleistocene is estimated at approximately 2.6 million years ago, and it ended 12,000 years ago at the start of the current warm period known as the Holocene. For hundreds of thousands of years, the climate of Britain witnessed a series of extreme and dramatic shifts, ranging from arctic conditions (glacial periods) when our climate would have been similar to the polar deserts of Alaska and Greenland today, to warmer episodes (interglacials), when balmy conditions prevailed with exotic animals such as elephant, lion, hyena and hippopotamus roaming the landscapes that are today occupied by famous landmarks such as Trafalgar Square.

As the climate swung from cold to hot and back, changes in sea-level due to the waxing and waning of the ice caps had a profound effect on topography, or the shape of the country and its coastline. During the colder periods seawater was locked up in the ice caps, and the sea-level was sometimes as much as 100m lower than today. Huge areas of the North Sea basin were exposed as dry land, creating an immense landmass stretching across Western Europe into Asia. During the warmer periods the ice caps melted, so sea-levels rose and, intermittently, Britain became an island.

It is against this backdrop of landscape change that early human groups such as *Homo heidelbergensis*, and later the Neanderthals, colonised the Thames Valley to exploit the rich hunting grounds. They left stone tools behind them, and these are the most widespread evidence we have today for their presence here hundreds of thousands of years ago. Large numbers of these tools, known to archaeologists as Palaeolithic, or Old Stone Age, have been recovered from the Thames gravel terraces, and were first identified by antiquarian collectors in the 18th and 19th centuries. Many of them are on display at the Museum of London and the Natural History Museum. Although no Palaeolithic artefacts were recovered during the archaeological investigations carried out for Crossrail, the site at Royal

Oak Portal, Paddington, produced a rare collection of animal bone, predominantly reindeer and bison, buried during the last glacial period (the Devensian) beneath metres of sediment and modern buildings.

Geology, vegetation and fauna (Fig 9)

The River Thames and the City of London lie within a large geological depression known as the London Basin. The basin underlies a large area of south-east England, extending for 250km from the Chalk of the Marlborough Downs in Wiltshire to the North Sea, and it is filled with layers of solidified sediments that were originally laid down in ancient sea beds. The basin was originally formed 40-60 million years ago by the folding and stretching of the earth's crust as the continental plates collided. This event is known as the Alpine orogeny, because it created the Alpine mountain range, and also (on a much smaller scale) the chalk hills of the North and South Downs, the Chilterns, and the Weald. The London Basin is underlain by Chalk and filled by a series of sands and clays,

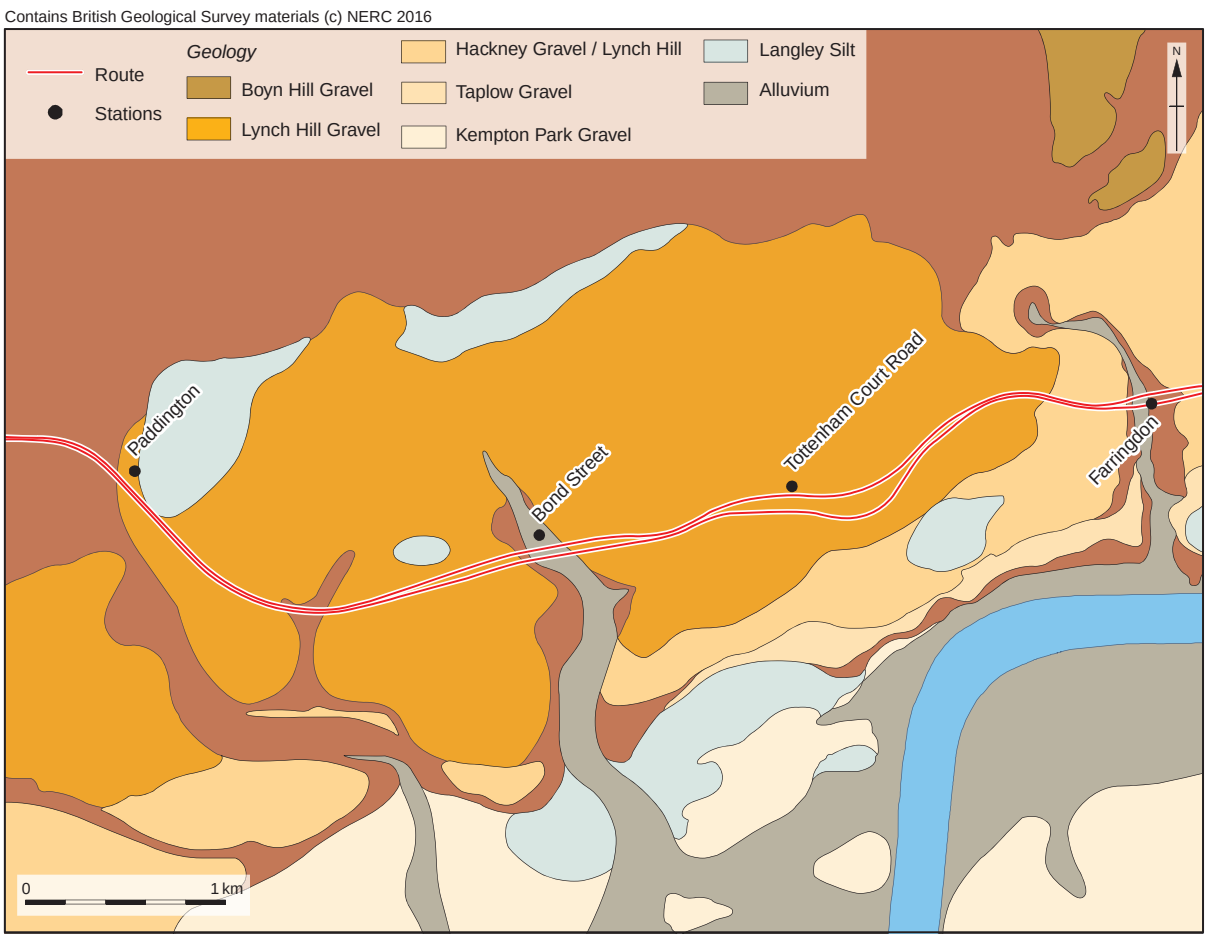


Fig 9 Pleistocene geology of the Crossrail route in West Central London Contains British Geological Survey materials © NERC 2014

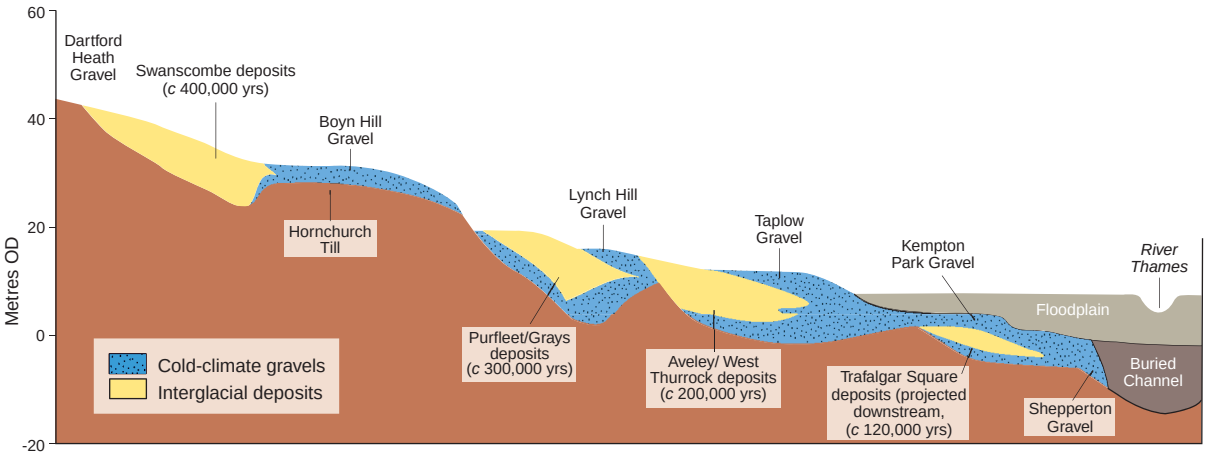


Fig 10 Schematic diagram of the terraces of the River Thames in the London area, showing the sequence of cold (glacial) and warm (interglacial) sediments and associated sites (after Bridgeland 2006)

mainly deposited in shallow marine and estuarine conditions prior to the Pleistocene. The London Clay Formation, which forms part of this early sequence, is well-known to collectors for containing fossils of tropical or sub-tropical plants and animals indicating that in the remote past this was a habitat of mangrove forests with nipa palms and magnolia bordering a warm, shallow ocean. It was perhaps similar to Indonesia or East Africa today. Fossil fauna include turtles, fish, sharks and molluscs.

Younger sediments dating to the Pleistocene epoch lie above the London Clay, where they have not been eroded by the river or removed by wind action or later disturbances such as quarrying, ploughing and building (Fig 9). These sediments include sands and gravels of old river terraces deposited by the Thames and its tributaries. These terraces have been mapped by the British Geological Survey (Fig 10).[1] In the Westbourne Green and Paddington areas the Crossrail route lies on an area of exposed London Clay, while further east the route lies on the Thames gravels of the Lynch Hill terrace, deposited 350,000-250,000 years ago.

The gravel terraces were usually laid down at times of extreme cold conditions when there were few plants or animals living here. Sandwiched within the terrace sequences, however, are sequences of sands, silts and clays that were laid down by the river during the warmer conditions of the interglacials. At such times there were often abundant plants and animals in the vicinity, and sometimes humans as well, and these warm-period deposits are an important source of information for scientists today. At Trafalgar Square, for example, faunal remains that date to the warm Ipswichian interglacial, about 125,000 years ago, include the characteristic assemblage known as the 'hippo faunas' (Fig 11). Species include hippopotamus, straight tusked elephant, fallow deer, red deer, extinct giant deer, rhinoceros, aurochs, brown bear, wolf, spotted hyena and lion. Mammalian remains from the Thames gravels around Trafalgar Square

Fig 11 Reconstruction of landscape and fauna during the warm Ipswichian interglacial about 125,000 years ago on the site of Trafalgar Square (Mary Evans/Classic Stock/H. Armstrong Roberts after *Illustrated London News* June 14th 1958)

have been known since the early 1700s, but some of the best sediment exposures were recorded in 1957 during the construction of Uganda House, and in 1958 during foundation work for New Zealand House in Lower Regent Street. Later analyses were also carried out on sediments from sites at Canadian Pacific House and the Tennessee Pancake House on Whitehall. The sediments containing the 'hippo fauna' are largely made up of sands and silts overlain by the main body of the Kempton Park gravel terrace (Fig 12). Fossil plants, pollen and molluscs suggest the presence of a large slow-flowing river in a landscape of dry grassland and oak forest with maple, ash and hazel. Average July temperatures were probably about 4°C higher than southern England today.

Fig 12 Canine (tusk) of *hippopotamus amphibius* from Trafalgar Square (Photograph: Professor Danielle Shreve, Royal Holloway College)

Further evidence of a later warm interlude, within the last glacial cycle (the Devensian), was found during foundation works for the Ismaili Centre in South Kensington in the 1980s. Temperate plants, vertebrates, molluscs

and insects thought to be 60,000-30,000 years old were preserved in channel sediments within the Kempton Park gravel terrace.

In a few areas the gravel terraces are capped with brickearth made up of fine sands and silt and known locally as the Langley Silt Complex. Notable deposits are mapped east of Paddington Station. It is likely that much of the brickearth was initially deposited in the last (Devensian) glacial cycle in a harsh, very cold and dry tundra environment. In such conditions there would have been very little vegetation, making surfaces vulnerable to erosion, particularly by wind action. It is likely much of the brickearth in the London area has at some point been disturbed and redeposited by later river action with further transport and erosion occurring under gravity on areas of sloping ground.

The Ice Age fauna from Royal Oak Portal, Paddington

On the Crossrail worksite at Royal Oak Portal near Paddington Station, archaeologists investigated a sequence of Pleistocene sediments exposed during construction (Fig 13). The sediments appeared to rest in a hollow within the London Clay on the edge of the valley of the Westbourne, a tributary of the Thames (see below). It is likely that the sediments had accumulated during cold climate conditions, slipping downslope and becoming trapped within the hollow.

An assemblage of around 100 identifiable large mammal bones was recovered; a sizeable sample, especially given the relatively small size of the excavated area (Fig 14). The predominant species were reindeer and bison, now extinct in the British Isles, with the major concentration located in a shallow sequence of channel deposits. The sediments have been dated by the technique called Optically Stimulated Luminescence (OSL) dating, and the richest faunal horizon is 68,000 years old. The bones were studied at the Natural History Museum in London, and the animals seem not to have been hunted, but to have died naturally near the site, where their carcasses were later scavenged by carnivores such as wolves or bears. The chew marks they made on some of the bison bones were examined under a high-powered microscope. The scavengers left the bones behind to be winnowed and transported by flowing water and exposed on the floodplain and banks of the channel, where they were further dispersed and broken by trampling. There was no evidence of human damage, such as cut marks or impacts from marrow processing.

Reindeer are exclusively confined to the 'cold' stages of the Pleistocene in Britain and often occur with bison and cold-adapted megafauna (large animals) such as woolly mammoth, musk oxen and woolly rhinoceros. Reindeer are the characteristic deer of the far north and perfectly adapted

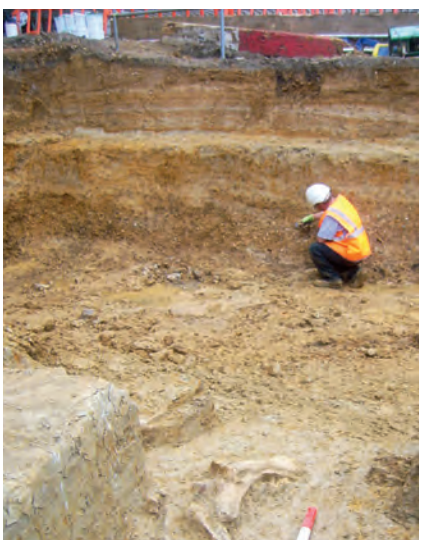


Fig 13 Excavation of Pleistocene deposits revealing animal bones at Royal Oak Portal

Fig 14 Pleistocene faunal remains from Crossrail excavations at Royal Oak Portal. L-R = bison metatarsal, tooth (lower molar) and humerus (Simon Parfitt)

to life in harsh tundra environments. They occur today throughout most of the tundra and taiga of Eurasia and North America. In harsher environments, reindeer migrate southwards from the tundra to overwinter in boreal (sub-arctic) woodlands. These migrations may cover hundreds of kilometres, with herds numbering in the thousands. Other populations make shorter seasonal journeys from alpine meadows to forests, and there are also non-migratory populations that live permanently in boreal woodland. In the summer, reindeer feed mainly on grasses, sedges, herbaceous plants, mosses, and willow

and dwarf birch leaves; in winter their diet is mostly lichens, supplemented by buds and shoots of deciduous trees and scrub. In southern Scandinavia, reindeer survived into the birch deciduous forest stage of the Holocene (about 10,300 years ago), only retreating northwards as the climate warmed, and under competition from other large herbivores.

Bison was one of the most widespread Pleistocene large mammals, occurring throughout Eurasia from at least 500,000 years ago until the end of the last cold stage. It was extremely variable in size and climatic tolerance, subsisting mainly on herbaceous vegetation on grassland and in open woodland. Bison were present in Britain during the warmer periods where there was open grassland but were more common during cold stages in association with steppe-tundra vegetation.

The abundance of bison and reindeer bones at Royal Oak Portal suggests they were the dominant large herbivores. However, the relatively small size of the bison compared to remains from other sites in the region suggests that the vegetation was of relatively low nutritional quality or that the growing season was relatively short. Analysis of the shed reindeer antlers suggests they are from male individuals, and comparison with remains from other sites such as Tattershall Castle and Isleworth indicates similar climatic conditions (warm summers and cold winters) and that the animals were present in southern England at the southern limit of their range during the autumn and winter months.[2]

The site at Royal Oak Portal is of national importance because very few 'bison-reindeer faunas' have been excavated and analysed under scientific conditions. The assemblage derives from a well-defined and understood geological context, with associated dating and environmental evidence.

London's lost rivers

Although the modern topography of London appears relatively flat to the casual observer, the expanse of urban development masks many subtleties and variations. The dominate feature is the River Thames, flanked by the floodplain zone, now much reclaimed and embanked. Beyond the flood-plain the Pleistocene gravel terraces of the Thames rise gradually like a staircase, the oldest and highest being furthest from the current river (see Fig 10). To the north, a sandy ridge of pre-Pleistocene deposits (the Bagshot Beds) forms higher ground that includes Hampstead Heath and Highgate Hill reaching 134m above sea-level.

The north bank of the current River Thames is dissected by a number of tributaries, but across much of London these watercourses have been culverted - mostly during the 19th century - and are hidden from view.

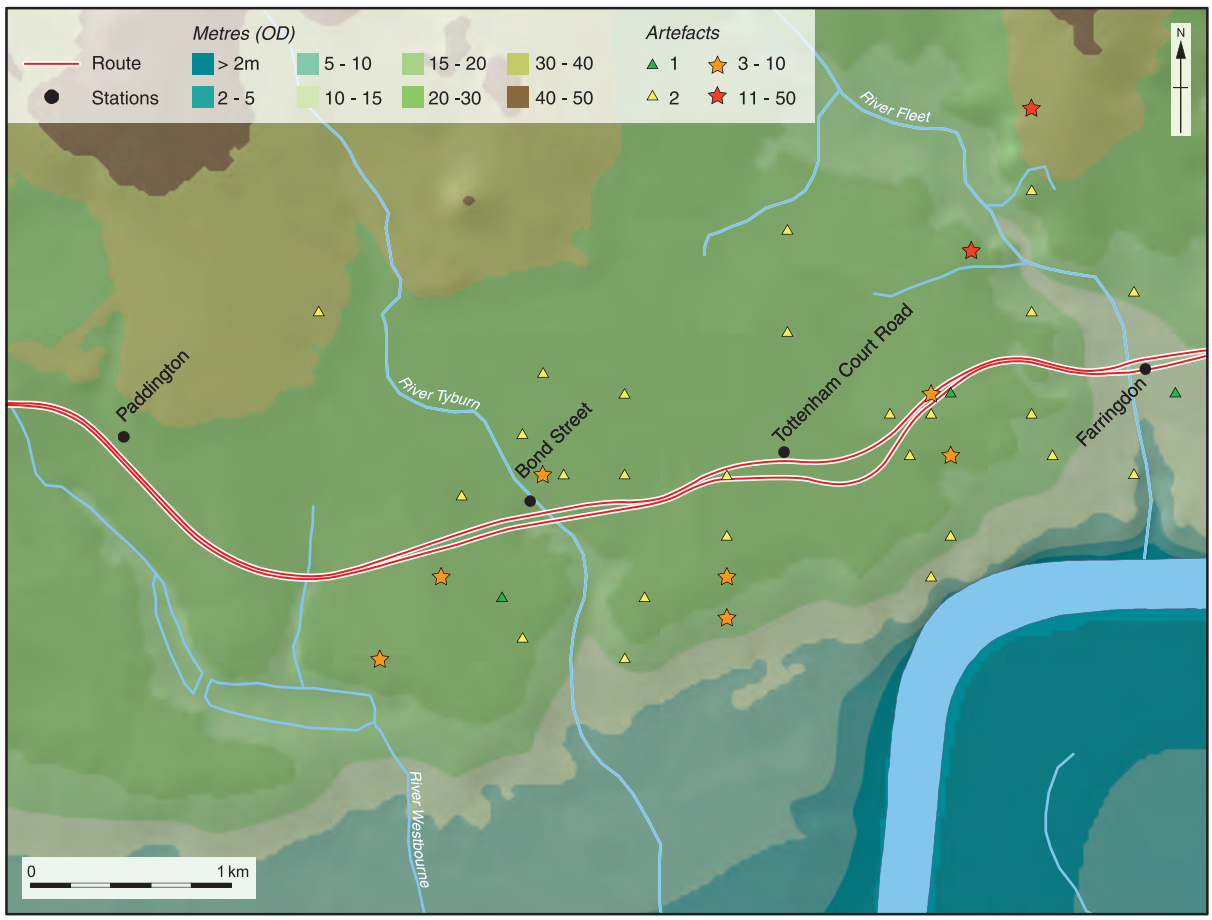


Fig 15 Topography and drainage of the Crossrail route in West Central London and Location of Palaeolithic finds spots. (Contains Ordnance Survey data © Crown copyright and database right 2014)

In West-Central London these tributaries include the Rivers Westbourne, Tyburn and Fleet (Fig 15).

The Westbourne is the most westerly of these watercourses and is traversed by the Crossrail route in the vicinity of Paddington Station. The river flows through the London Clay, and has also eroded a channel in the gravels in Hyde Park. It is one of the more substantial of the northern tributaries, rising from springs on the west side of Hampstead Heath and following a route through Kilburn. At Hyde Park the Westbourne has been dammed to form the Serpentine, before it meanders south, issuing into the Thames at Chelsea Bridge. The Westbourne remained open relatively late and was not completely covered until 1856–7.

The River Tyburn, which also rises on Hampstead Heath, at Shepherd's Well and Belsize Manor, is a much smaller stream than the Westbourne. It flows south through Swiss Cottage down to Regents Park and beneath the grounds of Buckingham Palace. The Crossrail route crosses the Tyburn near Bond Street and its valley is still visible in the present street layout and

levels, for example in Mayfair. There is some debate regarding the original course of the Tyburn in its lower reaches because its course was altered in the medieval period to provide a water supply for the city. One theory suggests it may have flowed eastwards towards Westminster, dividing in two to form Thorney Island, where Westminster Abbey was built. Alternatively, it could have flowed directly south from Buckingham Palace to join the Thames near Vauxhall Bridge.

Further east is the Fleet arguably the largest and most important of London's lost rivers. Like the Westbourne and the Tyburn, it rises on Hampstead Heath, from two heads separated by Parliament Hill. The western head forms Hampstead Ponds, and the eastern source the chain of Highgate Ponds. The two sources unite just north of Camden Town, flowing through King's Cross (in places 8 metres below street level) and into the Thames at Blackfriars.

The course of the Thames as we know it today, and the pattern of its tributaries, was established during the Pleistocene. Until around 430,000 years ago the Thames did not flow through London at all, but followed a course to the north-east through East Anglia. It was diverted southwards during the Anglian glaciation (Fig 16); this is an important marker for geologists and archaeologists, because none of the Thames gravel terraces within West-Central London can date before this event. The Anglian glaciation was the most extensive of the last half million years, with ice sheets extending across much of northern Europe. In Britain the ice reached the modern northern outskirts of Greater London at Watford, Finchley and Hornchurch. The advance of the ice blocked the course of the ancient Thames in the Vale of St Albans forcing its diversion southwards into its modern course.

During periods of low sea-level the Thames would have been joined to a vast network of freshwater rivers and lakes across the North Sea Basin and Western Europe. At various times many of these rivers would have drained into a huge lowland river system known as the Channel River system in the area now occupied by the English Channel (Fig 17). When the climate warmed again, the sea flooded the low-lying land and Britain became an island, cut off from the continent.

