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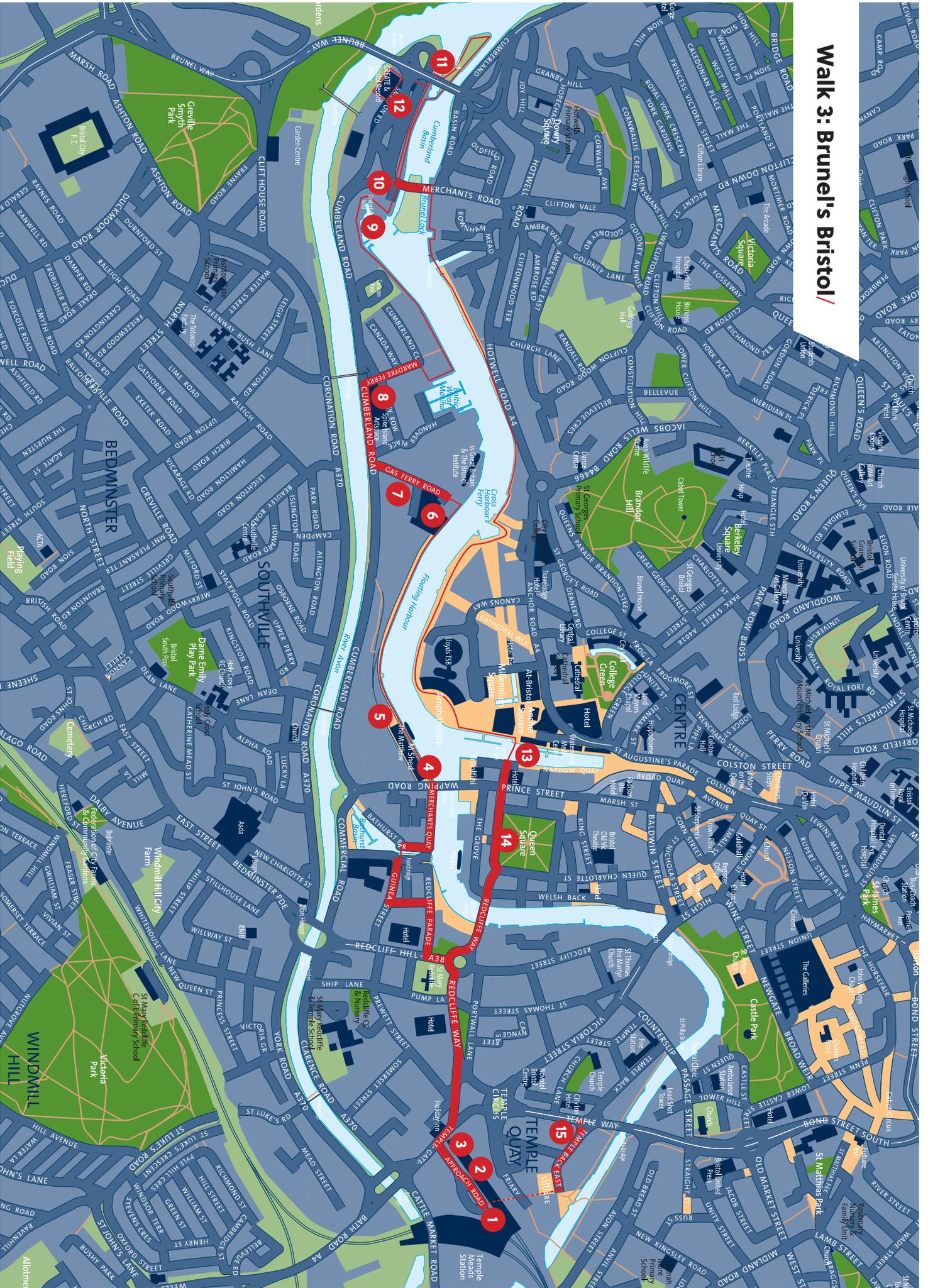
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Walk 3: Brunel's Bristol /



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Isambard Kingdom Brunel (1806-1859) was one of the most versatile, audacious and inspirational engineers of the nineteenth century and Bristol is home to some of his finest work.