Palaeolithic archaeology

Early humans (or 'hominins') of the species Homo heidelbergensis, with their characteristic hand-axes and flint flakes, were early colonisers of Europe around 600-500,000 years ago. So far, only two sites in Britain

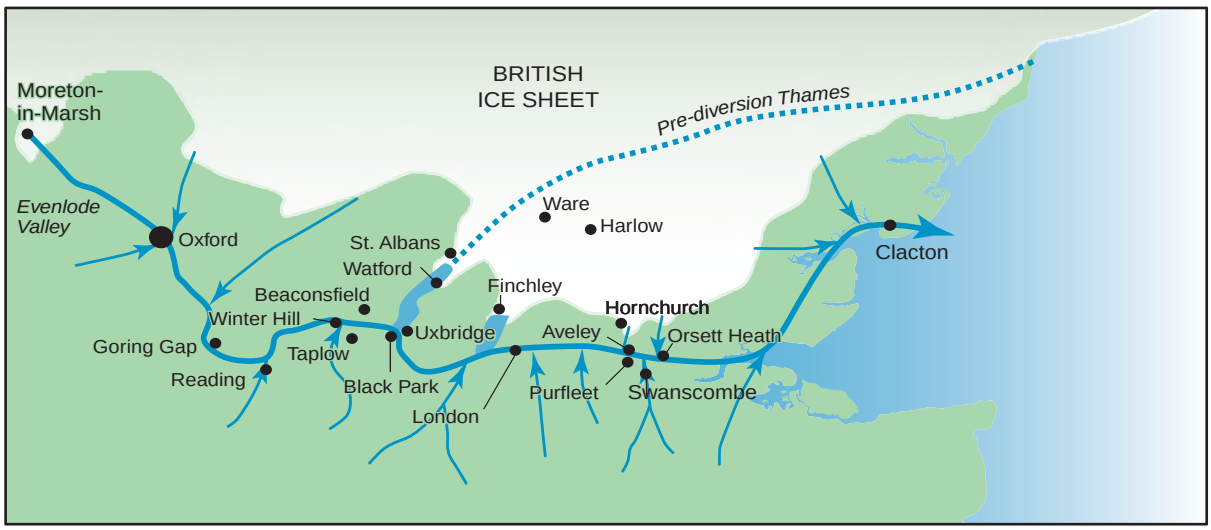


Fig 16 Map showing the diversion of the River Thames during the Anglian glaciation around 430,000 years ago

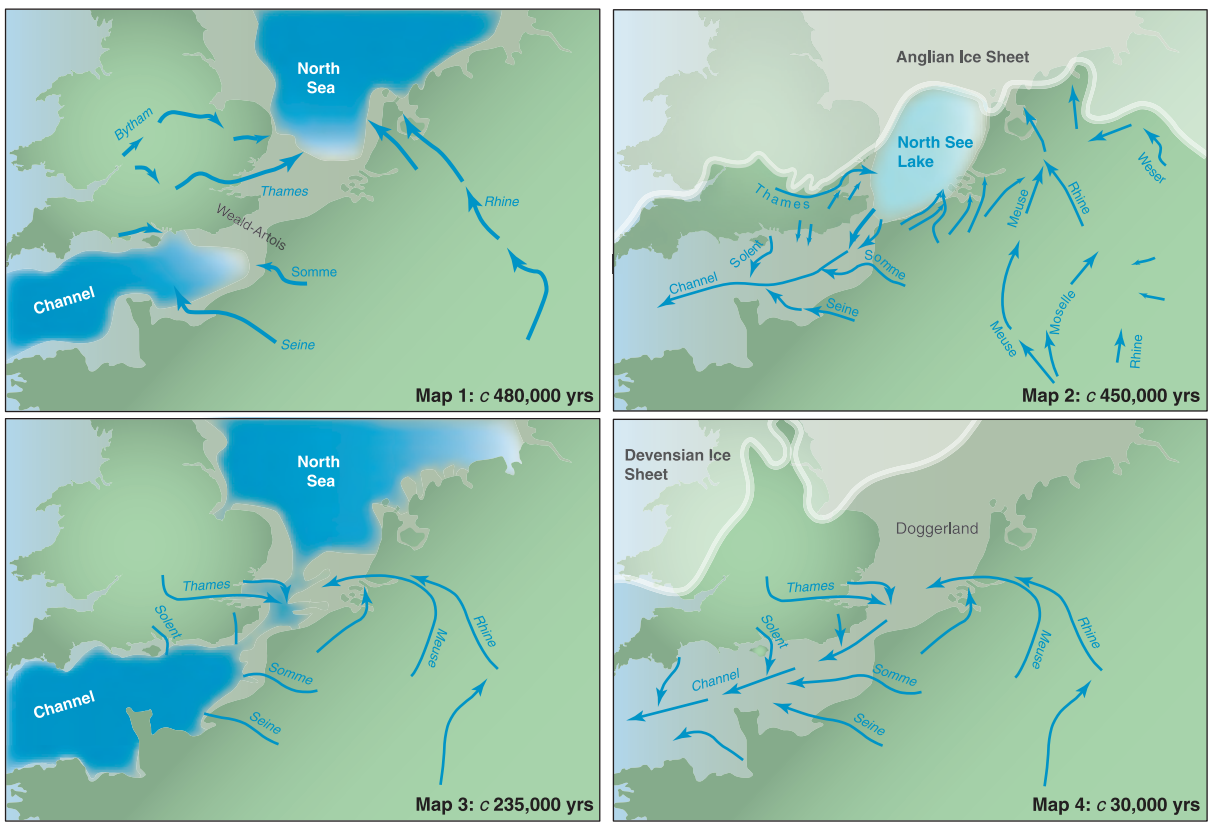


Fig 17 Palaeogeographic maps of various stages of the Pleistocene illustrating Britain as an island and a peninsula of NW Europe

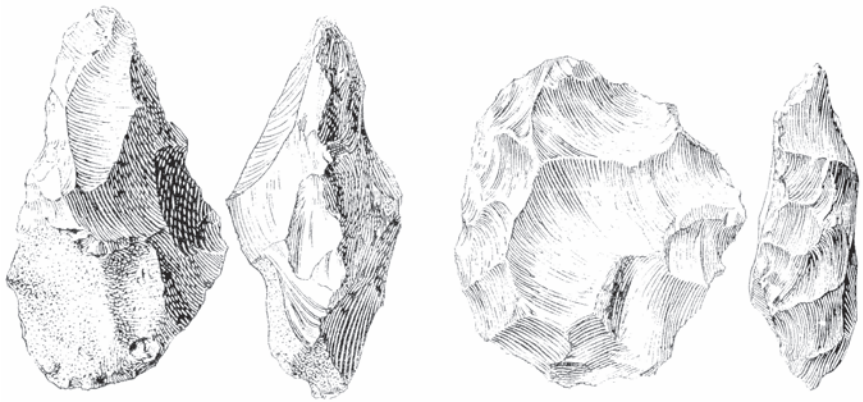


Fig 18 Palaeolithic stone tools from Hyde Park (after Dewey 1926; with permission of The Society of Antiquaries of London)

have produced remains of this species, Boxgrove in West Sussex and Swanscombe in Kent. It is generally believed that the later hominin species known as the Neanderthals were direct descendants of *H. heidelbergensis*. Fully developed Neanderthal features are evident from around 70, 000 years ago, but some affinities can be detected in specimens as early as 400,000 years ago. In Britain only the cave site at Pontnewydd in Wales has produced skeletal material within the Neanderthal range.

Fig 19 Palaeolithic hand-axe from Regent Palace Hotel, Glasshouse Street, Piccadilly (Museum of London, A11922)

Within West-Central London there have been dozens of isolated finds of Palaeolithic flint tools from the Lynch Hill terrace (see Figure 15), although the majority of the tools had probably been moved by the river from their original place of discard. This is apparent from the abraded or worn condition of the artefacts. Many are from antiquarian collections with relatively few recovered in the course of formal archaeological excavation. In 1925, for example, an assemblage of abraded Palaeolithic flint tools (Fig 18), which includes hand-axes and is now in the British Museum, was recovered 950m to the south of the Crossrail route, beside the former course of the River Westbourne, by the Serpentine in Hyde Park. The flint was recovered from a deep trench during repair to the Paddington Sewer and probably derived from the base of the Lynch Hill gravel terrace, about 12m below ground level. At Glasshouse Street, Piccadilly, a small collection of hand-axes now in the Museum of London was recovered in 1913, purportedly from the site of the Regent Palace Hotel. The hand-axe illustrated in Figure 19 is in an excellent state of preservation suggesting it was found close to where it had been left by the last user. It is 17cm long and made from a large pebble of flint, probably collected from the Thames.

NOTES

1 After Bridgeland 2006
2 Bates *et al.* 2014

CHAPTER 3

THE COUNTRYSIDE BENEATH LONDON

This chapter reviews the evidence for the landscape of West London from the early post glacial to the medieval period. Much of the history of the area has been, and continues to be, revealed by painstaking recording of archaeological finds, and by research into the available documentary sources.

Prehistoric West London

The last Ice Age came to an abrupt end around 11,500 years ago, when temperatures rose rapidly marking the beginning of the warm period known as the Holocene that continues down to the present day. Modern humans (*Homo sapiens sapiens*) first seem to have reached England around 40,000-36,000 years ago, and we know that they were living in the Thames Valley during the final cold period of the Pleistocene, around 12,000 years ago. Some of the best evidence has come from a site at Three Ways Wharf, Uxbridge, where the remains of flint tools were found along with the remains of horse, reindeer and other animals that had been hunted for food (Fig 20).[1]

As the climate warmed, trees became established across the landscape and by around 6000 BC a dense woodland canopy covered much of the Thames region, with the river and its tributaries offering important corridors for movement. This period is known as the Mesolithic, or Middle Stone Age. Population numbers were very low indeed, and it has been calculated that there might have been no more than perhaps 1000 people living along the Thames.[2] They were 'hunter-gatherers' with a way of life based on hunting animals and collecting nuts and berries from the wild.

Fig 20 A reconstruction of a Final Upper Palaeolithic/early Mesolithic camp in the tundra of 11,000 BP (© Surrey County Council Archaeological Unit)

It is very rare to find evidence anywhere for the people who lived here at this time, but Mesolithic worked flints and worked antler have been found at Uxbridge, and are also known from the Lea Valley to the east.[3]

One of the most fundamental changes in human lifestyles took place over the period 4000-3500 BC, when people in our region began to domesticate animals, plant crops and become farmers. This marks the beginning of the Neolithic, or New Stone Age. Neolithic people began clearing the woodland for their crops and animals. They also made and used the first pottery, as well as continuing to make flint tools, and built communal monuments. As with the Mesolithic period, the remains of Neolithic communities are very rare in the region, but it is likely that the attractive river valleys and free-draining soils underlying West London would have been suitable places for occupation and cultivation. Cereal grains of barley, emmer and bread wheat have been found in pits at Curzon Gate, Hyde Park, along with Neolithic pottery known as Peterborough Ware, which dates from around 3300-2900 BC.[4] A Neolithic flint axe-head has been found at Hyde Park corner, and there is evidence of 'ard' (wooden plough) marks at various points adjacent to the Thames at Westminster and elsewhere.[5]

The clearance and division of land for farming in the Thames Valley intensified in the Bronze Age, and particularly in the middle Bronze Age, around 1500 BC. Woodland was felled at this time, and replaced by fields that were managed, maintained and worked by small family-based communities. The River Thames itself seems to have been important to the Bronze Age people of the region, who deposited valuable objects such as daggers, swords and shields in its waters. However, in West London there is only limited evidence for where these people might have lived. A Bronze Age soil horizon with bone and burnt flint was found at Stukely Street, near High Holborn; three poorly-dated hand-axes have been found in New Oxford Street; a possible Middle Bronze Age tool of bronze and wood was found in Great Russell Street, and a flint assemblage was found south of the Serpentine in Hyde Park. Prehistoric and Roman artefacts from the area of Thorney Island, beneath Westminster Abbey (including possible evidence of a quay at Parliament Square), have led to the suggestion of an early river crossing point here.[6] Evidence of a prehistoric trackway has been found at New Oxford Street.[7] The trackway appears to have been used in the Roman period as well.

The Iron Age (800BC –AD50) is characterised by the introduction of iron for tools and weapons in place of copper alloy or bronze. It was also a time of increased trade and migration from Northern Europe, and was characterised by an expanding population and a worsening climate.[8] Many Iron Age finds have been retrieved from the Thames. Frequently these comprise metalwork

including swords and daggers, and some of the most impressive finds of this period known in Britain including the Battersea Shield and the Waterloo Helmet. Archaeologists believe that these Iron Age objects were deliberately placed or thrown into the river probably as religious offerings.

However, despite these riches there is very little evidence for settlement in the Greater London area during this period. Iron Age remains located in West London are confined to those recovered on the site of the Diana Memorial fountain in Hyde Park,[9] as well as a coin hoard from St James's Park, worked timbers from Richmond Terrace Mews and pottery from St Margaret Street, Westminster.[10] The area of Greater London seems to have been where the boundaries of a number tribal areas met. Substantial enclosures have been recorded at Ilford (Uphall Camp) and at Wimbledon Common (Caesar's Camp – a name frequently assigned to Iron Age earthworks), and one is currently being investigated at Woolwich. Further possible enclosures at Hadley Wood and Bush Hill Park remain undated.

Roman West London

London became a much more important place after the Roman Conquest, with the foundation of the City of Londinium following shortly after the invasion, perhaps about AD 50.

The Romans quickly developed an infrastructure of long-distance routes linking Londinium to other towns in the province, and the importance of West London increases from this time as the major roads leading west from the City were established. Watling Street (Edgware Road/Park Lane) ran from Dover to North Wales and Chester; it is thought initially to have crossed the Thames at Westminster and headed north-westwards along the

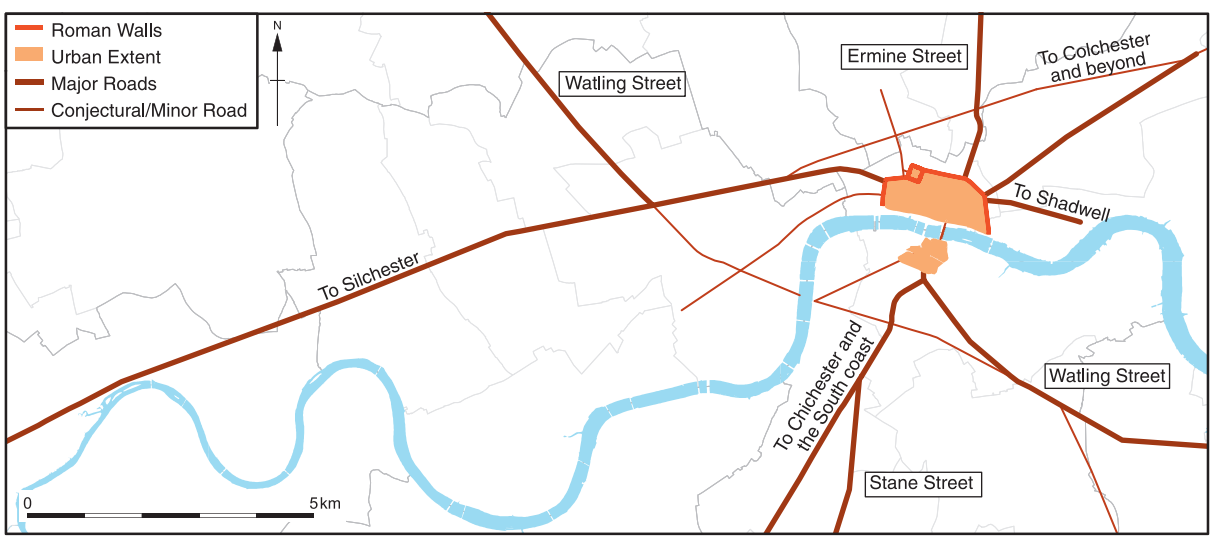


Fig 21 The Roman Roads around London

line of the modern Edgware Road and Park Lane. A major east-west highway the 'Via Trinobantia' (High Holborn, Oxford Street and Bayswater Road) ran from Londinium to Calleva Atrebatum (Silchester). These roads ran through an open agricultural landscape characterised by features such as field ditches, gravel quarries for road maintenance and small farmsteads such as that apparently found in Hyde Park on the site of the Diana Memorial Fountain. More permanent occupation might be expected where the roads intersected at the site of Marble Arch, but none

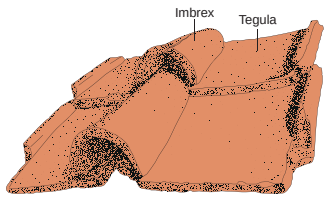


Fig 22 Components of a Roman tiled roof found in Crossrail excavations at Tottenham Court Road

ROMAN POTTERY FROM TOTTENHAM COURT ROAD

Roman pottery from Tottenham Court Road included pieces imported from the Continent. A Samian ware bowl (Dragendorff form 38), a hemispherical form with a flange around its body, arrived from Gaul during the 2nd or early 3rd century. Samian is finely-made pottery with glossy red surfaces (Fig 23). That it was highly prized in Roman Britain is suggested by examples found elsewhere that bear owners' names or marks or evidence of repair, as well as the many imitations made by British potters. At the same time, Samian was durable and designed for practical use. The bowl present here is of a type that is sometimes heavily worn inside, as if used as a mixing bowl in the kitchen.

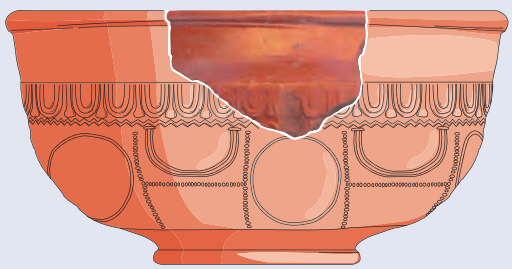


Fig 23 Fragment of a decorated Samian bowl of Roman date from Crossrail excavations at Tottenham Court Road with a reconstruction of the bowl

A handle of a globular amphora (type Dressel 20) was also recovered. This would have contained olive oil exported from southern Spain between the late 1st and 3rd centuries. Olive oil was a valuable and useful commodity in the Roman world, being used not just for cooking, but also cleansing oneself in the baths, and for lighting, and was consequently manufactured and exported in huge quantity.

These are finds that suggest that the people who used the Roman pottery found at Tottenham Court Road were familiar with Mediterranean dining or social practices.

is presently known. There are, however, suggestions of a settlement around Bond Street where the Via Trinobantia would have crossed the Tyburn, probably by means of a bridge (Fig 21).

Immediately outside *Londinium*, and approaching the Fleet River, this road would have been lined with burials and funerary monuments. There are also indications of a Roman masonry building, beneath St Etheldreda's Church in Holborn. The outer limits of the extra-mural cemetery are not known, but individual burials and a tombstone have been found as far west as Tottenham Court.

Roman finds were found on the site of the Crossrail Tottenham Court Road Station during construction. They comprise seven large sherds of pottery including part of a handle from a large olive oil jar or amphora, and a piece of decorated Samian tableware, which date to the early to mid 3rd century. Along with the pottery were thirty pieces of Roman building material including both flat and curved roofing tile (*tegulae* and *imbrices*) and brick (Fig 22). It may be that these Roman finds are rubbish from inside the City dumped along with the later material that fills quarry holes in the area, but the quantity of finds may also hint at some Roman occupation or activity associated with the nearby Roman thoroughfare.

Anglo-Saxon West London

By the time the Roman army and administration left Britain in the early 5th century Londinium was a city in decline, and it was abandoned almost totally for nearly 200 years. With the arrival of Germanic immigrants from north-west Germany and the Low Countries, known to us as the Anglo-Saxons, the sophisticated Roman military, economic and administrative

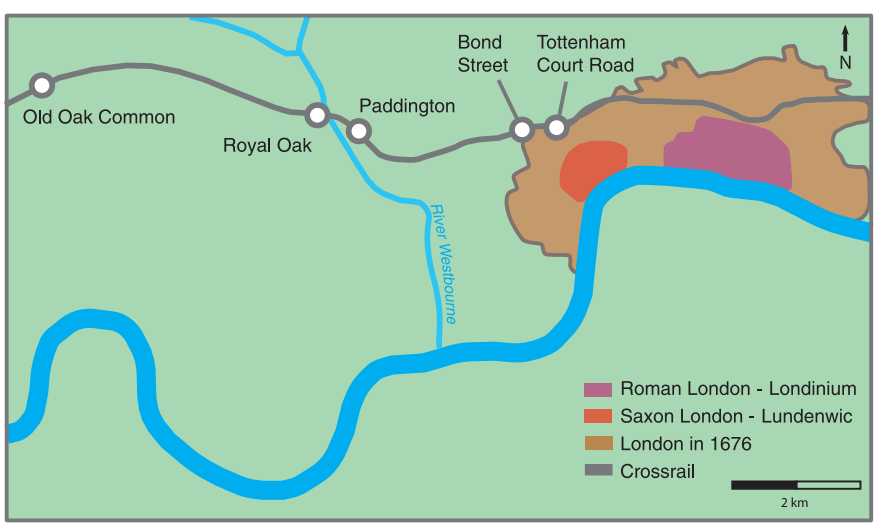


Fig 24 West Central London in relation to the Roman, Saxon, medieval and early post-medieval city

system with its network of towns was replaced by a much simpler rural-based lifestyle of subsistence farming. Occupation was characterised by scattered rural settlements, whose traces are often exceptionally hard to identify archaeologically. There may have been a number of these in West London. Evidence for 5th- to 7th-century cemeteries has been found at St Martin in the Fields and Covent Garden; an early settlement dating from the late 5th and early 6th centuries with characteristic Anglo-Saxon sunken huts has been found on the north bank of the Thames at Hammersmith, and 6th- and early 7th-century finds have come from further north around the junction of Tottenham Court Road and Euston Road.[11]

The Anglo-Saxons brought with them a new language that formed the basis of the English we speak today. Many of our place names derive from the names used by the Anglo-Saxons to characterise the landscape around them, and to describe their settlements. The place names of West London preserve a memory of its early medieval landscape.[12]

Acton - farm by the oak trees
Ebury - island, or well-watered land
Edgware - Ecgi's weir or fishing pool
Hayes - land overgrown with brushwood
Holborn - stream in the hollow
Kilburn - royal stream, or cows' stream

and the early medieval people of the region:

Ealing - the people of Gilla
Harlington - Hygered's farm
Harlesden - Heoruwulf's farm
Harmondsworth - Hermod's farm or enclosure
Harrow-on-the-Hill - the (heathen) temple or shrine of Gumen's people
Knightsbridge - bridge of young men
Paddington - Pada's farm
Tottenham - Totta's homestead or village

The conversion of the Anglo-Saxons to Christianity began at the end of the 6th century, and shortly afterwards the seat of the Bishop of London was established at the first St Paul's Cathedral. Although much of the old Roman city remained deserted, St Paul's may have been the focus for a new high-status settlement associated with the bishop's seat and church. A new trading settlement developed outside the Roman city to the west from the middle of the 7th century. Known as Lundenwic (see Fig 24), it spread along the Strand and northwards around Aldwych and Covent

Garden. The term *wic* was often used of markets or ports, and the famous early 8th-century Anglo-Saxon writer Bede refers to Lundenwic as an emporium for many people coming by land and sea. The settlement covered over 60 hectares, bordered roughly by modern Trafalgar Square in the west, possibly the Fleet valley to the east and the Thames to the south. It extended at least as far north as Short's Gardens and Macklin Street, the boundary possibly marked in the vicinity of the Crossrail route by the old Roman road (High Holborn). It may be that there was a church at St Martin-in-the-Fields at this time, and also perhaps at St Giles-in-the-Fields, where roads running north from the Strand through Lundenwic met Watling Street.

The Viking raids in the 9th century showed how very vulnerable rich undefended places like *Lundenwic* were, and from AD 886, the old Roman walled city was reoccupied and refortified, under the direction of King Alfred the Great. It became known as Lundenburgh. Lundenwic was abandoned and soon reverted to open ground; its existence was almost entirely forgotten and was preserved only in the name Aldwych (initially ealdwic – old market or trading place) until it was rediscovered through archaeological excavations in the 1980s.

Medieval West London

The Roman roads across West London remained major routeways in medieval times, and part of the medieval bridge at the crossing point of the Tyburn along Oxford Street has been recorded. There was certainly a settlement here north of the road, around the parish church dedicated to St John the Evangelist. Its churchyard may have extended south of Oxford Street but the area remained rural, reflected in evidence of field ditches near Wigmore Street to the north of Oxford Street, and at Tenterden Street, near Hanover Square. Drury Lane was the principal road from Aldwych and the church of St Clement Danes to Holborn and villages to the north and west such as St Giles and Tottenham Court.

Much of the land in medieval West London was held by Westminster Abbey. There may have been an important church at Westminster associated with a nearby royal settlement from as early as the 7th or 8th century, but Westminster's greatest early patron was King Edward the Confessor, who ruled from 1042 to 1066. He rebuilt Westminster in the new Norman Romanesque style, and endowed it with extensive lands. Edward's abbey appears in the Bayeux Tapestry.