As well as building the Great Western Railway (GWR) and designing the Clifton Suspension Bridge, Brunel led two major shipbuilding enterprises in Bristol that transformed ocean-going travel. Less well known is that he was engaged as consulting engineer for the Bristol Docks Company, working on a number of projects, the most significant being the redesign of the South Entrance Lock and his plans for dealing with the recurrent problem of silt in the Floating Harbour. The *ss Great Britain* is a familiar city landmark and popular visitor destination, but there are also substantial remains of Brunel's docks work that can still be viewed today, as this walk reveals.

The circular route includes Brunel's station at Temple Meads, the *ss Great Britain*, Underfall Yard and the Brunel lock plus a view of the Clifton Suspension Bridge. It also provides an insight into the history of the city's docks. Allow at least two hours to complete at a leisurely pace, not including time for visiting attractions or stopping for refreshments along the way. This is mainly a level route, but extra care may be needed alongside the Floating Harbour where surfaces can be uneven, and some of section 4 may not be suitable for wheelchair users or those with pushchairs.

The Walk

The walk is divided into four sections with optional routes suggested at various points.

Section 1

The walk begins beneath the clock tower at Temple Meads station (1), which is at the heart of the Temple Quarter Development Zone.

It is a common error to believe this station was designed by Brunel. In fact, work on the station began in 1865, six years after Brunel's death, and was completed in 1878. The station originally served the Bristol & Exeter and Midland railway companies. Its architect was Brunel's colleague Sir Matthew Digby Wyatt, who had co-designed Paddington station. The arched iron roof was designed by Francis Fox, whose father, Sir Charles Fox, had constructed the roof at Paddington and was also involved in the design

of the Crystal Palace. The station has a neo-Gothic exterior in pink stone with Bath stone dressings and a red-brick interior. A plaque at the entrance commemorates Emma Saunders (1841-1927) who founded the Bristol and West of England's Railwaymen's Institute.

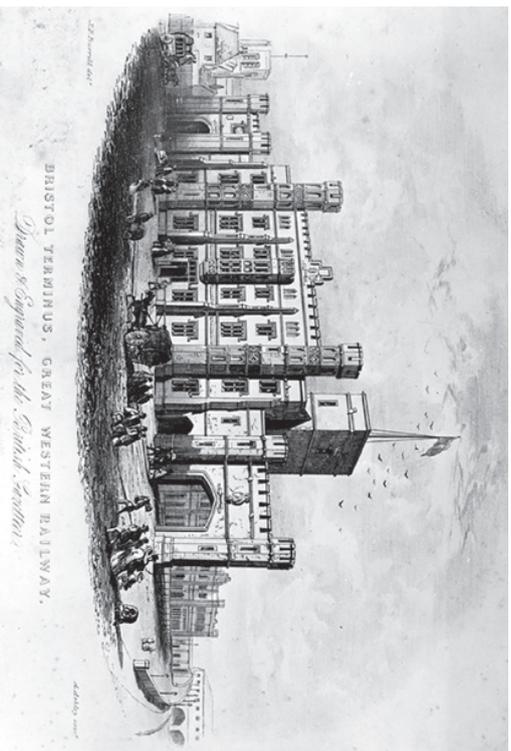
Walk down the right-hand side of the station approach road. Across the road, on the left-hand side, you will pass some Jacobean-style offices built in the 1850s for the Bristol & Exeter Railway. On your right is the passenger shed (2) built by Brunel for the original GWR station, which is situated at the end of the road.

A beautiful hammer-beam roof spans the 72ft/22m of the shed, which is now used as a conference and exhibition venue. You may be able to step inside the entrance to take a look. The beams are largely decorative as most of the roof's weight is supported by the iron columns along the aisles.

Continue down to Temple Gate to see the front of Brunel's station (3).

In 1833 Brunel was appointed the chief engineer of the GWR, although he had no previous experience in railway construction. The line's promoters in Bristol were facing stiff competition from the docks at Liverpool and needed to enhance the transport and communication facilities offered by the city. Brunel became personally involved in every aspect of the enterprise. He negotiated with the clients and landowners; devised the route; secured finance; drew up the specifications for the carriages and locomotives (designed by Daniel Gooch); found radical solutions to civil engineering problems encountered along the way; and recruited, motivated and managed staff. He even designed the lamp-posts and livery. The London-Bristol section of the route was completed in 1841. Brunel had insisted on using his broad gauge (7ft/2.14m) system instead of the standard gauge (4.7ft/1.43m) used by Robert and George Stephenson. The broad gauge system was more comfortable and allowed for faster travel than the narrower gauge. However, in 1846 the government decided in favour of the standard and all new lines were built to that width (the GWR would complete its conversion to standard in 1892).