From the 10th century, documentary records become available and we can begin to form a history of the small settlements that would later become the

THE RIVER TYBURN

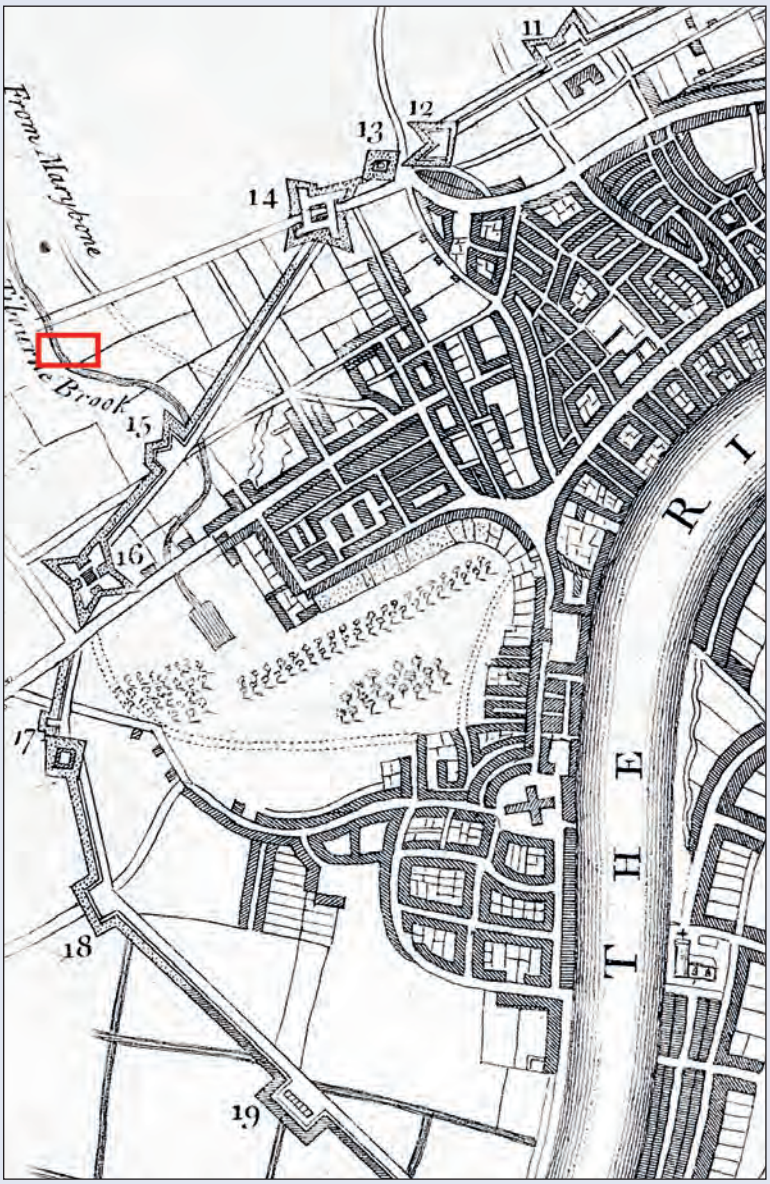


Fig 25 Map of the course of the River Tyburn (extract from mid 18th-century map depicting Civil War London: Museum of London, Image No. 005848)

From the early medieval period rivers in the area were utilised as sources of relatively clean water for London. In 1236 the authorities of the City of London acquired rights to the freshwater springs near Tyburn and began laying lead piping to convey the

water to the City. The pipe terminated at the Great Conduit in Cheapside, which was probably only constructed in about 1245.

During monitoring of the excavation of a grout shaft in Stratford Place to the north of Oxford Street MOLA archaeologists recorded the location of a medieval culvert. The structure is thought to be a water cistern associated with the 13th-century medieval water supply and possibly represents the Conduit Head House nearest to the Lord Mayor's Banqueting House.[13] The Banqueting House was built much later in 1565 (see Chapter 4).

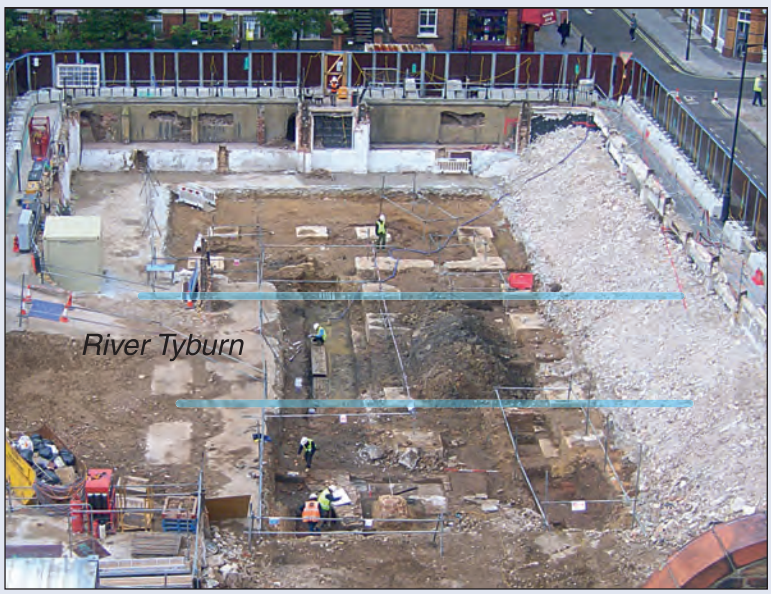


Fig 26 The buried course of Tyburn River revealed by a black silt fill exposed during Crossrail excavations at Bond Street

Both the former line of the river and the route of its conduits are visible in the street plan in the vicinity of Crossrail works at Bond Street. South Molton Street and South Molton Lane to the east are orientated northwest - southeast and are clearly not with the majority of street alignments in the area, which are usually at right angles to Oxford Street. This is because the location and direction of the conduit taking water from the Tyburn to the City pre-dates the street layout and influenced the orientation of these two streets. The former line of the river itself was revealed in excavation under the new Bond Street Station and is also visible as a depression in St Anselm's Place (Fig 26).

formed part of the Abbey's late Saxon endowment of 13½ hides at Westminster as recorded in the Domesday Book. A record of the customs of the manor from *c.* 1225 tells us that there were 30 peasant tenants in Knightsbridge and Paddington, each holding up to 20 acres of land. At this time most peasants owed labour services for their land, and the abbey's tenants at Paddington and Knightsbridge had to farm the abbey's lands as well as their own holdings, helping with manuring, ploughing, harrowing, mowing and carting hay. During the early 14th century the abbey held 155 acres of arable land at Paddington. Open fields survived well into the 18th century and are still depicted on John Strype's 1720 Survey of London (see Fig 45).

There were also extensive and valuable woodlands - one of the tenants of Paddington and Knightsbridge *c.* 1225 was Richard the Forester. Timber from the woods of the manor was used for the rebuilding of Westminster Abbey's nave in the 15th century, with 22 cartloads taken in 1460-61 and 42 cartloads in 1478-9. Paddington Wood was still 44 acres in extent in 1647, but most of the woodland seems to have disappeared by the mid 18th century. The villagers probably lived around Paddington Green, where there was a chapel or church of St Nicholas, later rebuilt and

Fig 27 Extract from the 'Agas' Map of *c.* 1560 showing St Giles in the Fields

renamed St Mary's. The abbey used the revenue from the manor to support its almonry (its charitable work for the poor), and the Almoner was supposed to make periodic visits to Paddington and may have held manorial courts there.

St Giles at the junction of the Tyburn Road and the road to Tottenham Court, was the site of an extensive leper hospital, founded *c.* 1118 by Henry I's wife Matilda and closed at the Dissolution in 1539.[15] The grounds were enclosed with a wall, and formed almost a triangle, of some 7-8 acres, which is still partly visible as the area defined by St Giles High Street, High Holborn and Oxford Street. The chapel continued as the parish church, and was rebuilt in 1623 and again in 1711. In the medieval period most of the houses belonging to the village stood on the north of the main road from Holborn to Tyburn (now Oxford Street) with gardens extending behind them to St. Blemund's Dyke. The village is almost the only settlement in the area that is generally shown on the earliest maps of London, and it appears in the 'Agas' view as a small group of cottages with garden-plots around the walls of the hospital (Fig 27). In 1541 an Act of Parliament was passed, ordering the 'western road' of London, from 'Holborne Bars' to St. Giles-in-the-Fields, to be paved, 'as far as there was any habitation of both sides of the street.'

Tyburn, place of execution

From 1571, the infamous place of execution and site of the permanent triangular frame known as the Tyburn Tree (Fig 28), was located near the site of Marble Arch to the west of the River Tyburn. Just southwest of the site of Marble Arch and running south was a tributary of the Westbourne confusingly called the Tyburn Brook.[16] Earlier executions seem to have been carried out close by the Tyburn Brook. The earliest recorded execution is that of William Fitz Osbert, known as William Longbeard, who was hanged in 1196 for fomenting an uprising against Richard I. From the 14th century many political executions took place at Tyburn, including the execution of Roger Mortimer, Earl of March, in 1330. The last person executed at Tyburn was John Austen who was hanged in 1783. Thereafter executions were carried out at Newgate Prison.[17]

Fig 28 The Tyburn 'tree'

Biographical portraits

WILLIAM FITZ OSBERT (EXECUTED 1196) (Fig 29)

William Fitz Osbert was a charismatic leader who became popular for standing up for the rights of Londoners. In 1195 William became increasingly agitated by rich Londoners evading taxes and began to make inspirational speeches about injustice. He made a visit to King Richard in France to get him to act against the wealthy and improve the lives of the common people. Although the King listened to him, when William returned to London he found that the King's deputy in England, Chief Justicier Hubert Fitz Walter, was unsympathetic to the plight of the poor. William began to rally common Londoners in protests against the rich and he became the leader of a vigilante mob. In 1196 he became a threat to authority and his capture and execution was ordered by Hubert Fitz Walter. He held out for a while by fortifying the church at St Marylebone until Hubert's men set the church on fire. After his capture he was stripped naked and tied to a horse and dragged through the streets of London to be hanged at Tyburn.

Fig 29 Victorian image of the death of William FitzOsbert known as 'Longbeard' (Mary Evans Picture Library, No. 10141829)

William Fitz Osbert is reputedly the first person to have been hanged at Tyburn, although it is likely he was killed by being dragged over the rough and flinty Tyburn Road.[18]

ROSE TURPIN (DIED C. 1214)

Rose Turpin was a West Londoner who became one of a small number of medieval women to own land and property. She is known from a document charting the donors of land to Westminster Abbey and her profession was cushion maker. She was the wife of William Turpin who was an Officer of the Chamber to King Henry II. In 1177 William Turpin drew up a grant which left Rose his land and property in the event of his death. By 1209 William Turpin had become a monk and Rose Turpin inherited land with its '*stone houses and appurtenances*'. The grant also gave Rose the freedom to choose who she wanted the land to be given to '*Rose can give this to any church she pleases for the souls of herself, of her husband and of King Henry*'. Rose probably died in January 1214 and her lands were donated to Westminster Abbey.

During the medieval period England was a deeply religious Christian society and it was relatively common for wealthy patrons to bestow land and money on religious institutions in return for spiritual services. From late 11th to the 13th century Westminster Abbey sought to consolidate the lands it lost after the destabilising effect of the Norman Conquest. The monks at Westminster went as far as forging or amending charters from donors during this period to increase self-sufficiency and decrease the reliance on royal patronage. Westminster Abbey looked for wealthy benefactors such as Rose Turpin to increase its lands at the same time as increasing its commercial interests in London. By the 12th century Westminster Abbey owned much of West London and it continued its expansion until its lands were seized by King Henry VIII in the 16th century.[19]

NOTES

1 Lewis with Rackham 2011
2 Hey with Robinson, 2011, 193
3 'Archaeology: The Mesolithic Age', pp 21-28 in Cockburn *et al.* 1969
4 MOLA 1996
5 GLSMR-081134; MOLA 2000, 67

6 *The London Archaeologist* **8**, Supplement 1, 1996, 26.
7 Crossrail 2008, *Tottenham Court Road Station Site Specific Archaeological Detailed Desk-Based Assessment* (CR-SD-TCR-EN-SR-00001)
8 MOLA 2000, 102.
9 PCA 2002, PCA 2003, also *The London Archaeologist* **10**, supplement 2, 2003, 60.
10 Kent 1978, 55-56; MOLA 2000, 117, gazetteer no. WM3; Andrews and Merriman 1986, 17-21; MOLA 2000, 105,117, gazetteer no. WM1; MOLA 2000, 117, gazetteer no. WM2.
11 Cowie and Blackmore 2012, 106
12 Ibid, table 74
13 MOLA 2014
14 The following is based on 'Paddington: Growth, settlement and building to *c.*1800', pp. 181-182 in Baker *et al.* 1989
15 'St Giles-in-the-Fields', pp. 197-206 in Walford 1878
16 Barton 1962, 98
17 'Paddington: Tyburnia', pp. 190-198, in Baker *et al.* 1989
18 Brooke 1975, 45; Keene 2004; Stephen Lewis, 2014, William Longbeard – Popular Agitator or Dangerous Demagogue? URL: The Wild Peak http://thewildpeak.wordpress.com/tag/william-fitz-osbert/
19 Mason 1996, 172-173; 'Charters of donors: Property outside the walls (nos. 386-99)', 228-241, in Mason 1988; 'Introduction', 1-23, in idem, 1988

CHAPTER 4

THE EARLY PROPERTY DEVELOPERS

The 16th and 17th centuries saw the character of West London begin to change. At a national level the population was rising fast, and London became ever more dominant as the mercantile, financial, political and cultural capital of the country. It has been estimated that the population of London grew from around 150,000 in 1580 to at least 500,000 by 1660.[1] The City began to spread beyond its medieval limits. The landholdings of the medieval church in West London had largely passed into royal and secular hands, preparing the way for a boom in speculative building. The excavations in the West-Central section of Crossrail have helped to reveal more clearly the story of West London's emergence, illustrated by the presence of brick quarries and kilns as well as the remnants of the buildings of the earliest 'property developments'.

Henry VIII and the development of Westminster

The royal court and the government had been based at Westminster since the 13th century, but the land around had been granted to the church in the medieval period, and much of West London in the early 16th century was in the hands of religious houses such as Westminster Abbey, Abingdon Abbey, Eton College and the Hospital of St Giles, or great princes of the church such as Cardinal Wolsey, the Archbishop of York.

The reign of Henry VIII, however, was to see an almost unprecedented expansion of royal building, as the king acquired, built and rebuilt palatial accommodation in the new Renaissance spirit on Thames sites from Greenwich to Hampton Court. Much of this building was on land taken from the church, at first by purchase, gift or exchange, but latterly through direct sequestration. Two new royal residences - Whitehall, and St James's Palace - were developed by Henry in Westminster from 1529 onwards. Whitehall had its origins in York Place, the London house of the Archbishops of York, which was substantially extended and redeveloped by Cardinal Wolsey from 1514. In 1529 Wolsey fell from favour and Henry took possession of York Place. During the 1530s Whitehall was extended and extensively rebuilt. It occupied both sides of the road from Charing Cross to Westminster, with the principal royal apartments on the east,

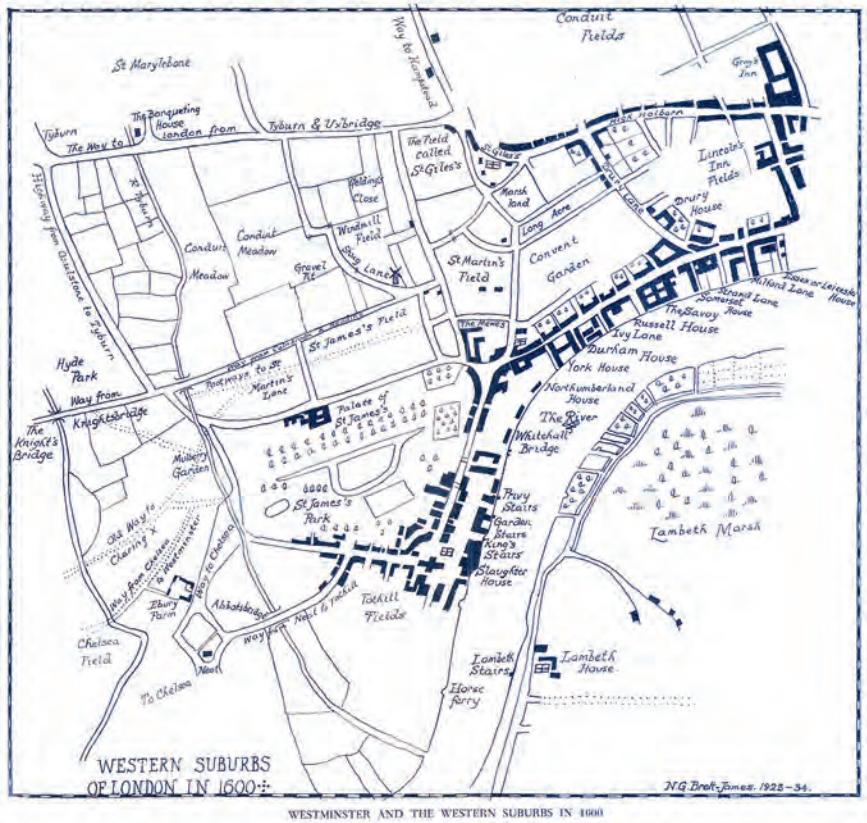


Fig 30 Westminster and the western suburbs in 1600. (Interpretative plan of West London from Brett- James 1934, 132)

between the road and the river, and the land on the west developed into a large royal leisure complex incorporating tennis courts, bowling alleys, a cockpit and a tiltyard. Whitehall was to be the principal London residence of the monarch until it was destroyed by fire in 1698. It was the largest palace complex in Europe with over 1500 rooms. Today, Whitehall retains its role as the centre of government, with state offices lining the street where the rooms of the palace once stood. Only the Banqueting House built in 1622 is still standing (Fig 30).

At the same time as he was developing Whitehall, Henry was also taking possession of the lands of the Hospital of St James, a leper hospital for women dating from at least the mid 12th centur. In the 1520s it held, amongst other possessions, 160 acres of arable land in St James's, 18 acres in Knightsbridge, and land in Chelsea and Fulham. By 1531, the hospital was in the hands of Eton College, and there were only four sisters left in residence. The hospital was suppressed, and Henry secured its lands by exchange with Eton. Henry added further lands by exchange with Westminster Abbey, to form a consolidated block of over 185 acres, part of which he used for the west side of Whitehall Palace, with the remainder becoming the palace and park of St James's.[2] St James's Palace was built in the early 1530s on the site where the hospital itself had stood. It had

four courts and a gatehouse. The gatehouse, built in the newly fashionable brick, is the principal Tudor structure surviving at the site today. The substantial stone walls of the hospital were recently revealed by Oxford Archaeology during archaeological work at the palace. In the 16th century, St James's was still relatively quietly situated amid fields, and it may have been intended as a rural retreat. Henry had his new park stocked with game for hunting. Following the destruction of Whitehall by fire in 1698,

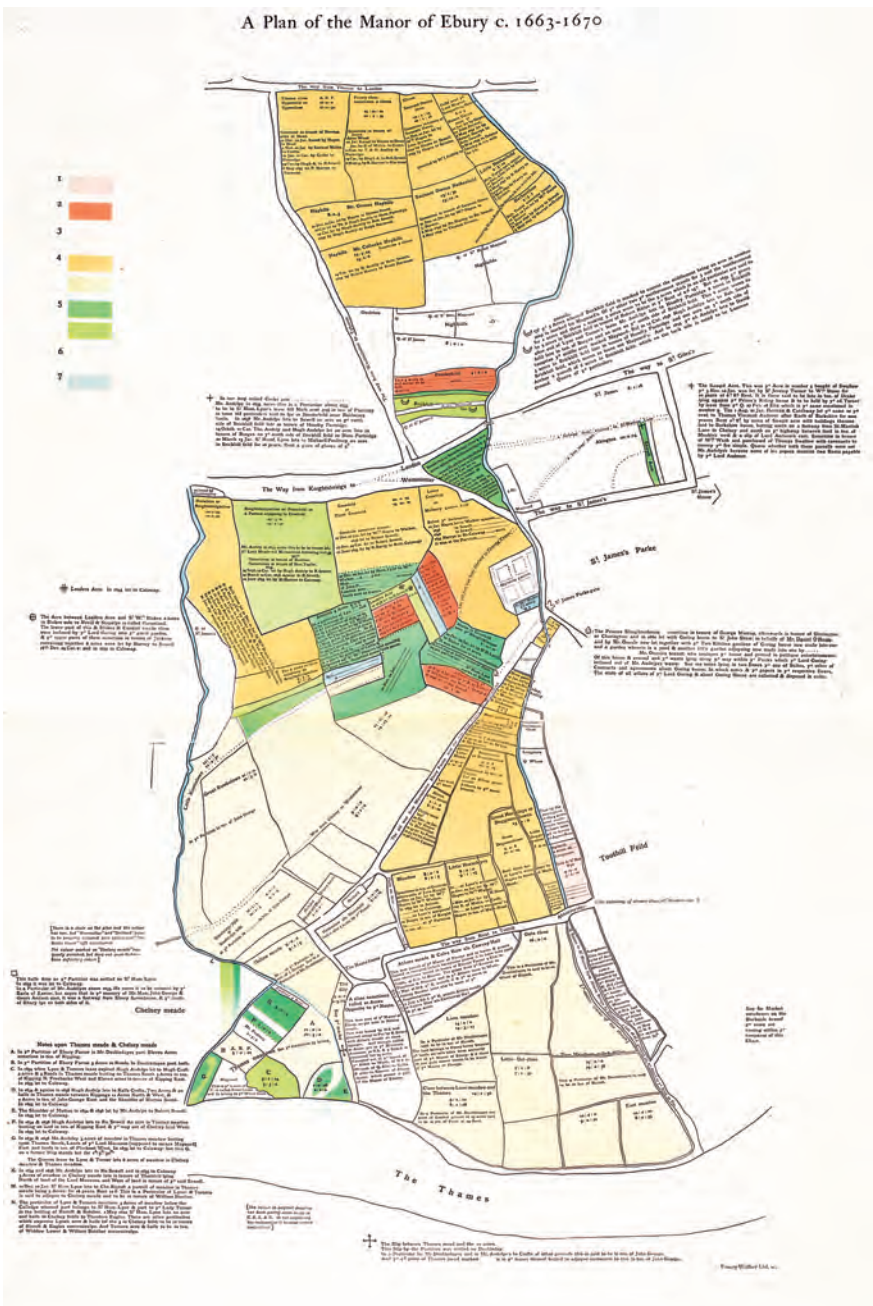


Fig 31 Extract from a plan of the Manor of Ebury in the 17th century with the River Tyburn forming its eastern edge (© British Library)

St James's became the principal London residence of the monarch until 1837 when it was superseded by Buckingham Palace.

In 1536 Henry acquired the manor of Ebury from Westminster Abbey (Fig 31). Much of the land was subsequently leased out, but Henry retained a large area in the north-east of the manor, known as the manor of Hyde, which he enclosed to form a large new royal hunting ground conveniently situated close to his new London palaces. Hyde Park and Kensington Gardens today cover a total area of 253 hectares (or 625 acres). Charles I added a new circular carriage drive known as The Ring, and opened the park to the public in 1637. It subsequently became a very fashionable place to visit. Green Park, an area of 40 acres between Hyde Park and St James's Park, was not acquired by the Crown until 1667-8, when it was bought by Charles II, who surrounded it with a wall and stocked it with deer. It was known as Upper St James's Park, but during the early 18th century it was transformed into a pleasure park and by 1746 was known as Green Park.

West London in the 16th century

Henry VIII's accumulation of the land that would become West London for his new palaces and parks was mostly achieved with the closure of smaller religious houses, but before the final Dissolution of the greater monasteries. This was not completed until 1540. On 16th January 1540 the Benedictine monastery of Westminster Abbey was dissolved and its properties seized for the Crown along with other church property in the area. The Abbey church, which we know today as Westminster Abbey, was preserved and served for a short period as a new cathedral.