The Bristol station is thought to be the first true railway terminus, with trains and people all inhabiting the same integrated space beneath a single roof. The booking hall was at ground level and passengers reached the platforms on the first floor by climbing an internal staircase. The track was supported on brick vaults. The front of the station has a three-storey entrance in Bath stone in a hybrid revival style reminiscent of a Tudor mansion. It was designed by local architect Richard Shackleton Pope in consultation with Brunel. The right-hand wing was removed in 1878 to make room for the road. The station closed in 1965 and now houses offices and meeting rooms for a variety of organisations.



Bristol Terminus, Great Western Railway (Bristol Culture 120).

Cross Temple Gate to the Holiday Inn opposite using the pedestrian crossings. Turn right. Pause at the tree to take a look back across the road for a better view of the old station. Continue to follow the road round to your left. Cross at the bottom of Redcliffe Mead Lane and continue along Redcliffe Way. On the opposite side of the road is the Chatterton House. On your left you will pass St Mary Redcliffe church (see Walk 2).

Cross at the bottom of Redcliffe Hill. Turn left up the hill then right into Redcliffe Parade East. This is the highest point on the walk so take time to look out at the view of the Floating Harbour from the car park on your right: Directly below you is Redcliffe Wharf where the replica of John Cabot's ship, the Matthew, was built to mark the 500th anniversary of his voyage to Newfoundland: Across the water is Severnshed, a restaurant housed in what is thought to be Bristol's earliest surviving transit shed. Built around 1865, this is an iron-framed building that would originally have been open-ended to allow the swift unloading of goods headed for the warehouses or for transportation.

Turn left into Jubilee Place, which becomes Alfred Place. The road surface is uneven here. Turn right into Guinea Street (a fairly steep downward hill), passing the former Bristol General Hospital (founded 1832). At the bottom of the hill, cross the road and then the pedestrian bridge over Bathurst Basin. Turn right along Trin Mills then left to Merchants Quay, which will bring you to **M Shed (4) on the corner of Wapping Road.**



ss Great Western (private collection).

You are now on Prince's Wharf where Brunel's oak-hulled paddle steamer, the ss *Great Western*, was launched on 19 July 1837 before sailing to London for fitting out (there is a commemorative plaque on the side of the museum). The ship was built at the yard of William Patterson for the Great Western Steamship Company. On her return trip to Bristol, fire broke out in the boiler room and Brunel was injured when he fell 18ft/6m from a burning ladder. When the ship left Bristol on 8 April 1838 for her maiden voyage to New York, 50 of those who had purchased tickets cancelled their booking as they considered her too risky a venture.

For centuries Bristol had produced a variety of ocean-going and coastal vessels. The last ship to be built here was MV *Miranda Guinness*, launched in 1976. The term 'shipshape and Bristol fashion' refers to Bristol's reputation for building ships that were strong and seaworthy. It also refers to the need to stow everything well to withstand the River Avon's unusually high tidal range in which the water level can drop as much as 40ft/12.3m, leaving vessels stranded on mud banks twice a day.

Brunel had envisaged an integrated passenger service between London and New York via Bristol. On St George's Road at the back of City Hall is Brunel House (see Walk 2). Like the station, this was designed by Pope in consultation with Brunel. It was completed in 1839 and has been much altered since then, but it retains its four-storey Greek revival façade. It was originally the Royal Western Hotel and intended as a stopping off point for travellers who had come to the city by the GWR before they embarked

for their transatlantic voyage. The ss *Great Western* did have a successful career as a transatlantic liner, making 74 crossings, but the service ran from Liverpool rather than Bristol. She was later purchased by the Royal Mail Steam Packet Company, operating out of Southampton on the Caribbean run. She was broken up at Millbank in 1857.