Fig 32 The Lord Mayor's Banqueting House at Tyburn (Look and Learn History Picture Library)

THE LORD MAYOR'S BANQUETING HOUSE, OXFORD ROAD, IN 1750. (*From Mr. Crace's Collection.*)

Although land ownership in West London was shifting rapidly with the transfer of monastic property, the landscape itself beyond Westminster seems to have been little changed. By the middle of the 16th century the first general views of the City were being produced. A view probably wrongly attributed to Ralph Agas and dating from *c.* 1560, shows West London as a landscape of fields. By this time, Westminster was linked to the City by a continuous ribbon of development, much of it of aristocratic mansions, along Fleet Street and

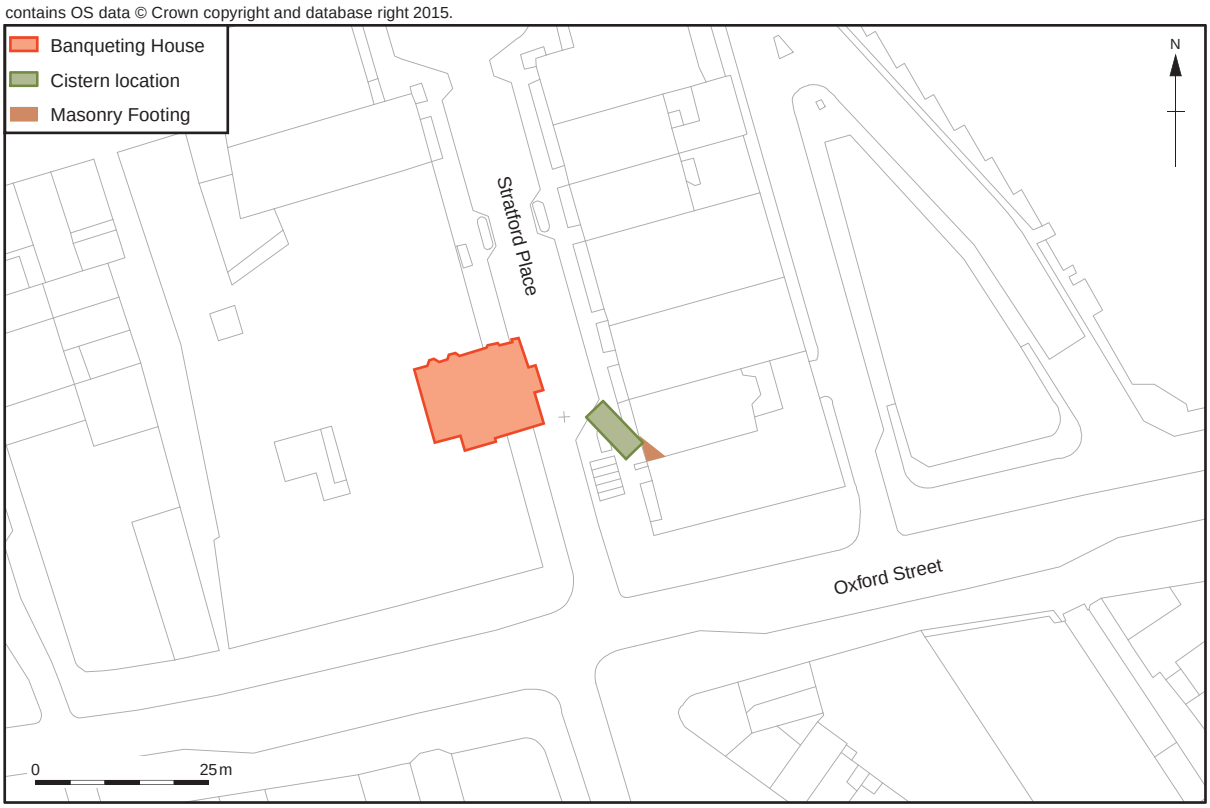


Fig 33 Possible location of the Banqueting House and conduit head at Stratford Place

the Strand. To the north and west St Giles appears in open countryside, although there has clearly been some development along the important routeway of High Holborn and Holborn, leading towards Smithfield.

The City continued to draw clean water from this relatively unpolluted area. In 1553 the Lord Mayor's Banqueting House was built alongside the Tyburn to Oxford Road (Fig 32). It was adjacent to the Tyburn River and served as accommodation for the Lord Mayor and his guests, when he visited to inspect the Tyburn conduit head, which still formed part of the water supply network for London (Fig 33). Although the location of the conduit head is not exactly known, MOLA recorded a masonry structure of Reigate and Kentish Rag stone during the Crossrail works in the light well of No. 2 Stratford Place.[3] Earlier investigations to the north-west in 1979 had recorded a portion of 'cistern wall'. The masonry structure has been interpreted as possibly the footing of the conduit head (Fig 34).

Fig 34 Masonry structure, possibly part of the conduit head foundation, found beneath No. 2 Stratford Place (after MOLA, 2012, Fig 4)

In the early 17th century the construction of engines for pumping water from the Thames, and the consolidation of the City's water supply following the Great Fire of

London in 1666 meant the Tyburn resource was no longer as vital. The Banqueting House gradually fell into disrepair and was finally demolished in 1737.

Rapid population increase in the late 16th and early 17th centuries was accompanied by economic revival throughout the country. Demand for agricultural produce rose along with prices and incomes. The roads that led to the capital were increasingly busy with drovers bringing their 'drifts' of livestock to Smithfield, with packhorses and waggons bringing in valuable wool and cloth and taking away new luxuries such as sugar, tobacco, spices and books for sale in provincial towns, as well as people travelling on foot, on horseback or in coach-waggons. John Taylor's *Carriers Cosmographie* of 1637 describes those who came and where they lodged (Fig 35).

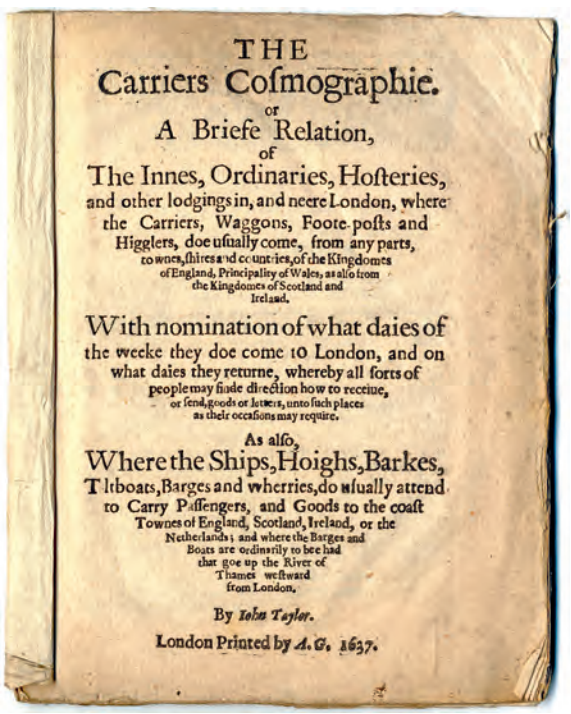

THE
Carriers Cosmographie.
or
A Briefe Relation,
of
The Innes, Ordinaries, Hosteries,
and other lodgings in, and neere London, where
the Carriers, Waggons, Foote-posts and
Higglers, doe usually come, from any parts,
townes, shires and countries, of the Kingdomes
of England, Principality of Wales, as also from
the Kingdomes of Scotland and
Ireland.
With nomination of what daies of
the weeke they doe come to London, and on
what daies they returne, whereby all sorts of
people may finde direction how to receive,
or send, goods or letters, unto such places
as their occasions may require.
As also,
Where the Ships, Hoighs, Barkes,
Tilboats, Barges and wherries, do usually attend
to Carry Passengers, and Goods to the coast
Townes of England, Scotland, Ireland, or the
Netherlands; and where the Barges and
Boats are ordinarily to bee had
that goe up the River of
Thames westward
from London.
By *Iohn Taylor.*
London Printed by *A. G.* 1637.

Fig 35 *The Carriers Cosmographie or a Briefe Relation, of the Innes, Ordinaries, Hostelries,* 1637 (University of Sheffield, Hartlib Papers)

The first passenger stage coaches were running by the 1650s and offered a regular public service. The stage coach made possible relatively safe and speedy transport for travellers, although horseback still remained the common form of transport for those who could afford it, while the less well-off remained on foot. The Royal Mail, which originated in 1516 with the appointment of a 'Master of the Posts' under Henry VIII, was opened to public use in 1635.

New markets developed outside the City walls. The broad street now called Haymarket and connecting Pall Mall with Piccadilly, appears running towards Charing Cross on the *c.* 1560 map attributed to Ralph Agas. When it became a market for the sale of fodder and other farm produce is uncertain, but the first reference to a hay market is in a couplet from Sir John Suckling's *Ballad upon a Wedding* of 1640:

At Charing Cross, hard by the way
Where we (thou knowest) do sell our hay

The name Haymarket first appears in a ratebook for 1657. In 1663 the Earl of St. Albans, was granted 'a market for all manner of beasts and cattell on Tuesday and Thursday in every weeke in the way commonly called Haymarket Streete.' In 1662 an Act was passed providing for a toll to be charged on every load of hay or straw sold in the streets around St James's Palace including the street 'beginning from the Mews up to Pickadilly' and for the money raised to be used for repairing the road. The market was abolished in 1830 and moved to Cumberland Market near Regent's Park.[4]

West London in the early 17th century

THE POLITICS OF HOUSING

By the early 17th century there was increasing pressure for more housing. Early 17th-century governments and landlords found it hard to resist the financial advantages of new building, but there was nevertheless a longstanding fear of uncontrolled development, and particularly of the development of poor suburbs that would attract large numbers of displaced rural migrants. The solution was to ensure that the new developments were designed for the rich and respectable, and opportunities began to arise as land in West London gradually concentrated in the hands of the aristocracy, through purchase, inheritance and marriage, and through new grants and licences obtained from the king. The first development, which was to prove an influential model for the future, was the creation of Covent Garden in the 1630s.

Since at least the 12th century Covent Garden had been the 'convent garden', an area of 40 acres owned by Westminster Abbey enclosed by a mud wall thatched with straw. During the 13th and 14th centuries it was a mixture of orchard, arable, meadow and pasture land, with the orchard supplying apples, pears, cherries, plums and nuts for the monks' table, and surplus barley and oats, hay and straw for sale in the market.[5] In 1536 Henry VIII took the land from the Abbey in exchange for property elsewhere, and in 1552 his son Edward VI granted 'le Covent Garden' to John Russell, Earl of Bedford, a royal favourite who had been awarded vast estates at the Dissolution of the Monasteries. The area remained largely open pastureland for the rest of the 16th century, and can be seen on the 'Agas' plan of London of *c.* 1560. The development of Covent Garden from 1631 was the work of John Russell's great grandson, Francis Russell, the 4th Earl. By this time, King Charles I was actively seeking ways of raising revenue without having to ask Parliament to grant taxation. Large sums could be obtained by the issuing of royal licences to favoured individuals to build in London, giving them royal permission to construct new houses despite the numerous government proclamations against new building on undeveloped land. Early in 1631 the Earl paid £2000 into the royal Privy Purse, and was granted the king's licence for *'howses and buildings fitt for the habitac[i]ons of Gentlemen and men of abillity'*. Charles seems to have taken an interest in the designs, as it was later recorded that *'Before the building was upon this licence [erected] the plot of it was showed to his Majesty's view and HM was also graciously pleased to view also the plans in his own person, attended by diverse lords commissioners for buildings, whereupon he so alterred the plot of the buildings that were to be erected that the Earl was by that alteration …put to £6,000 more charges …'*.[6] The architect of the new

development was Inigo Jones, the Surveyor of the King's Works, who had twice visited Italy and gained first-hand knowledge of the latest Italian architectural styles. Building began almost immediately, and by April 1631 the streets had been marked out. The development was designed as a square, or piazza, in Italian style, two sides of which, were formed of grand terraced houses, with the church of St Paul on the west and the walled gardens of Bedford House on the south. The Earl himself saw to the construction of the church, but generally leased out the house plots to London builders and tradesmen, creating a financial model for development that was later to be widely copied. The houses initially attracted wealthy tenants, but following the establishment of the market, by 1670 the aristocracy moved out, and Covent Garden became an area of coffee houses and taverns and, by the 18th century, a notorious red-light district.

THE CIVIL WAR

The early impetus of development was interrupted by the Civil War that broke out in 1642. Bitterly fought military campaigns were played out across the country but ultimately came no closer to the Parliamentarian supporting capital than Brentford and Turnham Green. Nevertheless, Londoners had prepared for the possibility. An earthwork and brick bastion circuit of defences was constructed around the City. Crossing the Tyburn

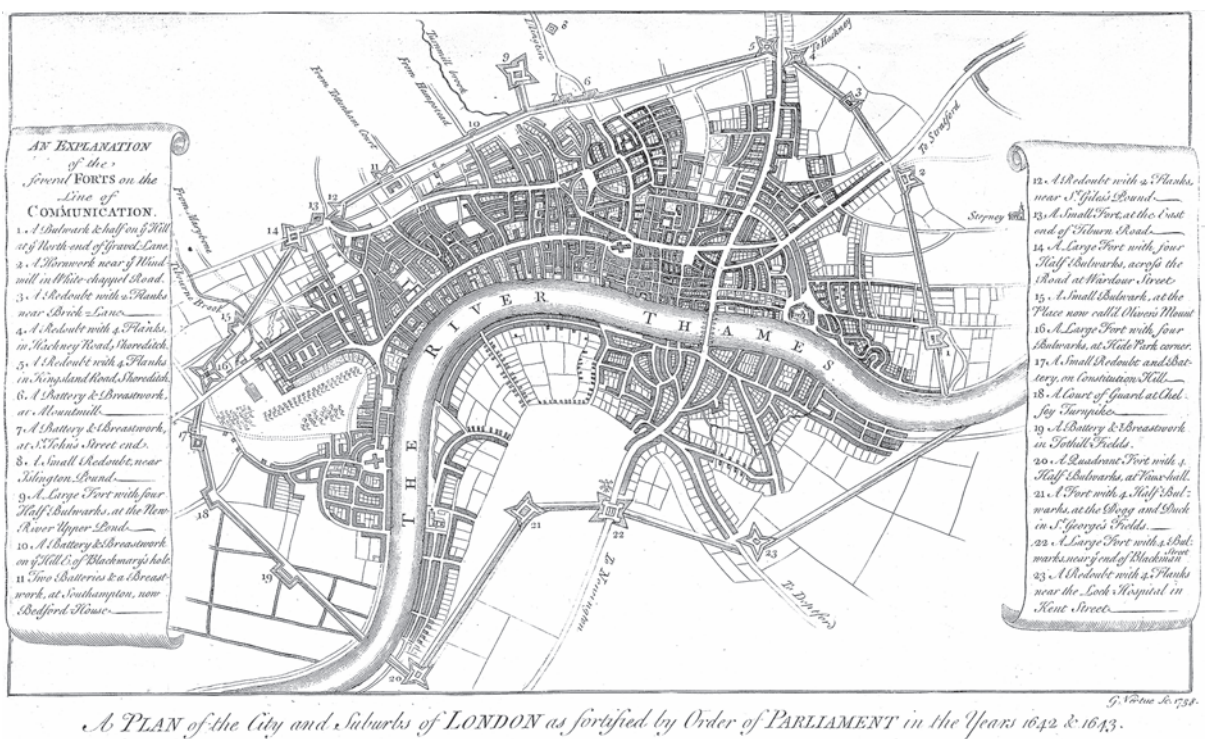


Fig 36 Mid 18th-century plan of the Civil War defences in *c.* 1643. Although parts of the defences were still surviving when the plan drawn, it is flawed. It is also flawed in its representation of the development of West London, for it shows buildings of St James that were not built in *c.* 1643 (Museum of London, Image Number 005848)

to Oxford Road near present-day Tottenham Court Road, the circuit continued through what is now the garden of Buckingham Palace and on to the Thames (Fig 36). The defence was short-lived, although some traces of the earthworks were still visible in the 18th century. Recent excavations by Pre-Construct Archaeology at the British Museum have revealed a section of the infilled defensive ditch.

Times of war are also times of opportunity and fortune as well as dramatic misfortune. Land, leases and properties often changed hands; the political rewards of survival as the fortunes of the conflict swung from one side to the other, during the interregnum and its aftermath. For instance, the land on which Buckingham Palace now stands changed ownership with each major turn in the Civil Wars leaving a fiendishly complex title legacy that required an extensive document survey and below ground investigation of historic boundaries to be undertaken by the Crown in order to establish there were no other claims on the property prior to George III establishing it as a royal residence.

THE RESTORATION

Brett-James' interpretive plan of 1600 (see Fig 30) is a substantially based on a map by Faithorne and Newcourt, possibly initially surveyed in the 1640s and selectively updated.[7] It indicates the growth of West London around the time of the Restoration of Charles II in 1660. Buildings now extended all the way along Holborn to St Giles; the area between Holborn on the north and Fleet Street and the Strand on the south was built up apart from the retained open space in Lincoln's Inn Fields, and Covent Garden is shown. The area is shown in Wenceslas Hollar's bird's eye plan of the West Central District of London, also dating from around the time of the Restoration.

With the restoration of the monarchy, the building up of West London began again. Thomas Wriothesley, 4th Earl of Southampton, had succeeded in not falling foul of either side during the Civil War. The family owned a property known as Blemond's Manor, formerly land of the London Charterhouse, north of Holborn. The manor had been part of extensive grants by Henry VIII to the 1st Earl of Southampton at the time of the Dissolution of the Monasteries. The 4th Earl began the building of Southampton House in 1657, with a piazza, Southampton (later Bloomsbury, from Blemond) Square to the south. Following the Restoration he leased sections of land around Bloomsbury Square to developers initially on a 42 year lease. Following the lead of Covent Garden, the Earl realised residential areas also needed to have markets and shops. He built up several streets around Bloomsbury Square that were less expensive than the square

7

itself, beginning the idea of providing a mixture of housing types. The writer John Evelyn described Bloomsbury as 'a little town' in his diary of 1665, a description which gives a sense of a self-contained unit.

The grandest of the West London estates was St James's Square, laid out in the 1660s just to the north of St James's Palace. It was developed by Henry Jermyn, 1st Earl of St Albans. The son of a courtier, Henry Jermyn became a favourite of Henrietta Maria, the French wife of King Charles I. When Henrietta Maria's son was restored to the English throne as King Charles II in 1651, she persuaded him to create Henry Jermyn the Earl of St Albans. Between 1661 and 1665, he obtained the land of St James's Field, just to the north of the royal park and palace. His plan seems to have been to create a self-contained court suburb on the model of the Parisian Place Royale, with a market near to the Haymarket (built by 1663), a church, grand houses for the aristocracy around the principal square and streets, and humbler houses for servants, tradespeople and stallholders in subsidiary streets, especially around the market.[8]

The development of St James's took some time to complete (coinciding, notably, with the major plague epidemic of 1665 and the City's disastrous fire in 1666) and the square itself was not built up until the early 1670s. Although some of the houses were built in palatial style, many others were relatively narrow and no better than elsewhere in London. St James's was right at the heart of government and fashionable court life, however, and was highly sought after for courtiers' lodgings. From the late 17th century it became notable as a centre of political life; many coffee houses were established in St James's Street and Pall Mall, and in the 18th century the area became known for its many private clubs (including White's and Boodle's). Henry Jermyn himself lived in St James's Square and died there in 1684.

Henry Jermyn was also to begin the development of another famous London estate, Soho Fields (Fig 37).[9] Here, Henrietta Maria and Charles II had granted him several areas of pasture land south of the main road to

THE PRE-GEORGIAN ESTATE DEVELOPMENTS

Parish/Borough	*Estate*	*Started (year)*	*Finished (year)*	*Land owner when built*
Bloomsbury and Fitzrovia	Bloomsbury Square	1660s	1660s	4th Earl of Southampton
Soho and St James's	Covent Garden	1629	1637	Earl of Bedford/Crown
Soho and St James's	St James's Square	1665	1677	Earl of St Albans
Soho and St James's	Leicester Square	1670s	1670s	2nd Earl of Leicester
Soho and St James's	Soho Square	1677	1691	Richard Frith & Cadogan Thomas
Soho and St James's	Golden Square	1675	1706	Sir William Pulteney/Crown

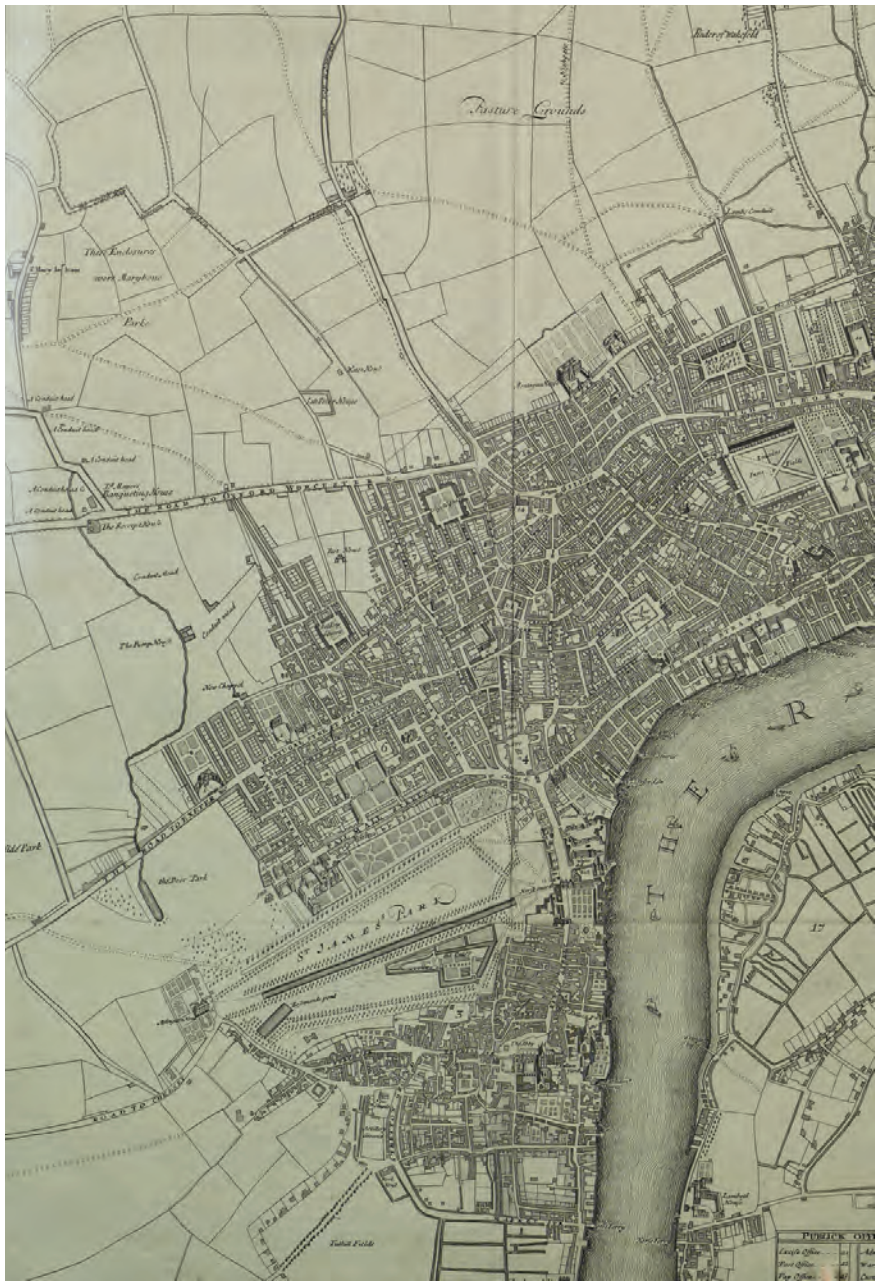


Fig 37 Extract from Morden and Lea's *'Survey of London, Westminster & Southwark'* of 1700 showing Soho Square and surrounding streets (London Metropolitan Archives)

Oxford, and in 1673 he leased much of the land to Joseph Girle, of St Marylebone who ran brewing and brickmaking businesses. In all Girle paid Henry Jermyn over £2300 for the leases, and in 1676 he obtained a licence to build as many 'houses and buildings on Soho as he saw fit' the only constraint being a requirement to provide adequate drainage for the properties. Girle died the following year, having sold out to the developer Richard Frith for the sum of £4000. Frith had extensive interests in West London developments, and had been involved in building in St James's.

One of the most prestigious contracts obtained by Frith and his partners was to build a large house on the south side of Soho Square for the Duke of Monmouth, the eldest illegitimate son of Charles II. The total expected price for the construction of the house was £7000. Frith and his partners had agreed that it would be built by the end of 1682, but in the event it seems to have been only partly finished when the Duke was there in early 1683. The Duke of Monmouth never enjoyed his property – he was executed for treason in 1685. Soho Square and most of the streets around had been laid out and built by 1691. By 1689 a chapel in Little Chapel Street 'La Patente' had been built for the influx of French Huguenot refugees, who moved to England from 1685; approximately 25,000–40,000 of them settled in Greater London. They needed a place to worship and by 1700 there were at least twelve French churches in the West End of London. By 1694 Monmouth House (which had been standing empty) was also in use as a French chapel.

Crossrail and the building of West London

Much of the building up of West London followed a recurrent pattern. Land came onto the market with the Dissolution of the Monasteries, but

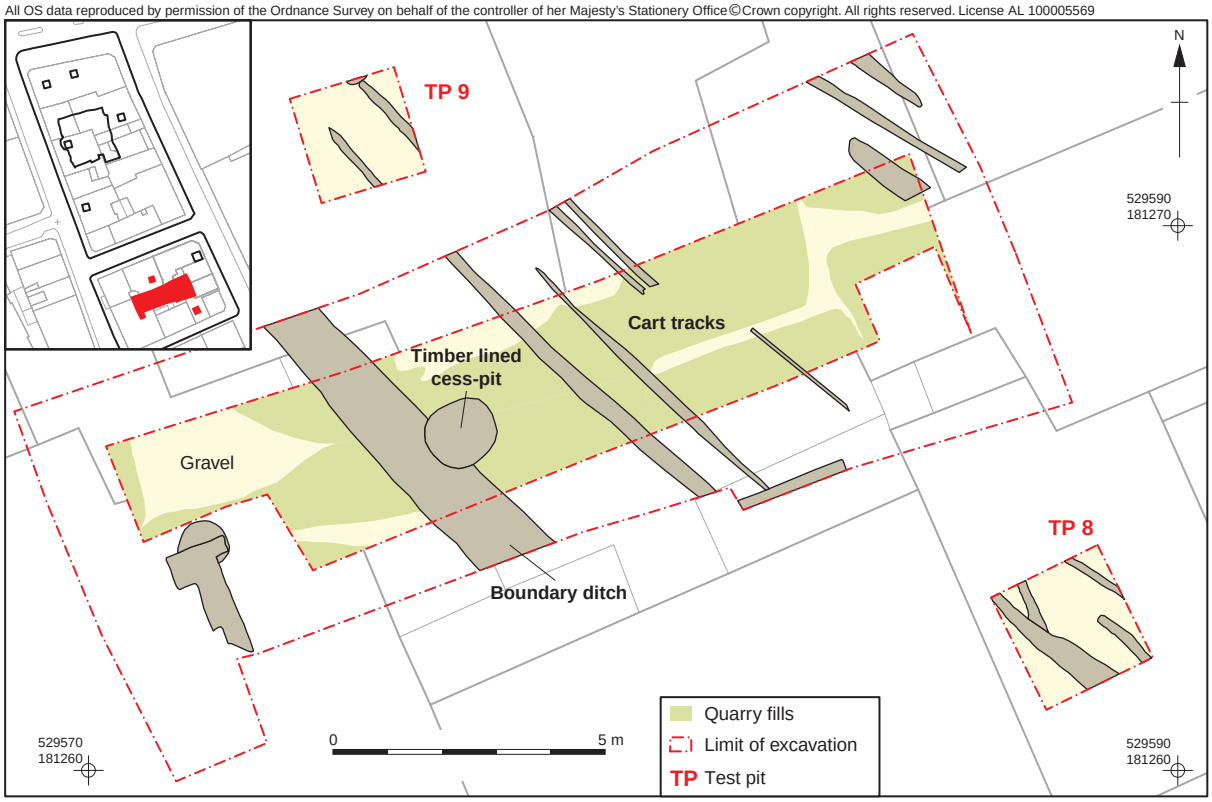


Fig 38 Plan of the Crossrail excavations at Fareham Street showing quarry pits (in green) cut by a ditch with adjacent cart tracks. The ditch is later cut by the circular timber-lined cesspit at the centre of the plan

for nearly a century much of it remained farmland and pasture. At a time when travel was increasing along the roads west of the City this became a very valuable source of fodder and grazing land for horses and was often leased out by the Crown and aristocratic landowners. As the building boom took off, land was increasingly being leased out for quarrying and brickfields. Excavations for Crossrail's new station at Tottenham Court Road located quarries of this period beneath Soho Square, Dean Street, Fareham Street and Goslett Yard.

The quarries were subsequently infilled with 'nightsoil' – redeposited from cess pits and domestic waste, including at Fareham Street an assemblage of pottery dating to 1575-1620. This comprised several near-complete drinking jugs in green-glazed Border ware plus two possible candlesticks and two condiment dishes or 'salts'. Border ware was produced at a number of potteries along the Surrey/Hampshire border during the period *c.* 1550-1700, including Farnborough, and was widely traded across southern England. A wide range of kitchen and tablewares were produced. It was valued for its fine white fabric and attractive bright green, yellow or brown glazes and was certainly more desirable than the commonplace redwares produced in the London area. Most households in London at the time would have had a few Border ware pots.

The 'nightsoil' filling the quarries would have been carted out from the City or dumped from the few houses nearby. The tops of the quarries were cut by ditches representing the original laying out of the land plots for this part of Soho and the impressions of cart tracks can be seen running parallel to these boundaries (Fig 38).

The excavations on Fareham Street revealed an *in situ* timber-lined cess-pit (see Figure 38) with discarded pottery, including tankards, jugs, a cup with Chinese style decoration and several fragments of chamber pots, which date from 1680-1710.

The jug and cup are in London tin-glazed ware ('delftware') with blue decoration and illustrate the growing fashion for both Chinese porcelain, still fairly rare and expensive at this date, and tea drinking. The jug is decorated with a popular 'Chinaman among the grasses' design while the cup, or deep tea bowl, carries a pagoda scene. A cylindrical tin-glazed drug jar with simpler geometric decoration would have been used for medicines or cosmetics. One of the two cylindrical tankards is in blue- and purple-glazed Westerwald stoneware, a common German import of the period. The other, in Staffordshire iron-streaked earthenware, is an imitation of contemporary brown English stoneware tankards. The four chamberpots recovered include two complete profiles in Surrey/Hampshire Border ware, and parts of two others in tin-glazed ware and local redware. Dishes

Fig 39 (left) Brick-making waste uncovered in Soho Square during Crossrail works

and bowls in these wares were also found. The relatively large number of drinking vessels and chamberpots present in the group is characteristic of deposits of tavern refuse known from London and elsewhere; at the very least it suggests the presence of some sort of establishment where social drinking was commonplace. Eleven pieces of clay pipe, including three pipe bowls of *c.* 1700-1740, were also found in the pit, and tobacco pipes are also a common feature of tavern waste.

Evidence of the brick making industry was found in the north-west corner of Soho Square. Here a spread of compacted brick waste probably represents the remnants of a brick clamp. In the 17th century bricks were commonly fired in one-off brick kilns (or 'clamps') themselves constructed from brick. Once fired the whole structure was then dismantled (Fig 39).

Bricks would be pressed on-site in wooden moulds then stacked to dry. Many thousands of bricks could be fired in one clamp. They would be of variable quality after firing and bricks placed closer to the fire flues became more vitrified and darker. This differential colouring allowed decorative patterns such as diaper work to be laid from the same brick stock.

Although brick clamps have been used from the medieval period to the modern day, surprisingly few have been excavated and reported on.[10] This may be due to the lack of structural elements in the kilns (Fig 40). They are identified by the brick waste material and burning deposits but leave behind little other evidence unless bricks from the last firing were left *in situ*.

Fig 40 (right) A brick clamp in present day India
(Suyash Dwivedi, CC BY-SA 4.0)

Fig 41 Plan of the Crossrail excavations between Dean Street and Great Chapel Street

Fig 42 Photo of Crossrail excavation at Bond Street showing (1) gravels and quarrying, (2) nightsoil deposits, (3) the first brick building on the site, (4) later cellar walls built below (5) the present street level.

Fig 43 Extract from a later edition of Morgan's *London &c Surveyed* of 1681-82. This edition probably dates to *c.* 1717 and shows Hanover Square and the surrounding streets and the initial laying out of Cavendish Square (*c.* 1717) (© British Library)

Documentary records suggest that many of the houses of Soho were occupied by the 1690s, but it seems that the standard of building was not very high. Much of the Soho estate was soon rebuilt, particularly from the 1720s, after it passed into the hands of the Dukes of Portland. The Crossrail excavations have uncovered rare evidence for the occupants of demolished early houses. An excavation between Dean Street and Great Chapel Street revealed the remains of one of the first houses built here (Fig 41). The remains comprised part of the building wall and foundation of a substantial fireplace (Fig 42).

By the end of the 17th century, the development of West London was well underway but still piecemeal (Fig 43). The conduited river Tyburn running along Conduit Fields effectively formed the western boundary of the built-up area, and development north of Oxford Street remained very limited between the conduit and Soho Fields.

Early property developers – biographical portraits

JOSEPH GIRLE (DIED 1677)

Joseph Girle was a successful 17th-century property developer who not only owned a brewhouse but also owned land and houses in St Marylebone and a property at Westbourne Green. He also used his lands to extract brickearth and provided bricks, often of poor quality, for builders.[11] In 1673 he arranged to lease Soho Fields from Henry Jermyn, Earl of St. Albans, for 53 years starting from July 1677 for which he paid £2333. He also arranged letters patent (planning permission) to build houses there in 1676 but then sold his leasehold to the builder Richard Frith for rent of £300 for the first year and £400 for the subsequent 52 years. He died on 1st November 1677 and Richard Frith paid £4000 to his family for Soho Fields in 1679.

Girle's will of 1675 shows that he and his wife Elizabeth had one son, Joseph, and five daughters. He divided his lands and houses between his daughters and their husbands and bequeathed his brewhouse and associated properties to Elizabeth and Joseph 'for carrying on the brewing trade'. The will indicates that the brewhouse was near the Tyburn Road (now Oxford Street):

> *…my said deare wife Elizabeth Girle for and during the terme of her widowhood …houses where I now live and my brewhouse and field behind the said brewhouse.. and other courthouses and buildings belonging to my said dwelling house and brewhouse and all…houses fronting Tiburne Road.. on the north side thereof and fronting an alley or passage leading from and out of Tiburne Road into the Brewhouse.*[12]

RICHARD FRITH

Richard Frith was a formidable builder and property developer who was responsible for some of the late 17th-century development of Soho Fields. In 1679 he and the investor William Pym bought the 53 year leasehold for Soho Fields from Joseph Girle's family for £4000. Frith directly managed some of the building work and also subcontracted other builders to construct houses from which he collected rent. He was involved in a number of legal disputes with his tradesmen and creditors and in 1683 he was £60,000 in debt to the estate of Benjamin Hinton. There are no surviving examples of Frith's houses in Soho, due to

hasty and piecemeal development and the use of poor quality bricks. Many of his buildings were redeveloped in the early 18th century, but his memory is preserved in the name Frith Street, which has survived into the 21st century.[13]

Fig 44 Duke of Monmouth (Warwick Shire Hall, Warwickshire County Council)

THE DUKE OF MONMOUTH (1649-1685) (Fig 44)

James Scott was born in Rotterdam in 1649 and was the eldest illegitimate son of Charles II. In 1663 he was brought to England and given the title Duke of Monmouth. In the early 1680s the Duke rented a large piece of land on the south side of Soho Square. He commissioned the builders Richard Frith and Cadogan Thomas to construct him a mansion. Monmouth House was built in 1683 and cost Frith and Thomas over £4000 of which the Duke only paid £1700. Monmouth House was not fully finished and left several people bankrupt because the Duke was beheaded in 1685 for plotting to overthrow King James II.[14]

NOTES

1 Ross and Clark 2008, 84
2 'Hospitals: St James, Westminster', pp. 542-546 in Page 1909
3 MOLA 2012
4 'The Haymarket', pp. 95-100 in Gater and Hiorns 1940
5 'The Bedford Estate: Covent Garden and the seven acres in Long Acre', pp. 19-21 in Sheppard 1970

6 'The Bedford Estate: From 1627 to 1641', pp. 25-34 in Sheppard 1970
7 *AN EXACT DELINEATION OF THE CITIES OF LONDON AND WESTMINSTER AND THE SUBURBS Thereof, Together Wth. Ye Burrough of SOUTHWARK*, published 1658. Surveyed by Richard Newcourt and engraved by William Faithorne.
8 'General Introduction', pp. 1-19 in Sheppard 1960
9 The following history of Soho is derived largely from Sheppard 1966
10 Eg, excavations by PCA at No. 274 New Cross Road, Lewisham (Ponsford and Jackson 1997, 316-17 and Fig 5) and by Compass Archaeology in North Road, Highgate in the Borough of Haringey (Compass Archaeology 2011).
11 'The Development of Soho Fields', pp. 27-36, in Sheppard 1966
12 Ibid.; National Archives, PROB 11/355/272, Will of Joseph Girle, Brewer of Saint Marylebone, Middlesex (date on the will October 1677)
13 'Frith and Bateman Street: Portland Estate, Frith Street', pp. 151-166 in Sheppard 1966; 'The Development of Soho Fields', pp. 27-36 in Idem 1966
14 'Soho Square Area: Portland Estate, Monmouth House', pp. 107-113 in Idem, 1966

CHAPTER 5

THE GEORGIAN AND REGENCY BUILDING BOOM

Georgian West London

The building up of West London gathered pace in the 18th century as London's population rose, from 674,500 in 1700 to 1,654,944 in 1831.[1] Although mortality rates during the early Georgian period in London were very high and birth rates were low, London's population increased driven by the constant influx of migrants both from within the British Isles and from overseas.[2] This resulted in a young workforce of men and women aged between 14 and 30 years, with relatively fewer children and old people. There were numerous Scots living in London and an Irish colony, known as 'Little Dublin', grew up in St Giles in the Fields. The Welsh in London worked mainly in the livestock industry, including cattle droving and dairying. The number of Jews living mainly in the East End of London in the 18th century is estimated to have been around 20,000. Some 5,000-10,000 black people are thought to have been living in London at this time. Some were slaves or servants, and others were seamen on ships to North America, while Asian sailors called Lascars worked on the ships of the East India Company. There was also a sizeable population of French Huguenots, who had fled to England in the late 17th century to avoid religious persecution.[3]

By 1720, when John Strype published his updated version of Stow's 1598 *Survey of London*, the housing developments of London's aristocratic and speculative builders were filling up the land between the Oxford Road and Piccadilly. Westwards of Lincoln's Inn Fields, the distinctive Seven Dials development had been constructed by 1694, with Covent Garden to the south and Soho, Leicester Square and Golden Square developments of the 1670s and 1680s, to the west.

In 1720, the built-up area stopped at New Bond Street, just past the newly constructed Hanover Square, built by the Earl of Scarborough and named in honour of the accession of the Elector of Hanover as King George I in 1714. The land beyond was labelled 'Pasture Ground'. On the north, Strype shows a sizeable area of new housing around what was to become Cavendish Square, developed by Edward Harley, 2nd Earl of Oxford. In fact the development was never built as Strype shows it (Fig 45), and his depiction appears to be based on the plan drawn up for

Harley in 1719 by his surveyor, John Prince, with a grand open square, church and market.[4] The square was laid out in 1720, but the development was then delayed by economic recession and war, and was built up in a piecemeal fashion over the course of the century. In 1741 the estate passed by marriage to the Duke of Portland.

West of New Bond Street, a large estate that had formerly been part of the manor of Ebury had passed by marriage to a Cheshire gentry family called Grosvenor in 1677, but it was not until to be 1720 that they began to

Fig 45 Extract from John Strype's *A Survey of the Cities of London and Westminster*' (© MOTCO)

develop the estate.[5] The development, which comprised a very regular rectilinear layout of streets around the large central Grosvenor Square built between 1725 and 1731, was built rapidly until the 1740s and remained incomplete for a number of years thereafter.[6] Well into the 18th century the land immediately south of the western end of Oxford Road ('Tiburn Street') was still undeveloped, and builders were reluctant to take leases here because of the continuation of public executions at Tyburn and the large crowds who attended them.

South of the Grosvenor development, and on a distinctively different alignment, is Berkeley Square. The streets of the Berkeley estate are aligned on Piccadilly, where John, Lord Berkeley of Stratton, had built Berkeley House by 1673. The house was bought by the Duke of Devonshire in 1697, but a condition of the sale was that the view to the north was to be kept open. When the estate was developed in the 1730s and 1740s over the former Hay Hill Farm, the square was created on the same axis as the gardens of the Duke's house to honour this agreement.[7]

In the second half of the 18th century Portman Square, Portland Place, Manchester Square and Fitzroy Square were all completed. In many instances developers such as Colonel Fitzroy provided markets (Whitfield Street) and a chapel as amenities for the developments.[8] In 1800 the 5th Duke of Bedford had Southampton House (renamed Bedford House) demolished and created Russell Square. This was followed from the 1820s by the creation of further residential developments on the Bedford estate, including Gordon Square, Tavistock Square, Woburn Square and Torrington Square, all referencing family names and titles.[9]

Transport infrastructure through and around West London was rapidly improving in the second half of the 18th century. Until 1750 London Bridge had been the only direct link between north and south London, but in 1750 Westminster Bridge was opened. In 1756 the first part of a toll road, the New Road, bypassing West London and the City was opened. It comprised three sections: Marylebone Road, which ran from Paddington eastwards through Marylebone; Euston Road, running north-east to Gray's Inn Road; and Pentonville Road to Islington. The construction of the road meant that coach users could expect faster journey times and drovers could move animals to Smithfield more quickly. It also prevented the smaller streets in the area from getting clogged up with traffic.[10] The first experimental mail coach service organised by John Palmer ran from Bristol to London in 1784. It was successful and very soon a network of mail coach services between London and the provincial centres was established. John Palmer was appointed Surveyor and Comptroller General of the Post Office in 1786.

The late 18th century was a peak period for canal construction, driven by the Industrial Revolution and the need to transport heavy goods in large quantities, particularly from the new industrial areas of the Midlands and the North. London was initially connected to the developing national canal network by way of the Thames and the Oxford Canal, which opened 1790. However because of the poor condition of the Upper Thames, a better alternative route was soon under development. The Grand Junction Canal was opened for most of its length by 1800 and ran from a London terminus at Brentford northwards to the canal network of Birmingham, bypassing the Thames almost completely. A branch to Paddington was completed in 1801 and terminated in a basin surrounded by wharves, a hay and straw market, sheds for warehousing and pens for livestock. It became a busy inland trans-shipment point.[11]

The importance of the Grand Junction Basin at Paddington was enhanced with the construction of the Regent's Canal, between 1804 and 1812. This extended the canal route around the north side of London to meet the Thames east of the City at what is now Limehouse Basin. The extension of the canal meant that goods from all over the country could be brought directly into numerous canal basins built around London, but much of its trade would to be lost to the railways within only a couple of decades (Chapter 6).

Edward Mogg's map of London in 1806 shows the extent of development by the start of the 19th century (Fig 46). The new developments of Somers Town and Pentonville lay alongside the New Road. Tottenham Court

Fig 46 Edward Mogg's Map of London 1806 (Museum of London Image Number 002733)

Road has been built up as far as the New Road, with Bedford Square to the east and Fitzrovia (after Fitzroy Square) to the west. The Cavendish estate, now the Portland Estate, had been completed, and the Portman Estate to the west was spreading towards the Edgware Road. The New Road, joining the villages of St Marylebone, Paddington, St Pancras and Islington, was the boundary of the built-up area and remained London's northern boundary until the end of the 18th century.

Regency and later West London

The Regency period (from 1811–1823) is physically evoked by the construction of Regent Street and Regent's Park. The imposing and distinguished buildings and terraces were designed by Cockerall, Nash and Soane and effectively divided the West End in two, with elite Mayfair to the west and artisan Soho to the east.

The unstoppable outward march of urban development in London is satirised in George Cruikshank's 1829 cartoon showing the development of Camden Town. The trees in the cartoon are saying 'Our fences I fear will be no defence against these barbarians who threaten to destroy us in all manor (sic) of ways'.[12] The cartoon shows the digging of fields for brick earth and the production of bricks in brick clamps (see previous chapter).

By 1850 the ground contained between the City and Hyde Park and St James Park was nearly fully developed and the building industry began to

Fig 47 George Cruikshank's *London Going Out of Town*. Note the brick kilns and also the predominantly blue slate roofing. A visually striking change that occurred in the late 18th century as the roofscape of West London changed colour, with red ceramic roof tiles giving way to the blue/grey of transported Welsh slate (© Bristol University)

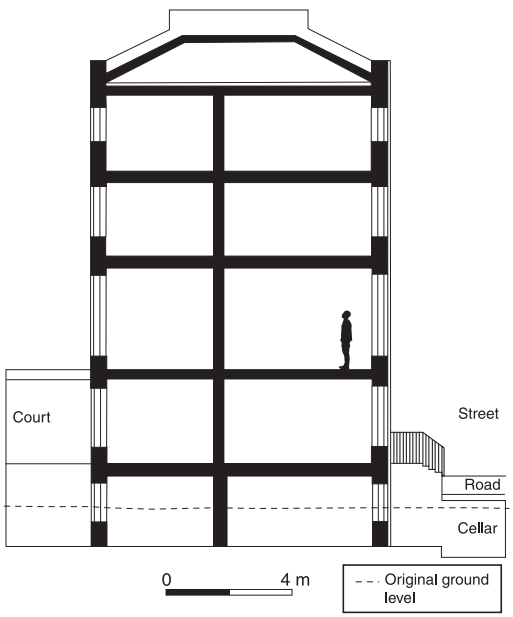
slow down. As the urban development continued westwards and northwards of Oxford Street so did the industries supporting it. The main industries were based on the construction economy and included brick pits, gravel works, brick and tile kilns, and accommodation for the builders and labourers who were creating the new roads and estates. The periphery of the built up areas also attracted a large number of trades people, such as market gardeners, keepers of dairy herds, tanners and candle makers, alongside a floating population of carters, rag-pickers, bone-boilers, night-soil collectors, washerwomen and horse-dealers.[13]

Crossrail and Georgian West London

Many Georgian houses survive in West London, and some largely intact streets can be seen, for example at Bedford Place. Often, though, commercial pressures have resulted in the widespread replacement of the original Georgian terraces by more modern buildings. During the Crossrail excavations, however, archaeologists found the surviving underground remains of the Georgian building boom everywhere excavations took place.

As is ever true, the economics of house building on restricted, valuable plots encouraged the maximisation of space on small footprints. Apart from the social elite who could afford to build and occupy detached mansions, most people lived in tall narrow terraced houses. Georgian terraced houses were built on several different levels, with the garden or court at the back being the 'natural' ground surface while the roadway at the front of the building was built up to a higher level. This meant that the basement level was below the road with steps leading down to it (Fig 48). The basements usually led to a storage vault under the roadway, into which coal could be delivered through a hatch from the road.[14] Many of these coal cellars are now disused, and have been cut off from the properties they were originally attached to, and sealed up.