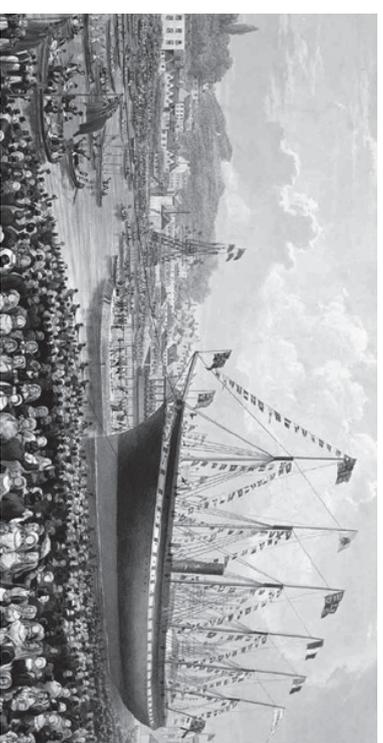
On the wharf outside M Shed are travelling electric cranes built by the Bath company Stothert & Pitt, a steam crane, a steam railway, two tugs and a fire-boat, all in working order and regularly brought to life as part of M Shed's programme of activity. M Shed was created out of a 1950s transit shed that had previously housed the city's Industrial Museum.

M Shed: Entry to the museum is free, but there is an admission charge for some special exhibitions. Normal opening hours: Tue-Fri and Bristol school-holiday Mondays: 10am-5pm. Sat, Sun and Bank Holiday Mondays: 10am-6pm. Café: Tue-Fri: 9am-4.30pm. Weekends: 10am-5.30pm. www.bristolmuseums.org.uk/m-shed 0117 352 6600

Continue along the harbourside. Take special care when crossing over the tracks of the Bristol Harbour Railway. Pause between the first and second electric crane and look out across the water. To your left is the Lloyds Amphitheatre, which is used as an open-air concert venue, and to your right, Bristol Cathedral. Between the two is a view of Cabot Tower on Brandon Hill. The tower was built to commemorate the 400th anniversary of Cabot's voyage (see Walk 5). On this walk you may see the replica of Cabot's Matthew if she is in the city (Tel 0117 927 6868 for details of her schedule).

Continue as far as the Fairbairn steam crane (5).

This crane was completed in August 1878 and is capable of lifting 35 tons. Prior to its construction, there had been no crane in the docks capable of lifting more than around three tons, a serious commercial disadvantage when Bristol was hoping to attract vessels with heavy loads. As you continue on your way, you will see on either side of the harbour how the area has been redeveloped for leisure, commerce and residence since the turn of this century. From the Middle Ages to the eighteenth century Bristol was considered the second most important port in Britain. However, the winding tidal waters of the River Avon had always been a challenge to navigate and the inconveniences of the harbour were accentuated as ships became so much larger. After a period of decline, new facilities built at Avonmouth and Portishead secured a degree of recovery. It was the strategic importance of the docks, along with the presence of the Bristol Aeroplane Company, which made Bristol one of the most heavily bombed British cities in the Second World War. Although the old City Docks were closed in 1975, the Port of Bristol continues to be a major international gateway. In 1839 Brunel had proposed a large floating pier at Portbury near Portishead for the transatlantic passenger service, but his plans were not developed.



Launch of the ss *Great Britain*, 1843, by Joseph Walter (ss *Great Britain* Trust).

Prince's Wharf becomes Wapping Wharf as you pass the crane. There are information boards marking the 200th anniversary of the opening of the Floating Harbour in 1809 at various points along the waterfront, including by Brunel's Buttery. Continue to ss *Great Britain* (6).

Brunel's ship was launched on 19 July 1843 from Bristol's Great Western Dockyard, where she now lies. The honours were performed by Prince Albert who had travelled to the city from Windsor by the GWR. The ship set new standards in engineering, reliability, speed and ocean-going comfort. She was the first iron-hulled, screw-propelled steamship to cross the Atlantic. The difficulties of navigating in and out of the harbour, along with the high charges incurred for using the docks (originally raised to cover the construction costs of the Floating Harbour), meant she never operated a service from Bristol. Her transatlantic maiden voyage was from Liverpool in July 1845. On 23 September 1846 she ran aground at Dundrum Bay in Ireland. It took nearly a year to refloat her, by which time the Great Western Steamship Company was bankrupt. She was bought by Gibbs, Bright and Company and converted to sail. Between 1852 and 1876 she made 32 voyages to Australia and is thought to have transported the forebears of around 250,000 modern-day Australians.