Fig 48 A typical profile of a Georgian West End terraced house



A good example of this process was revealed during Crossrail works in Gilbert Street (Fig 49). A row of surviving cellars beneath the roadway had survived the demolition of their associated houses, the subsequent construction and demolition of the Hanover Branch School (opened in 1889), and the construction of a 7-storey office block (65 Davies Street) between 1948 and 1950. They have now outlasted that building and the construction of the Crossrail Bond Street Station. Cellars like these were

Fig 49 (left) Blocked off coal cellars under Gilbert Street

Fig 50 (right) Cobblestone road surface buried under later surfaces

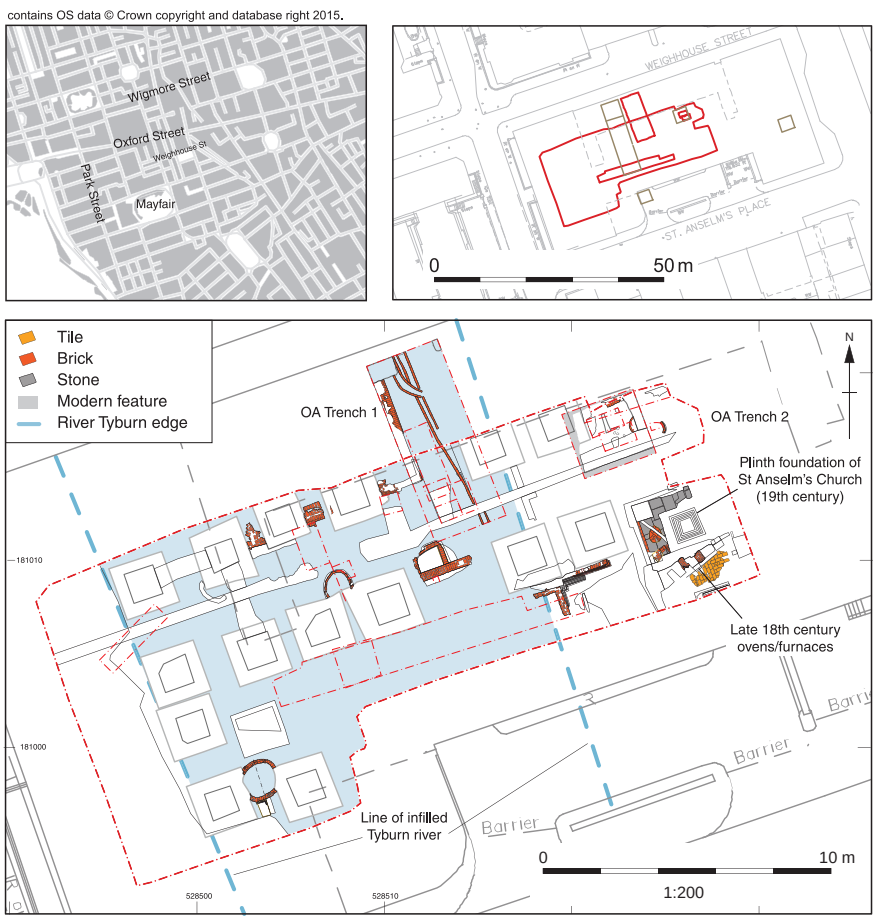


Fig 51 Location plan of the Bond Street excavation

frequently found during archaeological watching briefs around Bond Street and on the Crossrail Tottenham Court Road site in Great Chapel Street and Dean Street.

Crossrail archaeologists also frequently recorded the buried surfaces of London's old roads during monitoring of utilities excavations. These were not datable within the monitoring works as they were usually only seen in the sides of service trenches which were being relocated, but as a general rule in London cobblestone roads (Fig 50) gave way in the 19th century to granite setts, which, although still used, became rarer with the advent of tarmacadam and later asphalt concrete in the 20th century (see Chapter 6 for a note on wooden sett roadways).

THE RIVER TYBURN

In 1737 a new Bridge was built to replace the medieval bridge over the Tyburn. Conduits had drawn water from the river to supply London since the 13th century (see Chapter 3). Strype's 1720 map still shows the course of the Tyburn running through open land, but Rocque's map in 1746 shows that south of Oxford Street the river line had been lost beneath developments that extend nearly as far west as the Tyburn Gallows (Marble Arch) and Hyde Park. The River Tyburn was investigated and the infilled river was revealed during excavations for the new Crossrail Ticket Hall at Bond Street (Fig 51).

The excavations for Crossrail extended to a depth of 1.5 m into the river fills. Auger samples were taken of deeper sequences and these revealed the clean clays, sands and silts that had formed in the base of the river channel, possibly as the flow slowed due to the extraction of water to supply London. At the top of the sequence was a black organic soil containing artefacts and animal bones, which show that domestic rubbish was being tipped into the river channel in the early 18th century.

A horizontal wooden pipe was found in situ (in a utility trench south of the main excavation) running in a north-south alignment within the line of the river channel. There was also a vertical component consisting of a cylinder of wood with a hole cut through it and an iron handle, which sat inside a wooden pump bucket (Fig 52).[15] These elements are thought to have functioned like a stop cock so that the water flow could be turned on or off at this location.

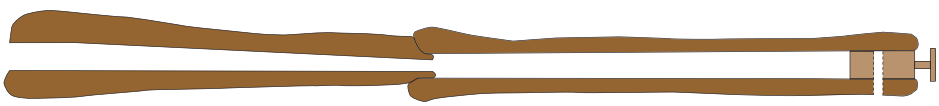


Fig 52 Wooden pipe and stop tap components and reconstruction drawing

WATER AND SANITATION

When the estates of West London were built they had a water supply connected as part of the building programme. In the 18th century water was supplied by the New River Company or Chelsea Waterworks Company. The New River company was incorporated by Royal Charter in 1619, and brought fresh water from Hertfordshire by aqueduct (built 1609-1613) to the New River Head at Clerkenwell. The Chelsea Waterworks Company was established in 1723. The water pressure would not have been enough to push the water above ground level, so it was used to fill cisterns situated at the front of the houses. From here a hand pump was required to raise water into another cistern in the roof space of each house from where it could be distributed throughout the house by gravity. Water supply was intermittent in the Georgian period and was controlled by 'turncocks', who worked for the water companies. The turncocks physically opened and closed sections of the system to manage the supply and make water available to different areas for fixed hours in return for a quarterly rate.[16]

The Georgian builders also constructed channels to take waste water and sewage away from the estates. Toilets called 'bog-houses' were built in the gardens or at the back of the house. These had a brick-lined pit that linked down to the main drain for the house. The main brick drain under each house carried away sewage to the public sewer under the road or to a cesspool in the garden. Rainwater was also channelled away from the roofs in lead pipes that connected to the drains.

The pits acted as traps for discarded household goods. In one pit excavated at Tottenham Court Road, archaeologists retrieved 377 sherds of pottery including industrialised tablewares from the Staffordshire and Midlands potteries, Creamware and Pearlware with distinctive blue transfer-printed decoration and several fragments of chamberpots. Creamware was developed by Josiah Wedgwood and others in Staffordshire around 1760 and was also made at several other centres across the Midlands and the North, Leeds being one of the major production centres. These refined tablewares were reaching London and further afield soon after this date. In his quest to imitate the pure white quality of Chinese porcelain, Wedgwood also perfected a lighter whiter-looking fabric called Pearlware around 1770 (Fig 53). Pearlware remained popular until around 1840 when an even whiter-bodied fabric was perfected by the Staffordshire potteries. At first Pearlware was hand-painted with mostly blue designs loosely copying imported Chinese porcelain, but from around 1780 onwards it was increasingly decorated with transfer-printed designs which could faithfully (and cheaply) reproduce even the most detailed Chinese originals. By *c.* 1820 blue transfer-printed whiteware pottery was commonplace and

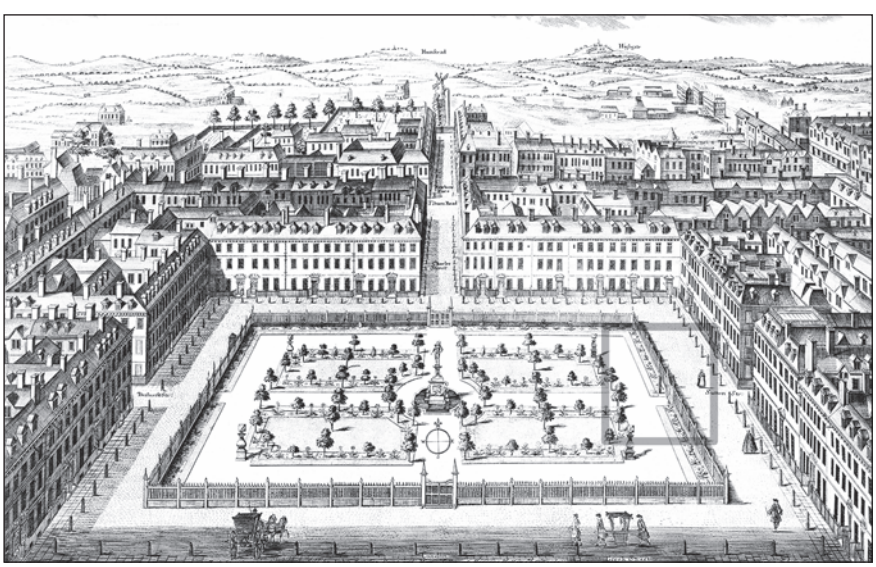
Fig 53 Pearlware from Crossrail archaeological works at Tottenham Court Road

'Willow pattern' was the most popular design found on tablewares throughout the land. The distribution of Staffordshire wares across Britain was aided by the growing network of canals and improved roadways.

Besides tablewares, chamberpots came into general use from the mid 17th century and reflect a growing concern for domestic hygiene and personal comfort. They were made in a variety of glazed local earthenwares. In London they were mostly in common red earthenwares but whiteware chamberpots from the Surrey/Hampshire Border ware potteries were also common, as were chamberpots in tin-glazed ware and imported German stoneware. Wealthier households could afford metal or Chinese porcelain examples. By *c.* 1825 almost every household in London would have had a chamberpot or two in Staffordshire-type whiteware. They are common finds in latrines and cess pits in almost every town and city.

In 1775 a water closet was developed that used a trap to flush water from the bottom of the toilet into the main drain.[17] This type of water supply and waste water infrastructure was only found in the more affluent houses in the Georgian period, but it is worth remarking that Joseph Bramah was manufacturing his patented flushing toilets in his workshop in Denmark Street, St Giles, from 1778.

In addition to the supply of water brought in by water companies, communal pumps were provided and wells were dug in the squares of West London, and reached significant depths, as they needed to puncture the deep layer of London Clay to access water. A well shown on a 1727 illustration of Soho Square was encountered by a Crossrail tunnel boring machine at 30m below ground level (Figs 55-57). The well was a surprise discovery but was rapidly sealed before works continued.



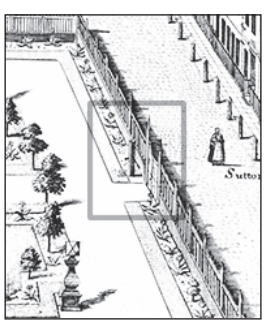


Fig 54 (a) 1727 illustration of Soho Square, (b) detail of well location
(Museum of London Image Number 003207)

Fig 55 The Soho Square well as revealed in the Crossrail tunnel

Fig 56 Water from the well in the Crossrail tunnel

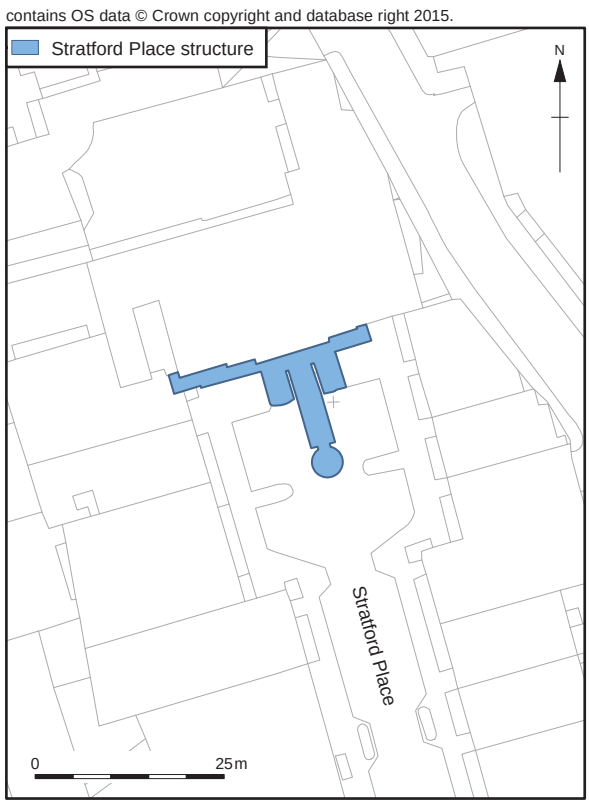


Fig 57 Plan of the 'Beehive' and associated tunnel

THE 'BEEHIVE'

An enigmatic underground structure was recorded by MOLA archaeologists at the north end of Stratford Place as part of the London Underground/Transport for London works providing links into the new Crossrail Bond Street Station.[18] The building comprised a Beehive shaped brick vault joined to Stratford House via a vaulted passage (Fig 57).

The 'beehive' is circular, nearly 4 m in diameter, with a *c.* 1.4 m vertical wall from which the vault of the structure springs giving a maximum internal height of *c.* 2.5 m (Fig 58). The structure overlies a brick built sewer (dated to 1772) but did not appear to be linked to it. Some characteristics of the structure and access tunnel suggest that the tunnel may have been added later, and it is possible the beehive was built before the development of Stratford Place. Stratford House is a Grade I listed building erected in 1771–73.

The archaeologists recording the beehive were hesitant to suggest its origins but similarities with ice houses (which were popular in wealthy houses

and estates the 18th century) were noted. The structure was supported to prevent any movement during construction works.

Fig 58 The interior of the 'Beehive' (MOLA 2014 Fig 6)

RISING STREET LEVELS

Excavations at both Tottenham Court Road (in Dean Street, Great Chapel Street and Fareham Street) and Bond Street (Davies Street to Gilbert Street (see Figure 51 above) recorded the very marked build up of the street level during the Georgian and Regency period. Previously streets had been laid on the natural geology – in this instance periglacial brickearths and gravels - which was revealed by topsoil clearance for quarrying/construction. By the end of the Georgian building boom the street levels had risen by up to 3 metres due to the construction of cellars and consequent the raising of road level. In part this was achieved by using excavated material for landscaping rather than carting it away. Later, larger buildings such St Anselm's School, St Anselm's Church and No. 65 Davies Street at the Bond Street completely removed the original back plots, with the construction of their below ground basements.

Fig 59 Crossrail Bond Street excavations showing (1) the infilled River Tyburn, (2) ovens from stables (see Chapter 7), (3) the foundation plinth of St Anselm's Church and (4) the present street level.

Biographical portraits: people of Georgian West London

IGNATIUS SANCHO (1729-1780) (Fig 60)

Ignatius Sancho was born in 1729 to African parents; however, sources differ as to whether or not he was born into slavery. A brief biography was written by Joseph Jekyll but there are problems and inconsistencies in Jekyll's account.[19] According to Jekyll he was born on a slave ship, and was baptised by the Bishop of Carthagena. Both his parents died, and when he was two years old his master brought him to England, where he worked for three maiden sisters in Greenwich. It was here that he taught himself to read. He met the Duke and Duchess of Montagu, who took a liking to him and encouraged his education. In 1749, at the age of 20, he worked as butler for Mary Montagu and later as a valet to George Montagu. Whilst in service to the Montagu family he became a music composer and his work was published anonymously.

Ignatius married Ann Osborne in 1758 and together they had six children. He retired from service in 1774 and opened a grocer's shop with his wife at No.19 Charles Street (now King Charles Street), Westminster. He is thought to have been Britain's first black African voter in 1774 and through his writing and inspirational personality helped to advance the cause of the abolition of slavery. His legacy was further enhanced by his letters, which were published in 1782, and his original manuscripts can be seen in the British Library.

Fig 60 Ignatius Sancho by Thomas Gainsborough (© National Gallery of Canada)

THERESA CORNELYS (1723-1797) (Fig 61)

Theresa Cornelys was born in Vienna in 1723 and became an actress, opera singer and courtesan who in her early life toured Europe under the name Madame de Trenty.[20] In 1759 at the age of 36 she settled in London and called herself Mrs Cornelys, although she was not married. At first, her acting career in London was not a success, however her fortunes changed when she met the wealthy benefactor Elizabeth Chudleigh. In 1760 Elizabeth gave Theresa the money to take over Carlisle House in Soho Square to run a series of entertainments such as dancing, concerts and masquerade balls. Her business became so popular she commissioned several extensions and improvements to Carlisle

Fig 61 Theresa Cornelys (Mary Evans Picture Library)

House between 1761 and 1772, including a Chinese Room complete with a Thomas Chippendale bridge, costing £5000. From 1772 until the end of her life Theresa's series of failed business ventures got her in trouble with her creditors and the law. She spent her last few years in the Fleet prison and died in 1797 aged 74.

NOTES

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17 Summerson 1945, 66
18 MOLA 2014
19 Carey 2003; Joseph Jekyll's *Life of Ignatius Sancho* URL: http://www.brycchancarey.com/sancho/life.htm [accessed: 17 July 2014]; Ignatius Sancho: Writer Musician and Businessman URL: http://www.100greatblackbritons.com/bios/ignatious_sancho.html accessed 17 July 2014
20 'Soho Square Area: Portland Estate, Carlisle House, Soho Square', pp. 73-79 in Sheppard 1966

CHAPTER 6

THE GATEWAY TO THE WEST: CROSSRAIL AT PADDINGTON

Paddington Station was first opened in 1854 as the London terminus of Brunel's Great Western Railway. Within ten years, it had been connected to the world's first underground railway, the Metropolitan Line, to relieve congestion on the streets of the West End. More than 150 years later it is one of London's busiest transport hubs, with connections to four underground lines, the Bakerloo, the Circle, the District, and the Hammersmith and City, and serves rail passengers from Wales, the West Country and the Thames Valley, as well as Heathrow Airport. Over 34 million journeys pass through Paddington each year.[1]

Crossrail will increase rail capacity in London by around 10% and is expected to carry some 200 million passengers a year. Significant work is

Fig 62 Crossrail construction at Paddington Station

Fig 63 Work underway on the new Crossrail station in Eastbourne Terrace

being undertaken to upgrade existing stations and build new ones to cope with the increase in passenger numbers (Fig 62).[2] At Paddington, Crossrail is building a totally new platform with improved underground access. It is being constructed as an underground box measuring 260m long, 25m wide and 23m deep, and is located directly under the existing Departures Road and Eastbourne Terrace (Fig 63). Construction started in October 2011 and is due to be completed during 2017.

The entirety of Paddington Station is protected by its Grade I Listed Building status. All alterations to its fabric and fittings and all excavations in and around the station for the construction of the new Crossrail station are monitored and recorded by archaeologists under the terms of a Heritage Agreement with Westminster Council. This chapter tells the story of Crossrail's investigations and places them in their historical context.[3]

The development of Paddington

At the start of the 19th century Paddington was a village on the outskirts of London, but one that was fast becoming a transport hub. It was at the west end of the New Road, constructed in 1757 as London's first northern 'bypass'. Paddington and the countryside along the Oxford Road to the

west of London was still attractively rural, but well placed for access to the city, and by the late 18th century there were regular stagecoach services between Paddington and the City.

The opening of the Grand Junction Canal and the completion of the canal basin at Paddington in 1801 (see Chapter 5) had begun to change the character of the area. The construction of the canal had attracted a new population of labourers, and the Paddington basin with its wharves led to a further influx. By 1811 there were 4609 inhabitants, of whom nearly 1000 had arrived in the previous 12 months. The canal also began the break-up of the medieval topography of the parish, isolating Paddington Green from the fields to the north.

A survey drawn by Greenwood in 1827 (Fig 64) shows the Grand Junction and Regent's Canals and also illustrates how Paddington was, by this time, at the western edge of London. The development of the Regent's Canal between 1811 to 1820 had extended the canal route from the basin at

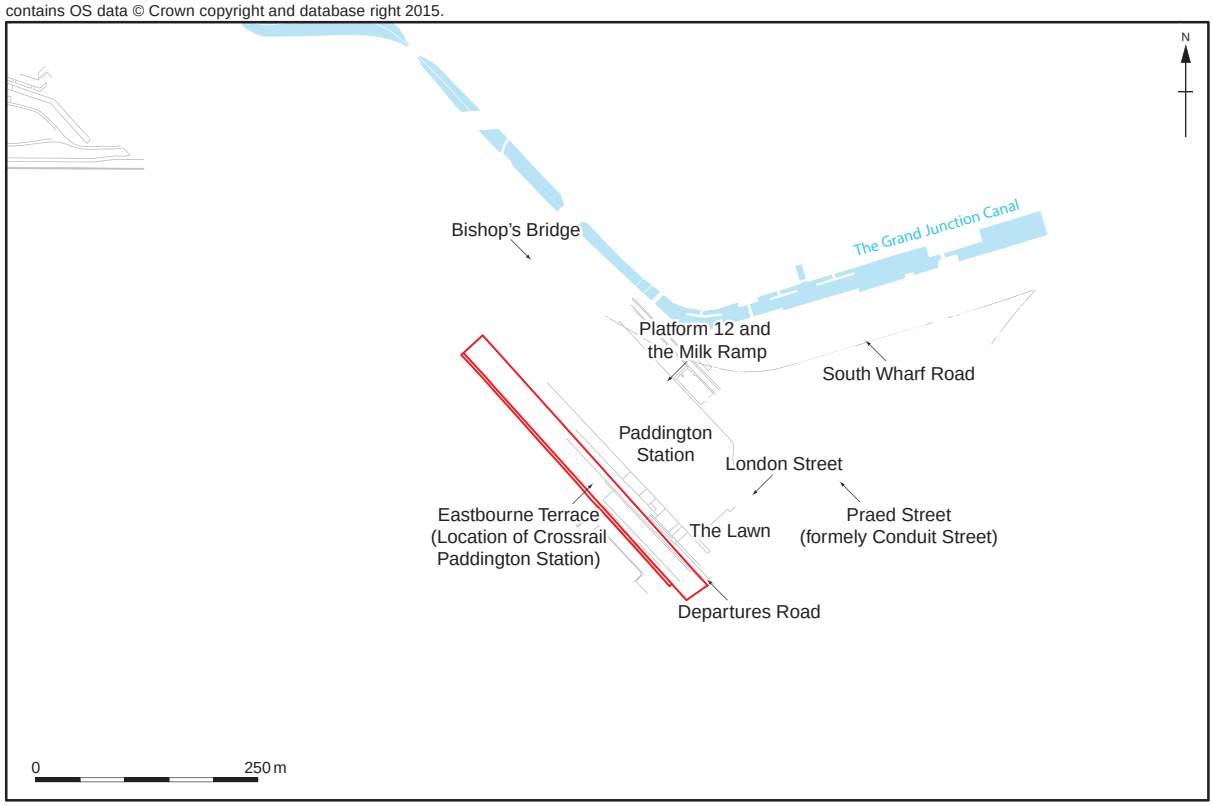
Fig 64 The future location of Paddington Station on Greenwood's 1827 map of London (Mark Annand/Bath Spa University)

Paddington, and skirting Regent's Park to the north, it ran for 9 miles to Limehouse Basin and the Thames in the East End. With extensions to the River Lea goods from all over the country could be brought directly into numerous canal basins built around London. However much of this trade was about to be lost to the railways.

The construction of railways developed from the 1830s onwards, as many private companies were founded to build lines to carry freight between London and England's major ports and industrial areas. Railways were at first restricted to the outskirts of London because of the difficulties of construction in the built-up areas. The first railway in London opened in 1836 running on arches between Bermondsey and Deptford, and was soon extended to London Bridge and Greenwich.

The railways were to have a lasting and substantial impact on West London, with the development of a series of mainline terminus stations on the north edge of the built-up area along the line of the New Road. The first was the London and Birmingham Railway's Euston Station, opened in 1837, closely followed by the Great Western Railway's Paddington Station, which opened temporarily at Bishop's Bridge Road in 1838, and then at Praed Street in 1854. Kings Cross opened in 1851–2

Fig 65 Paddington Station and locations named in the text



for the Great Northern Railway at the junction of Euston Road and York Way, and was followed by the adjacent St Pancras in 1868 as the terminus for the Midland Railway.

Paddington: GWR Terminus

The location of Paddington Station as the terminus of the Great Western Railway was chosen by Isambard Kingdom Brunel. His aspiration for the railway was as a trade and passenger service to Bristol and onward to America – a 'Gateway to the West' and the choice of Paddington seems obvious due to its location and the accessibility to the Grand Junction Canal (Fig 65). However the site was confirmed only after much negotiation and deliberation had taken place. One alternative, explored (and abandoned) was for the GWR to share a terminus with the London & Birmingham Railway Company just north of Euston.[4]

The construction of the new station started in 1837 with the excavation of the station cutting and embankments and building of the retaining walls, bridges, drains and roadways. Although the finance was not immediately available to build the intended grand terminus, by 1845 a temporary terminus located within the arches of Bishop's Bridge had been completed. Goods depots and yards were connected by ramps to London Street and Conduit Street to the south-east. To the west of the bridge were the simple timber Departures and Arrivals platforms, turntables, carriage sheds, an

Fig 66 Modern and original elements of the train shed at the Praed Street end of Paddington station (Photograph: © Peter Cook)

engine shed and workshops. The temporary station was demolished in 1853, and in 1854 the new GWR Paddington Terminus was opened.