Following storm damage off Cape Horn in 1886, she struggled to the Falkland Islands where she remained as a storage hulk. She was deliberately scuttled in Sparrow Cove in 1937 after a failed salvage attempt, but returned to Bristol on 19 July 1970 in an epic operation that entailed transporting her across the Atlantic upon a barge. She has undergone extensive conservation work. In 2005 construction of an innovative glass sea was completed at the ship's water line, which provides the roof to an airtight chamber to prevent any further corrosion of her hull. Also on the site is the Brunel Institute, which houses one of the world's finest maritime collections. It is a collaborative venture between the ss *Great Britain* Trust and the University of Bristol.

ss Great Britain: Tickets include free unlimited return visits for a year (excluding group tickets, schools, or venue hire guests). Open every day, except 24 and 25 Dec and the second Monday in Jan. Check website for opening hours. Access to the Brunel Institute is free. The institute has separate opening times to the ship. www.ssgreatbritain.org 0117 926 0680

Section 1 ends here. If you do not wish to continue with the next section you can either retrace your steps or use the Cross Harbour Ferry and then continue down the other side of the harbour (see section 4 for further details).

Number 7 Boat Trips: Cross Harbour Ferry runs daily except 25 and 26 Dec. www.numbersevenboattrips.com 0117 929 3659

Section 2

From the ss Great Britain, retrace a few steps and turn right to cross Brunel Square. Walk up Gas Ferry Road. On the corner of Caledonian Road are administrative offices belonging to the award-winning animation company Aardman Animations Ltd (7), creators of Wallace and Gromit. A more recent HQ (completed in 2009) is next door. These offices are not open to the public.

Aardman's founders, Peter Lord and David Sproxtton, began their animating partnership at school. They moved to Bristol in 1976 where they produced their first professional production, creating Morph for the children's programme *Take Hart*. They have been based on Gas Ferry Road since 1991. The site includes studios housed in a former warehouse where bananas imported from the Caribbean were once ripened.

Aardman's main production facilities are at Aztec West. In 2013 over 80 giant Gromit sculptures decorated the streets of Bristol for ten weeks in the Gromit Unleashed trail. This was one of the highest-profile charity art-trails the country has ever seen. It was followed by a Shaun the Sheep trail in 2015.

Continue to the end of Gas Ferry Road. Turn right into Cumberland Road. Continue to Spike Island Artspace (8).

The area of the city called Spike Island was formed as part of the development of the Floating Harbour and the creation of the tidal New Cut, which runs parallel to Cumberland Road. It was once known for its shipyards, warehouses and busy quays. Although dock-related business still takes place, it is increasingly thought of as a place of cultural activity. Spike Island Artspace is housed in a former tea-packing factory.

Spike Island Artspace: Gallery free. Normal hours: Tue-Sun noon-5pm (during exhibitions). Cafe: weekdays, 8.30am-5pm; weekends, noon-5pm. www.spikeisland.org.uk 0117 929 2266

Turn right up Mardynke Ferry Road and continue straight ahead. Just before you reach Cumberland Close, turn right along a footpath that will lead you to Bristol Marina. Turn left and left again. Continue along the waterfront to Underfall Yard (9), pausing outside The Cottage Inn for a view of the terraces of Clifton and a tantalising glimpse of Brunel's bridge.

In the early nineteenth century the engineer William Jessop was engaged by the Bristol Dock Company to create a non-tidal harbour. This was needed to combat continuing problems associated with ships being stuck in the mud at low tide, limiting the time available for loading and unloading goods at the quaysides. Jessop's solution was to contain the water in the harbour behind lock gates so ships could remain afloat at all times. The Floating Harbour was opened in 1809. Part of the project included building a dam at Underfall Yard with a weir that allowed surplus water to flow into the New Cut. Brunel was called in at a later stage to deal with problems of silting. Among the measures he introduced were the replacement of the dam with sluices that controlled the flow of water through the Floating Harbour and allowed dredged mud to be washed away. A Brunel-designed dragboat for scraping mud from the sides of the harbour remained in operation until the early 1960s. An information board at the entrance to the yard provides further details and you can see where the sluices are housed just beyond this point. Most of the buildings and engineering installations you see were constructed between 1880 and 1890 under the direction of John Ward Girdlestone. Today's yard tenants include businesses building classic boats and working on leading-edge fibre composite applications. Income from the tenants and the slipway is put back into maintaining the yard and buildings. The Harbour Master and the Docks Engineer are also based here.