The station was designed by Brunel with architect Matthew Digby Wyatt (see insert for a brief biography). The terminus featured a vast train shed 700ft (213m) long covered by three parallel elliptical spans. The design and construction of wrought iron and glass structure were inspired by Joseph Paxton's Crystal Palace, and it was manufactured and built by Fox Henderson and Co, the builders of the Crystal Palace. Over the years much of original wrought iron structure has been replaced with cast iron and subsequently steel (Fig 66). The train shed was a grand and impressive piece of architecture and featured elaborate Moorish styling and colour schemes by Owen Jones (Fig 67).

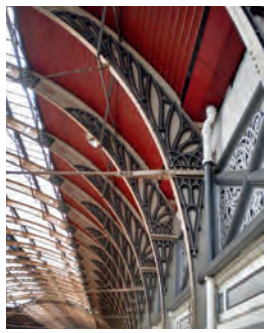
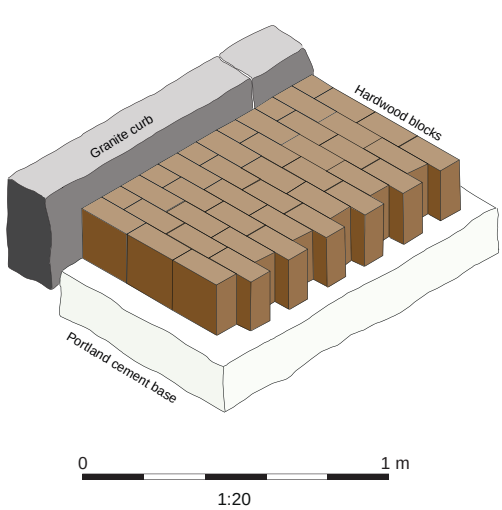


Fig 67 Decorative ironwork of the Paddington train shed (Photograph: © Robin Sones)

At the southeast end of the station on Conduit Street (now Praed Street) was the Great Western Royal Hotel, with a concourse known as 'The Lawn'. To the northwest beyond the Bishop's Road Bridge was the goods yard. The station originally had the departures entrance and platform on the south-west accessed by ramps from Conduit Street and Bishop's Bridge Road. The arrivals side was on the north-east side and was accessed by a ramp from London Street. The offices for the Great Western Railway Company were located on the departures side in a two-storey building (now part of MacMillan House).

Crossrail's new Paddington underground station is located beneath Eastbourne Terrace and accessed via Paddington Station's traditional departure frontage. This original frontage, perhaps slightly worn looking in recent years, was designed to be impressive, although the exterior of the building was less ambitious than the interior. Some of the grandeur of the early frontage is apparent in the details recorded by archaeologists during the Crossrail works.

Fig 68 Diagram showing the construction of a wooden sett roadway (after Boulnois 1895, 61)



A wooden sett roadway was revealed when Departures Road was excavated.[5] The roadway probably dates from the 1870s rather than being an original feature of the station. It was constructed from deal soaked in creosote and laid on a Portland cement base (Fig 68). The use of wood as a road surface may seem odd to modern eyes accustomed to smooth, relatively inexpensive tarmac or asphalt, but the use of wood as an alternative to more expensive materials such as cobbles or granite setts was seriously considered in the mid 19th century. The first use of wood blocks for paving was in Oxford Street in 1838. In the 1870s the Improved Wood Pavement Company boasted in their advertisements of having laid some 400 miles of paving in the City.

The use of wood seemed a worthwhile experiment, even if it was short-lived and quickly overtaken by tarmacadam and asphalt. The wooden roadway would have eased the ride of passengers and reduced the noise of carriages and horses, providing a smarter entrance to the station for the well-off travellers the company hoped to attract.[6] On the negative side, the life-span of such surfaces in heavy use was only 6–20 years, if turned, and the worn surfaces were shaved, and there were complaints that the wood absorbed horse urine and so wooden surfaces were frequently pungent and malodorous. The almost pristine state of the wood setts when uncovered at Paddington suggests either that the pavement had been well built for durability, or that it had seen only a short period of use.

The Departures Road entrance was covered by the distinctive large glazed canopy constructed originally of ridge and furrow glazing with external trusses between supporting trough guttering.[7] The canopy rested on piers integrated with the Eastbourne Terrace wall, which was surmounted by ornate iron railings (Fig 69). Gutters channelled water into the canopy supports, which were hollow and acted as downpipes. The south-east end of the canopy featured a gable with a clock and the GWR arms. The canopy was damaged by bombing in the Second World War and now comprises for the most part post-war elements, with only 23 trusses surviving from the original structure (Fig 70).

Fig 69 Surviving original railings on the Eastbourne Terrace retaining wall (Scott Wilson)

Fig 70 The Departures Road canopy at Paddington (© Science & Society Picture Library: National Railway Museum Image No. 10326097)

WESTBOURNE PARK DEPOT

With the opening of the new station at Paddington, Brunel and the GWR's first Superintendent Daniel Gooch moved the whole locomotive department to Westbourne Park.[8] Engines were now housed in a 663ft-long rectangular, brick-built shed constructed to accommodate Brunel's broad-gauge engines. The engine shed housed four tracks spanned with a simple roof of tied wrought iron trusses. The shed was later converted to Stephenson's standard gauge. Lengths of early broad-gauge rails of wrought iron were found at Westbourne Park during Crossrail construction works in 2010, and were identified as the Bridge type designed by Brunel specifically for use on the London-Bristol line (Fig 71). These broad-gauge rails were laid on continuous timber bearers rather than being laid on cross-sleepers as is usual today. Another forms of broad gauge rail used by the GWR was known as Barlow rail of inverted V-shape with broad angled flanges and a concave underside and apparently was intended to be laid directly on the ballast bed without the need of timber bearers.[9]

Fig 71 Broad Gauge rails found during Crossrail archaeological works at Westbourne Park (© PA Images)

Brunel effectively lost the gauge wars after the Gauge Act of 1846 was passed and in 1861 a new shed was built at Westbourne Park to accommodate standard-gauge engines. The shed was erected to the west of the workshops and originally housed three tracks. In 1873 a further three tracks were added. This building became known as the narrow-gauge shed, with the earlier shed becoming the broad-gauge shed. Another, smaller workshop was located at the western boundary of the site below the Green Lane Bridge. To the south of the GWR mainline lay the Crimea Goods Yard, which housed additional workshops and a coal stage.

The World's First Underground

The Metropolitan Line, the world's first underground railway, opened in 1863, running from Bishop's Bridge Road just north of Paddington Station to Farringdon Street (now Farringdon). It was so successful that there were soon applications for extensions, and a southern extension to the fashionable districts of Bayswater and Kensington was opened in 1868, with a station at Paddington Praed Street. This was constructed using a cut and cover method resulting in the removal of considerable areas of deposits. Further sub-surface construction work included the building of basements and connections to underground tube platforms. By 1871 Paddington Station was linked to the District Line and by 1884 to the Circle Line.

After the completion of the Circle line in 1884, trains were at first run alternately by its two owners, the Metropolitan and the Metropolitan District or District railway companies. Later District trains ran on the

anti-clockwise inner rail and Metropolitan trains ran clockwise on the outer rail. Electric trains were introduced in 1905 by the Metropolitan, which soon afterwards took over the sole working of the 'Inner Circle'. A subway between Praed Street and the terminus was built only in 1887.

By the mid 19th century the Great Western Railway was one of the foremost arteries supplying London, and the opening of the underground Metropolitan Line effectively provided an extension from Paddington Station into London's business district and to a Smithfield Market where the GWR had its own sidings.

Expansion of Paddington terminus 1908-1915

Paddington has been altered and extended on a number of occasions since 1854. The departures side offices were extended and heightened between 1878 and 1880. Between 1908 and 1915, driven by the need to provide additional track capacity, the station was extended north-eastwards on the Arrivals side with new track beds and fourth span for the train shed. The two new trackbeds housing four lines (numbers 9-12) were constructed beneath London Street. London Street itself was diverted onto a new steel-framed deck (The London Street Deck) built in 1909-12 over platforms 11 and 12. A new fourth span of the train shed was constructed in 1913-15.

The new Platform 12 was set aside for receiving milk and parcels and had a sunken roadway to allow the easy unloading of milk churns from the train, across the platform and onto horse drawn wagons without lifting.[10] Access to and from Platform 12 for milk wagons was provided by a steel framed ramp – known as the milk ramp – which was surfaced with stone setts and channel irons to guide wagons (Fig 72). The milk ramp originally emerged along the north side of London Street at the junction with South Wharf Road. With the increased use of tanks rather churns for transporting milk by the 1930s the milk platform was becoming redundant and finally with the opening of the massive Wood Lane Milk depot in January 1935 it was no longer required and the lines were freed up for use by new suburban passenger services. Although truncated and sealed off, the milk ramp was largely preserved and was recorded before its removal during Crossrail works.[11]

Fig 72 The surface of Milk Ramp at Paddington

Paddington Station has been as successful as Brunel and Wyatt could have hoped for. More than a century and a half after it was first opened, it still operates day in and day out as originally intended. The new Crossrail station at Paddington is the most ambitious construction here since the creation of the Metropolitan Line. It is being carried out with far less disruption, and no doubt its designers and builders will hope it matches the original station's quality and longevity.

Biographical Portrait

MATTHEW DIGBY WYATT (1820-1877) (Fig 73)

Matthew Digby Wyatt was born in 1820 and came from a large family of architects and builders.[12] At the age of 16 he started work at the architectural firm of his brother Thomas Henry Wyatt. In 1844 he went on a two year tour of Europe with the writer Henry Cole and when he returned he became not only an architect but also a writer on art history. In the late 1840s Matthew's friend Henry Cole developed an idea for an industrial exhibition in London, which gained the support of Prince Albert. A plan was formed and the Royal Commission for the Exhibition of 1851 was set up, with Matthew Digby Wyatt as secretary. He was Superintendent during the installation phase of the building and he exhibited his architectural drawings during the event.

Fig 73 Matthew Digby Watt (© The Royal Institute of British Architects)

The Great Exhibition of May to October 1851 in Hyde Park was successful not only in showcasing industry, commerce and art from many nations around the world, but also in housing the exhibition in a revolutionary building made of cast iron with glass panels. The building, designed by Joseph Paxton, became known as 'The Crystal Palace'.

In 1851 the industrialist Isambard Kingdom Brunel was looking for a new design for his railway terminus at Paddington. He was involved in the design phase of Crystal Palace and was impressed with Wyatt's work. He wrote Wyatt a letter about his ideas for the new station:

> *'Now, such a thing will be entirely metal as to all the general forms, arrangement and design; it is a branch of architecture of which I am fond, and, of course believe myself fully competent for; but for the detail of ornamentation I neither have time or knowledge'.*[13]

Wyatt went on to design the ornamental ironwork at Paddington Station, his designs clearly influenced by his work on the Crystal Palace.

Matthew Digby Wyatt had a productive life as an architect and was knighted for his work as surveyor for the East India Company. He was Honorary Secretary of the Royal Institute of British Architects from 1855 until 1859 and was awarded their gold medal in 1866. In 1869 he became first holder of the Slade Professorship of Fine Arts at Cambridge University and was awarded an honorary MA.

In 1853, at the age of 33, he married Mary Nicholl (d. 1894) and together they leased Dimlands Castle in the Vale of Glamorgan. Wyatt died in 1877 at Dimlands after a few years of peace from his busy life.[14]

NOTES

1 http://www.rail.co.uk/rail-news/2013/britain-s-most-popular-stations/; the evidence for the railway heritage of the Crossrail Route, including the development of GWR terminus at Paddington has been considered in more detail in Shelley *et al.* 2106.

2 http://www.railway-technology.com/features/featurecrossrail-paddington-station-london/

3 For a detailed account of the history of Paddington Station see Brindle 2013. The full reports on the Crossrail archaeological and building recording will be available to the public via the Archaeological Data Service.

4 Brindle 2013, 12-16

5 Oxford Archaeology/Ramboll 2015a, *C254 Archaeology West Archaeological Works at Paddington_ XSD10 Eastbourne Terrace Wooden Sett Roadway Characterisation* (C254-OXF-T1-RGN-CRG03-50109 rev3)

6 Information on wooden paving from Clow 2008. See also Turvey 1996

7 Oxford Archaeology/Ramboll 2015b, *Building Recording, Departures Road, Paddington Station* (C254-OXF-T1-RGN-CRG03-50214)

8 The development of the Westbourne Park deport is considered in more detail in Shelley et al. 2016

9 Dow 2014, 125-26, figs 7.3-7.4
10 Matthews 1917, 175
11 Oxford Archaeology/Ramboll, 2015c, *Building Recording: Paddington Station Milk Ramp* (C254-OXF-T1-RGN-CRG03-50215 Rev 2)
12 Banerjee, Jacqueline, 2013, The Wyatt Dynasty, Victorianweb, http://www.victorianweb.org/art/architecture/misc/wyattdyn.html; *Dictionary of Art Historians*, 2014, Wyatt, Matthew Digby (Sir, after 1855), URL: http://www.dictionaryofarthistorians.org/wyattm.html Date accessed 14 Aug 2014.
13 Gillings 2006, 124 (quote of letter from Brunel to Wyatt in 1851).
14 Waterhouse 2004

CHAPTER 7

THE INDUSTRY AND ECONOMY OF WEST LONDON

Food processing

As they speed through Southall Crossrail passengers will catch a glimpse of Noon Product's extensive factory. The UK's market leader in Indian prepared meals was established in 1987 by Gulam Noon, the 'Curry King of Britain'.[1] The business is one in a long line of industrial food manufacturers to have established themselves in west London, many of them along the corridors carved out in the 1830s by the London & Birmingham and Great Western railways. Others include Nestlé, who operate a vast chocolate and coffee factory at Hayes (Fig 74), Horlicks in Slough and United Biscuits in Park Royal, London's largest industrial estate.[2] Despite Guinness and Heinz having left the area in recent years, food manufacturing remains a major employer: Park Royal is said to produce one third of all the food consumed in London.[3]

Fig 74 Nestlé's factory at Hayes (©Ray Stanton)

It is not surprising that London has a huge food manufacturing base. There are over eight million inhabitants, and nearly a million more flood in each day to work.[4] Geographically, the bulk of capital's national hinterland lies to the north and west, and its excellent transport links made north-west London the obvious location for the production of consumables for the 'home' market (London) and 'export' (the rest of the UK) markets.

Noon was also following tradition in another way. In seeing a market for pre-prepared Indian food he had successfully bet on the willingness of the British to embrace new food products. In this, as in his decision to locate his factory on the outskirts of the city, his business was a late 20th century equivalent of Crosse & Blackwell. This celebrated manufacturer of sauces, chutneys and jams was founded in 1830 when the Soho company of West and Wyatt (whale oilmen with sidelines in curry powder, relish and chutney) was bought by two of its former apprentices, Edmund Crosse and Thomas Blackwell. The pair moved into the manufacture of table sauces, pickles and jams, and quickly found themselves in the vanguard of the industrialisation of food production. They were fortunate to have available the expertise of exiles like Signor Qualliotti, a former chef to

Fig 75 Crosse & Blackwell popularised piccalilli which was initially made in their premises at 21 Soho Square (left)
(BM Crace Collection © Trustees of the British Museum)

Napoleon who brought with him recipes for piccalilli (Fig 75), potted meat and table sauces.[5]

In 1838 Crosse & Blackwell acquired the former home of Lady Cornelys (see Chapter 5) at 21 Soho Square and converted it into the company's offices and bottling rooms.[6] Gradually, further properties were acquired until by 1865 the company controlled 38,000 square feet of factory and warehouse space in Soho Square and adjacent streets.[7] The volume of production was astonishing; nine million Crosse & Blackwell labels were used in 1864 alone.[8] The Soho warehouses at any one time held 20,000 gallons of ketchup, 6,400 gallons of olive oil and 2,300 gallons of soy sauce.[9] These were prodigious numbers made all the more remarkable because the factory did not possess a railhead, nor access to any nearby railway.

Fig 76 Crosse & Blackwell's 1893 warehouse on Charing Cross Road. The building later became the *Astoria* cinema after extensive remodelling by E A Stone
(J Sainsbury's Archive/ Public Domain)

The lack of a railway connection does not appear to have hampered progress, at least initially. In 1877 the company commissioned Robert Roumieu to design a new warehouse for them in the angle between Sutton Street and Crown Street (as Charing Cross Road was then known). Although this was joined in 1893 by a second warehouse, designed by Roumieu's son, on the block of land to the north of Sutton Street (Fig 76), the end of the company's manufacturing presence in the West End was now drawing near. In 1920 the company began to move their production

Fig 77 Crosse & Blackwell developed a number of other buildings on Charing Cross Road. The building in the foreground dates from 1905 and behind is Robert Roumieu's 1877 warehouse

facilities out of central London, retaining only a rebuilt No 20 Soho Square to serve as their headquarters. The 1877 warehouse re-opened in 1926 as showrooms and offices whilst its northern counterpart was comprehensively redesigned by E A Stone and re-opened in 1927 as the Astoria cinema.[10]

Fig 78 Archaeological excavations at Crosse and Blackwell's former factory on Charing Cross Road underway in 2010. In the background is Centre Point

The Roumieus' warehouses lay within the perimeter of Crossrail and TfL's cavernous new Tottenham Court Road Station, and therefore had to be removed before construction began (Fig 77). Archaeological excavations on the site duly followed with the aim at improving our understanding of how Crosse & Blackwell had gone about the process of mechanising food production (Fig 78).

Features that had survived the conversion of Robert Roumieu's factory into showrooms and the subsequent demolition included an ash pit beneath a chimney base and the foundation for the factory's boiler (Figs 79-80). A number of brick walls and floors also survived in fragmentary form, allowing it to be noted that the factory's original floor had been of timber planks. This floor was later sealed by a more robust version formed from re-used iron plates resting on timber joists and a levelling layer containing many discarded fragments of the company's late 19th-century glass, ceramic and stoneware containers.[11]

However, by far the most interesting survivor was a concrete-lined brick vault, probably at one time a subterranean cistern within one of the factory's yards. It was found to have been packed with over 12,000

discarded Crosse & Blackwell containers (Fig 81). Most were unused whiteware vessels provided by Maling Pottery of Newcastle, but amongst this treasure trove were stoneware containers known to have been made by Charles Bailey's pottery in Fulham between 1865 and 1890, and quantities of Keiller marmalade jars. Undoubtedly the disposal had been prompted by a move from the use of ceramic vessels to glass containers. There were a number of reasons for this change, chiefly the realisation that glass was inert to most substances and could be washed and sterilised effectively. Glass containers were also more suitable for conveyor belt filling, could be made in a much greater variety of shapes (think of Marmite's jars) and allowed visual examination of the contents.[12]

Fig 79 (left) Brick-lined pits in Crosse & Blackwell's 1877 warehouse on Charing Cross Road were part of a structure that supported a static steam engine

Fig 80 (right) Pit forming part of the base of a chimney beside the steam engine base in Crosse & Blackwell's warehouse on Charing Cross Road. The dividing wall was a later addition

Fig 81 (left) Underground vault uncovered during excavations at Crosse & Blackwell's former warehouse on Charing Cross Road; (right) Part of the vast haul of discarded Crosse & Blackwell containers found in the vault

Restaurant trade

Although the junction of Oxford Street and Tottenham Court Road is the only place within Soho where Crossrail will have a station, the arrangement of twin ticket halls means that its reach will be extensive. The vast increase in capacity that the new station will bring is required to handle the 200,000 journeys through the station Crossrail estimates will be made every day by 2018. Soho is changing, as Soho always has, and where once Crosse & Blackwell's workers toiled, new offices for today's computer-powered industries will soon begin rising above the station boxes.

Crosse & Blackwell employed many hundreds of our Victorian forebears in their Soho factories. However, far greater numbers worked in the local lodging and coffee-house keeping trades. In 1897 there were over three thousand 'heads of families' engaged in these occupations in the Soho, St Giles and Strand areas.[13] Others worked in the area's burgeoning restaurant trade. This industry flourished as the popularity of the West End's theatres and music halls grew, a growth which itself had been sparked by a rise in disposable incomes and the coming of the railways. The first Soho restaurants tended to be French and one of the earliest, *Kettners* on Romily Street, will celebrate 150 years of trading in 2017. Other survivors include *Maison Bertaux* (established in 1871) and *L'Escargot*, a relative newcomer having opened its doors only in 1927. Between 1906 and 1907 the *Caterer and Hotel-Keeper* published a seven-part series entitled 'Soho and its Restaurants'. This celebrated the district's profusion of foreign provision shops, restaurants and eateries, and noted a shift from French to Italian catering. In a case study of the Boulogne Restaurant in Gerrard Street, it remarked how the proprietor, Mr Ucceli, had found a niche in the market by offering French cuisine at bargain prices.[14]

Coffee bars and culture

London's traditional coffee houses, which had languished for years, were revived in the early 1950s when Soho become synonymous with a new expresso bar culture (Fig 82), the birth of which is generally credited to a visiting Italian, Pino Riservato. Struck by the awfulness of British coffee, the Milanese dental technician started importing Gaggia's recently-invented expresso machines.[15] In the basement of his shop at 10 Dean Street he opened the *Riservato*, the centrepiece of which was a Gaggia machine. The idea proved popular and in 1953 The *Moka Bar* on Frith Street became the first independent establishment to adopt his equipment.[16]

The post-war exodus from Italy carried many budding caterers to the West End and they quickly began to convert long-established cafés and snack

Fig 82 An evening in *The Moka Bar* on Frith Street (Photograph by Kurt Hulton/Picture Post/Hulton Archive/Getty Images)

bars into stylish expresso bars. Others added to the growing numbers of Italian restaurants in the area. Bar Italia on Frith Street was unveiled in 1949 and *La Terrazza* on Romily Street opened in 1959. There were other Italian-owned businesses too. Lina Stores, an Italian delicatessen, opened on Brewer Street in 1949, Angelucci's Coffee Stores at 23B Frith Street were serving customers by 1955 and Old Compton Street's Camisa & Son, another delicatessen, opened in 1961.

There was a fondly-remembered coffee bar at 93 Dean Street, a building recorded by Crossrail before its demolition to make way for Crossrail's new Tottenham Court Road Station. The building probably dated to the mid-1800s and had a Victorian shopfront (Fig 83).[17] By 1900 Benjamin Mark, a tailor, was operating from the building; he was replaced by 1915 by a confectioner called Andrea Cicconi. By 1950 Jack Carruthers was running a café from the premises.[18] Although details are sketchy and rather contradictory, Carruthers's café may have been transformed into a coffee bar towards the end of the 1950s by an Italian named Gigi.[19] In the 1960s it was known as *Les Enfants Terribles*, and became a favoured haunt for London's beatniks.[20] It was still a café bar (*The Black Gardenia*) when it closed in 2010.

The new coffee bars and restaurants of Soho found a ready market. No-one alive could remember when the area had been respectable, and it had gained the reputation as the habitue of intellectuals, writers and artists. Post-war Soho (and parts of neighbouring Fitzrovia) were bywords for a slightly studied loucheness much celebrated in later popular culture (Fig 84). It was

Fig 83 (left) No. 93 Dean Street in the 1920s (LMA ref: SC/PHL/01//BOX 463); (right) By the 1950s it was a coffee bar and was still in use as a little bar when it closed in 2010

Fig 84 The Soho Fair, Soho Square, 1956
(© Getty Images No 2643480/ Evening Standard 20 July 1957)

an atmosphere which drew in bedfellows from the performing arts, and from this cocktail emerged an entertainment industry that would spearhead the golden ages of British film in the 1940s and music in the 1960s.

Music and media

Several of these strands coalesced in 1957 when Emeric Pressburger's film *Miracle in Soho* was released. Belinda Lee played Julia Gozzi, the daughter

Fig 85 Poster for *Miracle in Soho*, 1957 (Rank Organisation)

of Italian immigrants living in Soho (Fig 85). The film was made by the Rank Organisation, which had its headquarters in nearby South Street in Mayfair. Rank's founder is generally credited with saving the British film industry. Soho Square, where three grout shafts were constructed as part of the preparatory work for Crossrail tunnelling beneath the 17th-century park, is still the home of the British Board of Film Classification and of 20th Century Fox.