The Underfall Yard Visitor Centre: Admission is free. Open Mon-Sun 10am-5pm (Easter to October). www.underfallbooyard.co.uk

Take care as you go through to the other side of the yard, as this is a working area. You will pass information boards along the way. Turn right towards the visitor centre, then left, left and right to exit by the gate next to the Avon Scout County Sailing Section facility. Turn left and continue to the Nova Scotia Hotel (10). (If the yard is closed when you take this walk, you can reach this point by taking the path on the left of the entrance out to the Cumberland Road and turning right down Avon Crescent.)

You have now reached the end of section 2. You can either continue with section 3 (a circuit) or go to the start of section 4. Other options include:

- Catch the ferry service from the Nova Scotia stop to the city centre. **Bristol Ferry Boats: Daily except 25 Dec.**
www.bristolofferry.com 0117 927 3416
- Hop on to the Bristol in Sight bus at the Baltic Wharf stop (by Spike Island Artspace) to join their city tour.
www.bristolinsight.co.uk 0117 403 1994

- Join a Bristol Packet docks tour from the Wapping Wharf stop near ss Great Britain. Weekends throughout the year. Daily during summer and school holidays. www.bristolpacket.co.uk 0117 926 8157

Section 3

Opposite the Nova Scotia you will see a car park. Cross the road (take care as there is no pedestrian crossing). Follow the slope down to the waterside path. Pause to look across the water of the Cumberland Basin. To your right is Junction Lock Bridge; to your left is the Plimsoil Bridge. Both can be swung open to allow large vessels to pass through. Continue along the path, which will become uneven in the vicinity of the Plimsoil Bridge and may not be suitable for wheelchair users: extra care will be needed on foot. Cross the concrete footbridge on your right then go under the left-hand arch of the Plimsoil Bridge. The bridge, which was opened in 1965, is named after Samuel Plimsoil (1824-1898), a politician and campaigner for safety at sea who was born in Redcliffe. To your left is Brunel's South Entrance Lock, which is no longer in use. Continue round until you reach Brunel's wrought-iron tubular swing bridge (11), which is now set on the quayside.

This bridge was once part of the rebuilt South Entrance Lock, opened in 1849, and its innovative design later informed Brunel's triumphant Royal Albert Bridge at Saltash, which is still in use today. Brunel had previously modified Jessop's North Entrance Lock after the ss Great Britain was trapped in the Floating Harbour following her launch in 1843. She remained trapped for 18 months.

Continue to the furthest point of the island where you will be rewarded with a stunning view of the Clifton Suspension Bridge, spanning the Avon Gorge. On your right is Thomas Howard's lock, completed in 1873, which is still in operation. The North Entrance Lock was sealed when this new lock was opened. Across the water is Hotwells, a place which once rivalled Bath with its spa facilities.



Aerial view of the Cumberland Basin in the 1930s, before the current road scheme was built (Bristol Culture PBA 345).

Turn round and walk back towards the South Entrance Lock, keeping to the right-hand side of the island. Information boards giving details of the swing bridge and plans for its conservation are by the railings. Cross over the static tubular bridge ahead of you, a near-replica of Brunel's designed by Howard, pausing to look down to your right at the cuned, masonry walls of the lock's entrance. At low-tide, when the New Cut is reduced to a muddy trickle, you will appreciate the necessity of creating the Floating Harbour.

When you reach Cumberland Road, turn left and go under the bridge arch. The flyover above you carries Brunel Way. Taking care of the traffic (there is no pedestrian crossing), cross the road and walk towards the large red-brick structure ahead of you, 'B' Bond (12).

This is a former Wills tobacco warehouse dating from 1908 and is one of the earliest large buildings to be built on a reinforced concrete frame. By the 1670s about half of Bristol's ships were engaged in the tobacco trade and by the mid-eighteenth century a number of tobacconist shops had been set up in the city, concentrated around the Castle Street area. In 1786 Bristol tobacconist Samuel Watkins took on a new partner, Henry Overton Wills (1761-1826), who had recently arrived from his hometown of Salisbury. This was the foundation for the Wills tobacco manufacturing company, which became one of the city's biggest employers.