Soho and neighbouring Fitzrovia remain the home of Britain's media and creative industries. This is best illustrated by two institutions on opposing corners of the district. The BBC, based in Broadcasting House behind Oxford Circus, does much to keep the post-production houses of the area busy. The north-eastern corner is marked by Denmark Street, which lies in the shadow of Centre Point and Crossrail's redevelopment of Tottenham Court Road Station. To this day the street is regarded as Britain's 'Tin Pan Alley'. The first music publisher, Lawrence Wright set up here in 1911 and he was soon followed by others. Wright was later to establish the *Melody Maker* in premises at No. 19. This influential music newspaper was joined on the newstands in 1952 by the *New Musical Express*, founded at No. 5 Denmark Street.

The *100 Club* lies midway between the BBC and Denmark Street, in premises facing Tottenham Court Road Station's new western ticket hall. The home of British jazz since 1942, this little basement club had by the 1960s begun to attract British bands who were to form the 'British Invasion'. Although the rise of bands who wanted to compose their own

Fig 86 *La Gioconda* Café in Denmark Street, Soho (© LMA)

music proved to be the death-knell of Denmark Street's music publishing trade, the street's recording studios and rehearsal rooms were soon attracting many of the biggest names in British rock music.[21] The street, and in particular *La Gioconda* café at No. 9, became a mecca for many of the household names of the 1960s (Fig 86).[22]

The industry was increasingly moribund as the 1970s wore on, but Soho was once again to be the scene of a cultural revolution when, in 1975, the Sex Pistols played in public for the first time at St Martins School of Art, a college located only a few dozen metres south of the Crossrail's new station at Tottenham Court Road. The band, whose members lived and rehearsed at 6 Denmark Street, almost single-handedly helped to usher in a new wave of musicians and designers, many of whom lived and worked in the area (Fig 87).[23]

Fig 87 The Sex Pistols at the 100 Club, 1976 (Hulton-Deutsch Collection/ CORBIS Image ID: HU002004)

Clothing industry

Like the movement that grew around the Sex Pistols, the British Invasion was about more than simply music. For a short while after John Stephen had opened His Clothes, arguably the world's first male boutique, on Carnaby Street in 1958, clothing found itself perfectly aligned with Soho's musical revolution. Like Riservato before him, Stephen had identified a new market and before long he ran more than a dozen retail outlets on Carnaby Street alone.[24] Stephen's genius lay in understanding that a male population starting to embrace the consumerism and counter-culture of post-war Britain would welcome fashionable clothes. Until this moment, clothing had been manufactured by many small concerns catering for

traditional and often very local markets. Soho was a centre for clothing and footwear manufacture and there were many such workshops. *Kelly's Post Office Directory for 1950*, for example, records that 97 to 99 Dean Street, a 1930s building demolished to make way for Crossrail's Tottenham Court Road Station, was the home of two gown manufacturers, a manufacturing furriers, Kosie Knitwear Ltd and Handmade Garments Ltd, manufacturers of 'smallwear' (Fig 88).

Fig 88 The doorway of No 99 Dean Street shortly before the demolition

How had Soho become a centre for clothing manufacture? Part of the answer is the Huguenots, late 17th-century exiles from France who started to arrive in London just as the estates of Soho were beginning to be laid out. The relevant Survey of London volume estimates that the population of St Anne in 1711 included 3,450 French who formed two-fifths of the total for the parish.[25] (The parish of St Anne Soho was formed from part of the parish of St. Martin in the Fields in 1686). Most were lodgers, and amongst their number were skilled embroiderers and silk weavers. The bespoke nature of the products being made and the displaced status of those producing them were, and arguably still are, two of Soho's defining characteristics.

Any pretensions to grandeur that the inhabitants of Soho may have had were short-lived. By the second half of the 18th century Soho's wealthiest residents were departing for fashionable new areas to the west. Estates were dispersed and grand homes were sub-divided or demolished and replaced with multiple properties. The plushest parts of the area still housed wealthy aristocrats, but elsewhere a social decline was underway. One of the events that cemented Soho's character may have been the building of Regent Street by John Nash in 1816-1824 (Fig 89). This served, intentionally, to separate affluent Mayfair from the increasingly run-down streets of its neighbour.[26] During the first half of the 19th century Soho's population grew and by 1851 there were 327 inhabitants per acre - one of the highest figures in the whole of London. This was to be a high watermark. The middle classes, alarmed by increasing outbreaks of disease, began to drift away, leaving Soho to a declining number of poorer inhabitants.[27]

As the average income of Soho's population shrank it became ever more dependent on the production of clothing and footwear, especially after large numbers of Polish and Russian Jews arrived in the 1890s. By 1897 over 30% of the heads of households in the Soho, St Giles and Strand areas were employed in these industries, mostly in the piecework production of items for the bespoke tailors and couturiers on the other side of Regent

Fig 89 *The Quadrant, Regent Street*, by Edmund Walker (© LMA)

Street.[28] Although women's involvement in the industry went largely unrecorded, Arthur Sherwell was to note that

> *'…by far the majority of the women workers in Soho are employed in the dress trades of the West. Of these a few are shirt and collar makers; a larger proportion dressmakers, mantlemakers, and milliners; while the great majority are tailoresses.'*[29]

Workers with the same skills tended to cluster together. This is illustrated by the contemporary street directories. In 1841, for example, Dean Street had nine tailors or clothiers, four milliners, four boot and shoemakers, three curriers or leatherworkers and a dressmaker. They made up 18% of the trades listed. In nearby Brewer Street 13% of the trades were in the industry (two tailor/clothiers, one boot/shoemaker, three woollen drapers and a silk mercer) whilst Regent Street boasted 128 clothing or footwear concerns, or 37% of the total. Amongst these were 37 milliners, nine furriers and seven silk mercers.

By 1895 the number of Dean Street properties involved in the clothing industry had declined to six, but there had been an increase in clothing-related activity in Brewer Street. There were fewer milliners in Regent Street, but more dressmakers. Of course, these numbers do not help in any attempt to estimate how many workers in total were involved. For example, Henry Heath's Hats alone employed upwards of 70 people.[30] The company's factory on Hollen Street (Fig 90), a stone's throw from

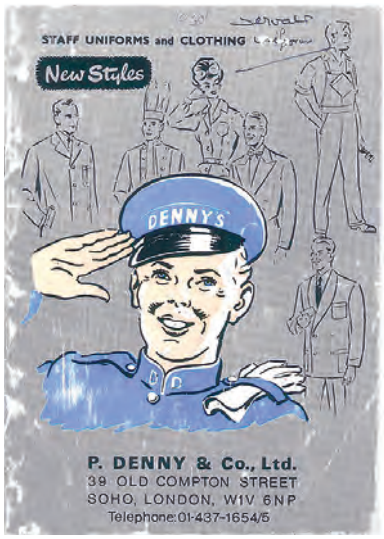


Fig 90 (left) Henry Heath's Hat Factory on Hollen Street, Soho dates from 1887; (right) Denny's Uniforms still trades from premises in Soho (©Dennys Brands)

Crossrail's western ticket hall for Tottenham Court Road Station, survives, as does it showroom on Oxford Street. But while the factories may have closed, the local industry is far from dead. There are still many tailors, especially on Berwick Street, and there are clothes buyers, textile merchants and support services scattered throughout Soho and Fitzrovia. Examples abound: Taylor's Buttons on Cleveland Street, for example, has been supplying hand-covered fabric buttons to the trade for over 100 years. Denny's Uniforms, which started making and retailing garments for the local restaurant and hotel trade in 1840, still has a shop on Dean Street, even if their manufacturing is now undertaken in China (Fig 90).

Coachworks and carriage building

As London grew the necessity for transport increased, and in affluent areas a sizeable carriage industry emerged (Fig 91). In a class-conscious society, keeping a carriage was a mark of wealth, status and character. In *Sense and Sensibility* Jane Austen's frightful social climber, Lucy Steele, explains to Elinor Dashwood that *"[Mr. Richardson] makes a monstrous deal of money, and they keep their own coach."*[31] Indeed, Austen's characters are often to be found dashing about west London in their chaises, chariots and curricles.

A carriage industry emerged serving the expanding population of West London. By 1871 there were over 600 coachmen and grooms living on the Grosvenor Estate, an area loosely defined as Mayfair and Belgravia.[32] When this number is added to the 489 people on the estate who cited the independent transport trade as their occupation the size of the industry becomes clear.[33]

Fig 91 *Hanover Square*, by Thomas Hosmer Shepherd *c.* 1790 (© Trustees of the British Museum)

It was inevitable that London's coachbuilders would establish themselves close to the wealthiest parts of the capital. John Hatchett, for example, a master of the Coach Makers Company in 1785 and the most famous coach-maker of his day, chose Long Acre in Covent Garden. The street retained its dominance as a centre for coachbuilding well into the motor age, as a map of the businesses on the street in 1916 shows.[34] Although a number of motor manufacturers - Fiat Motors Ltd (at Nos 37-38), General Motors (Nos 135–136), Daimler-Mercedes (at Nos 127–130) and Morgan & Co Ltd – were now present, an equal number of coach-builders remained.[35]

Alongside the well-known coachbuilders were smaller concerns, most of which were involved in providing servicing and repairs for coaches. One of these was John George Crowe, a coachbuilder who in the mid 19th century operated from Cock Yard.[36] The yard lay at the north-eastern edge of the Grosvenor Estate, beside the Davies Street block that Crossrail is redeveloping as Bond Street Station's new western ticket hall. Studying the history of the yard reveals the extent of the horse-drawn industry in Georgian Mayfair. Cock Yard had developed from the stable yards of two taverns, The Three Horseshoes and The One Tun, which at one time had faced each other across the former valley of the diverted River Tyburn (Fig 92). Crossrail's archaeological excavations of the Davies Street block showed that reclamation of the river channel had begun during the mid 1700s, suggesting the yards would have been laid out once this reclamation was complete.[37] The picture revealed by the results of the archaeological excavation - of the dumping of household refuse by local inhabitants -

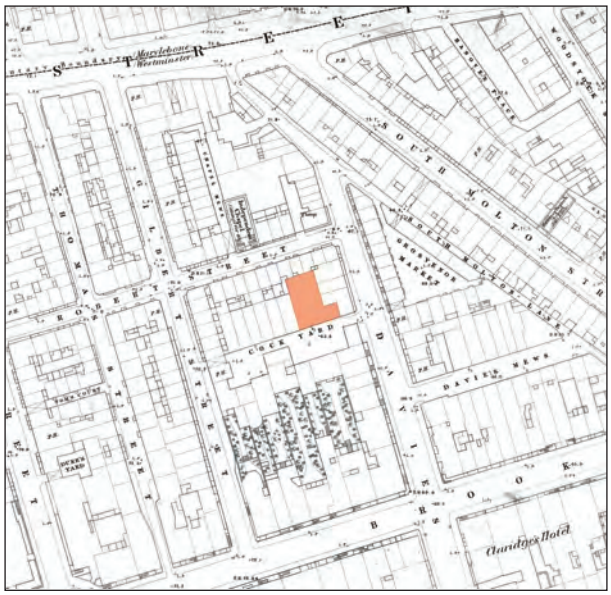


Fig 92 (left) Detail from Horwood's 1799 map of Mayfair, showing the stable yards of *The Three Horseshoes* and *The One Tun* (© MOTCO)

Fig 93 (right) The 1872-1873 1:1,056 Town Plan shows (in red) a large building in Cock Yard that may have been Seth Smith's workshop (© Groundsure)

is brought to vivid life by the discovery of several horse carcasses in the river channel. It is not beyond the realms of possibility that these were the discarded remains of beasts which had not long since been stabled in the tavern yards.

During the 1820s new houses were erected on the Davies Street frontage. To the rear the builder Seth Smith added a large two-storey workshop and a line of coach houses and stables, all of which opened onto the newly formed Cock Yard (Fig 93). The south side of Cock Yard was formed by the coach houses and stables of houses fronting Brook Street.[38] In 1839 these are referred to twice in court records. Charles Davies, a coachman in the service of Eliza Parry of Brook Street, gave evidence in a theft trial that he had noticed lead missing from the roof of a stable in Cock Yard. In the other reference, Samuel Lofting stated that he was employed at Mr Mivart's stables in Cock Yard, which presumably lay behind Mivart's Brook Street hotel.[39]

By 1852 the yard was home to a carman (Thomas Turner), a farrier (William Sinnet) and a jobman (Charles Day). It is easy from these references to imagine a yard alive with the sound of iron-shod hooves on cobbles and the ring of the hammer on the anvil. These sounds may have carried on well into the night, as a passage by W J Gordon in 1893 reminds us.

> *The stabling in a London mews has not the best of reputations, and its accommodation compares unfavourably with that obtainable at a country town; in fact, it is owing in a great measure to the stable difficulty that so many people job their horses during the London season. The horse of pleasure is not like the horse of trade; he is worked at all hours, but rarely with*

regularity; he is kept healthy with exercise instead of work; and consequently he has to be carefully looked after, and wants the best of housing, which in London he does not always get.[40]

Fig 94 Remains of a workshop, possibly a forge or farriers, were uncovered during excavation for Bond Street station's new western ticket hall

During the excavation of the Davies Street block parts of Smith's 1820's workshop were uncovered. A number of walls survived, and a series of three parallel arched chambers beside a brick (later flagstone) floor were found (Fig 94). The chambers were packed with ash and ironworking waste, possibly evidence that the remains represented a forge or farriers.

As the motor car gained acceptance coach houses began to be adapted to accommodate them. At the same time, the number of motor manufacturers with a West End presence rose rapidly. Argyll established themselves at Newman Street, Albion built an office and garage in Poland Street, and Ariel settled at New Bond Street.[41] The supremacy of the motor vehicle was illustrated when Austin, also keen to establish a West End presence, took over the former Oxford Street showrooms of coachbuilders Holland & Holland.[42] Other coachbuilders more successfully managed the transition from horse power to the internal combustion engine. Hoopers & Co. (Coachbuilders) Ltd, for example, who had been founded on the Haymarket in 1805, ended their days making limousines in an Art Deco factory at Park Royal. Barker & Co. were another West End company that had started in 1710 by making luxury horse-drawn carriages. When Hoopers took them over in 1938 they built them a bespoke factory in Willesden, not far from their Park Royal works, and close to Crossrail's Old Oak Common depot.

By the time Hoopers collapsed in 1959 the era of the separate car chassis, and the companies who crafted bodies over them, was over. A new generation of coachbuilders instead turned their attention to a car which had been launched that year and was to become the car of the Swinging Sixties. The Mini had been an instant hit with the newly-enriched fashion designers and musicians of the West End, and Bill Wood and Les Pickett, former Hooper employees, saw their opportunity. Wood and Pickett's Park Royal workshops were soon turning out bespoke Minis for celebrities like the model Twiggy (Fig 95 left). An even more famous adaptation of the same model was offered by Harold Radford (Coachbuilders) Limited, again of Park Royal (Fig 95 right).

Wood and Pickett, and Radford were the modern-day equivalents of Soho's 17th-century embroiderers and silk weavers. Like the Huguenot craftsmen who had settled beside the Royal Court to supply wealthy

Fig 95 (left) Sixties model Twiggy behind the wheel of a Wood and Pickett Mini; (right) John Lennon in a Radford Mini de Ville (both © Getty Images)

tastes, the bespoke coachbuilders of Park Royal sold to the new royalty of post-war London. And whilst the coachbuilders may have in turn fallen by the wayside, the connectivity that Crossrail promises will ensure that west London continues to produce the newly wealthy and new industries to serve them.

Biographical portraits

ELIZABETH GARRETT ANDERSON (1836-1917)

Elizabeth Garrett was born in Whitechapel in 1836 and lived there until the family moved briefly to West London and then to Aldeburgh in Suffolk in 1841. Elizabeth grew up in a family that encouraged her education and when she was 13 her father paid for her to study at the Boarding School for Ladies in Blackheath. She had an interest in joining the medical profession and so in 1860 she started work as a surgery nurse at Middlesex Hospital. At the same time as working as a nurse she also studied medicine both privately and at the Middlesex.

In the 1860s she became the first woman to become a doctor in Britain, but to qualify she had to study in Paris. She found it impossible to find employment as a doctor in a hospital and so in 1865 she opened her own medical practice at 20 Upper Berkeley Street, London. In 1866 she also set up St Mary's Dispensary for Women and Children at 69 Seymour Place, Bryanston Square, Marylebone using philanthropic donations. This dispensary and later hospital allowed women and children to be treated by female

medical staff. The hospital also provided aspiring female doctors with clinical teaching so they could qualify at the London School of Medicine for Women.

Elizabeth fought against negativity towards female doctors and her efforts were rewarded in 1876 with a change in the law, which allowed women to practice medicine. Throughout her life she also campaigned for the rights of women and wrote many articles, some of which were published in the national newspapers. In December 1896 Elizabeth wrote a letter to The Times about the struggle for women to become doctors:

> *Step by Step and with much effort, progress had been made till, at the present time, nearby all the medical examining bodies in this country admit women to their examinations and diplomas on the same terms as men and several medical schools exist in which they can be educated either separately or side by side with men.* (*The Times*, Friday 11th December, 1896)

Fig 96 Elizabeth Garrett Anderson

In 1871 she married James George Skelton Anderson and together they had three children: Louisa, Margaret and Alan. Louisa also became a doctor and a militant suffragette before serving in France during the First World War.[43]

BEATRICE LIZZIE WAKEMAN (NÉE WELCH) (1882-1931)

Beatrice Lizzie Welch was born in Chertsey in 1882 and in her teens moved to London to look for work. She kept a diary from December 1899 to May 1900 and this allows a glimpse of six months of her working life as a drapers clerk for Robinson and Cleaver's at 170 Regent Street. Whilst working in London she lived for a while in accommodation that was likely to have been provided for by her employer which she shared with her female colleagues. Beatrice appeared to enjoy sharing a dormitory where she read ghost stories to her friends; they got into pillow fights and danced on the beds. This type of employer's accommodation was called the 'living in system' and food and lodging were provided by keeping wages low. Male and female staff that 'lived in' had to abide by strict rules and if they broke them they were under threat of losing both their job and somewhere to live.

Fig 97 London Drapers workroom (after Belloc Lowndes 1901, p 209)

In her diary Beatrice mentions several of the male managers and how she tries to avoid getting caught by them. Mr Pritchard appears to have been one of the managers of the upstairs drapery section where Beatrice worked. When he was away the girls had more fun *'When the cat is away the mice will play'*. She also liked to sneak down to talk to her friend Debs who was an assistant in the gentlemen's shop downstairs. However, to do so she needed to

avoid the managers Mr Hanbury and Mr Lack. On February 28th 1900 she writes *'went down to talk to Deb and Mr Hanbury always catches me there'*.[44]

Beatrice is likely to have worked a 45-60 hour week at Robinson and Cleaver's and her diary suggests that on a busy day on the 12th March 1900 *'we don't close now until half past six'*. She also had to work until early afternoon on a Saturday and so Sunday was her only day off. The hours Beatrice worked in 1900 were less than the average shop workers of just five years previously. Evidence given in Parliament for the Shops Early Closing Bill of 1895 suggested that the average hours of work London shop assistants were between 68 and 100 per week.

By the census of 1901 she had moved out of live-in accommodation and was staying with her sister Lilian and her sister's husband Sidney Metcalf in North Wimbledon. It is likely she kept her job at Robinson and Cleaver's as the Census of March 1901 describes her as a 'drapers clerk'. One of the reasons she may have wanted to move out of 'living in' accommodation was to gain more freedom and escape the rule of celibacy. By 1903 Beatrice had met Harry William Wakeman who she married two years later in 1905 in Wandsworth. A later note in the diary from 29th August 1910 recorded how she had been married for over five years and had two young sons. Beatrice Wakeman lived to the age of 49 and died in Islington in 1931.

NOTES

1 Noon 2008, 54-55, 59
2 Brent Council 2004, 12
3 Wallop 2012
4 2011 Census First Results: London Boroughs' Population by Age and Sex, GLA Intelligence, Census Information Scheme
5 The information in this paragraph is drawn largely from Atkins 2013, 44. The history and development of Crosse & Blackwell in Soho is also detailed in Jeffries *et al.* 2016. The piccalilli label illustrated was the cause of a legal dispute between Crosse & Blackwell (plaintiffs) and Crabbe & Company (defendants) that took place in 1867. The label was reproduced with the report of the proceedings in Robertson 1914, 565-567. The Reform Club is a Gentleman's club in Pall Mall historically associated with the Liberal Party, but perhaps as famous for the being the start and end location in Jules Verne's 'Around the World in Eighty Days'.

6 'Soho Square Area: Portland Estate, No. 20 Soho Square', pp 69-72 in Sheppard 1966
7 Atkins 2013, 45
8 Mayhew 1865, 174-88
9 Atkins 2013, 46
10 'Shaftesbury Avenue and Charing Cross Road', pp 296-312 in Sheppard 1966
11 The full results of the archaeological work on this site are provided in Jeffries *et al.* 2016
12 Atkins 2013, 41, 43
13 Sherwell 1897, 61
14 Walkowitz 2011, 419-30
15 Partington 2009; Partington 2013
16 Ellis 2004, 225-45
17 Recorded by Wessex Archaeology before demolition: Wessex Archaeology April 2010, *Crossrail Tottenham Court Station, Soho, London: Non-Listed Built Heritage Recording* (reference 72213.0,) (C134-XRL-T1-RGN-CRG03-5001)
18 Kelly's *Post-Office Directories*
19 Pip Granger records that it was Betty Passes who was running the café in 1957 (Granger 2009, 307); www.lesenfantsterrible.adrianstern.com suggests that Lucio Davanzo purchased the lease on the premises in 1961 (accessed 14 July 14)
20 Granger 2009, 289
21 In 1964 the Rolling Stones recorded their first album at Regent Sound Studios, then as now based at No. 4 Denmark Street.
22 Humphreys 2003, 119
23 Graves-Brown and Schofield 2011, 1385–1401
24 Horwell 2004
25 'General Introduction', pp 1-19 in Sheppard 1966
26 Ehrman 2008, 174-175
27 Soho's population fell by 31.9% between 1861 and 1891 (Sherwell 1897, Part I, Chapter I); Charles Booth (1891, 27) categorised 42.4% of population of Soho as poor in the 1890s. By contrast only 2.7% of the population of Mayfair classified as in poverty. Booth gave an overall figure of 21% in poverty for West London, which included both Mayfair and Soho.
28 Sherwell 1897, 61
29 Sherwell 1897, Chapter VII Dressmaking
30 *Post Office London Directory, 1841 (Part 1: Street, Commercial, & Trades) and Post Office London Directory, 1895 (Part 4: Trades & Professional)*; http://virtualvictorian.blogspot.co.uk/2010/07/henry-heaths-top-hats-extravagant.html accessed 21 Jul 14
31 Austen 1811, chapter 38, p.268
32 'The Social Character of the Estate: The Censuses of 1841 and 1871', pp. 93-98 in Sheppard 1977.
33 Loc. cit.
34 Morrison and Minnis, 2012, 51
35 *Post Office London Directory, 1914. (Part 4: Trades & Professional Directory)*;Vickers 1994, 1
36 *Post Office directory* 1852
37 Oxford Archaeology/Ramboll, 2012, *C254 Archaeology West Archaeological Excavation at Bond Street Station: Interim Report* (C254-OXF-W-RGN-C125-50002 Rev 2.0)
38 'Davies Street Area: St. Anslem's Place', pp. 82-83 in Sheppard 1980
39 *Old Bailey Proceedings Online* (www.oldbaileyonline.org, version 7.2, 28 April 2016), February 1839, trial of JOHN BROAD JOHN HOLTON (t18390204-781)
40 Gordon 1893, 105
41 Morrison and Minnis 2012, 51-52
42 Ibid, 52
43 Elston 2005; London Remembers, 2014, Plaque: Elizabeth Garrett Anderson - W1, URL:http://www.londonremembers.com/memorials/elizabeth-garrett-anderson-w1 Date Accessed: 21 July 2014

44 Eccleston, Mark, 2009, Diary of Beatrice Welch 1899-1910, main entries 23 December 1899 until May 1900, MS187, Cadbury Research Library: Special Collections, University of Birmingham URL: http://calmview.bham.ac.uk/Record.aspx?src=CalmView.Catalog&id=XMS187%2f1&pos=3 Date accessed: 21 July 2014. Special permission received by Helen Fisher, Archivist Cadbury Research Library: Special Collections on 22 July 2014 to use the information from the database entry and a short quote from the diary.

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