Tobacco was first grown as a commercial crop in the British colonies of the Caribbean and North America in the early seventeenth century. A triangular transatlantic trade developed: On the first leg of a typical voyage, a ship would sail from Bristol to the African trading centres of the Gold Coast, Angola and the Bight of Benin, laden with manufactured goods. The goods were exchanged for enslaved people who had been captured from across West Africa in inter-tribal wars and in raids on villages. On the second leg the slaves would be transported to the colonies in appalling conditions, chained below-deck. Those who survived would be sold in private sales, at auction or in a free-for-all 'scramble'. The ship would then load up with local goods (mainly sugar, but also tobacco, coffee, rum, cocoa and tropical woods) and return home on the third and final leg of the journey. The slave trade was abolished by the British government in 1807, but the Emancipation Act, freeing slaves in the colonies, was not passed until 1834. The government paid compensation to plantation owners and mortgage holders. Most of the money was reinvested in new engineering and manufacturing ventures including canals and railways. No compensation was paid to those who had been enslaved. Brunel's opinion on slavery is unknown.

Make a circuit of 'B' Bond. This now houses the Bristol Record Office (www.bristolmuseum.org.uk/bristol-record-office) and the environment centre Create (www.createbristol.org). Both often host free exhibitions. Re-cross Cumberland Road, turn right and return to the Nova Scotia.

You have reached the end of section 3. You can now choose one of the options at the end of section 2 or continue to section 4.

Section 4

Cross Junction Lock Bridge, taking note of the row of dock cottages to your right. Turn right and follow the path that runs by The Pump House (originally built to house the machinery that operated the sluice gates). Your route is signposted as Harbourside Walk. Along the way you have an excellent view of ss Great Britain. Opposite the ship is a memorial to Samuel Plimsoll. The Plimsoll line on a ship's hull indicates the legal limit to which the ship may be safely loaded under various conditions.

If you need to avoid the steps at Porto Quay, turn left up Gas Ferry Road then right through the archway in the wall. Keep taking right-hand turns until you reach Hannover Quay where you turn left. This is where you will pick up the route if you have taken the Cross Harbour Ferry.

Continue along Hannover Quay and cross the Lloyds Amphitheatre. The GWR's docks service once terminated in nearby Canon's Marsh, now the site of Millennium Square (see Walk 4). Continue to Pero's Bridge (13).

This footbridge is named after Pero Jones who came to Bristol from the Caribbean as a personal slave of the merchant John Pinney (see Walk 2). The bridge was opened in 1999. It was designed by the artist Ellis O'Connell with the engineering company Arup. The central span can be raised for shipping. The horn-shaped sculptures act as counterweights for the lifting section and the bridge is more familiarly referred to as The Horny Bridge.

Cross the bridge. Walk straight ahead, cross Prince Street at the pedestrian crossing and enter Queen Square (14).

The square was the focus of the Bristol Riots of 1831 in which Brunel, who was in the city to supervise work on the Clifton Suspension Bridge, served as a special constable. Business confidence in the city plummeted following the riots, which contributed to delays in the construction of Brunel's bridge (see Walk 5). The rioting was in protest at the House of Lords rejecting the second Reform Bill and also prompted by discontent at the corruption of city officials.

Keep straight ahead and where the path forks on Bell Avenue by The Hole in the Wall, keep to the right. Cross the road at the end of The Grove and go to the right-hand side of Redcliffe Bridge. Cross the bridge, taking note of the view you now have of Redcliffe Parade, where you were earlier, and of the cliff that gives this area its name. Bear round to your right to the Quakers' Burial Ground (there is an information board by the entrance). Retrace your steps back to the station from the pedestrian crossing at the bottom of Redcliff Hill. When you reach the station you may wish to make a short diversion to Temple Back East to see the statue of Brunel (15) by John Doubleday outside the offices of the law firm Osborne Clark, facing Temple Way.

Although intended as a serious tribute the figure is considered comical by many because of its height and stance. It was unveiled in May 1982 outside the head office of Bristol & West off Broad Quay and moved to its present location in 2006 as part of the Brunel200 celebrations (www.brunel200.com). Osborne Clark has an interesting Brunel connection. One morning in 1833 Jeremiah Osborne, who was the GWR's solicitor and a founder of the firm, rowed Brunel down the Avon to survey the river banks when he was planning the route of the railway.