

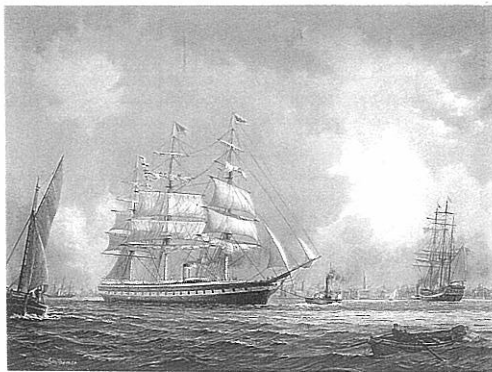
**Conservation Plan**  
for the  
**Great Western Steamship Company Dockyard**  
and  
**the *ss Great Britain***

January 1999

Reviewed & revised March 2007

Volume 1 of 2

Volume 1 prepared by  
Keystone  
in collaboration with  
the SS Great Britain Project



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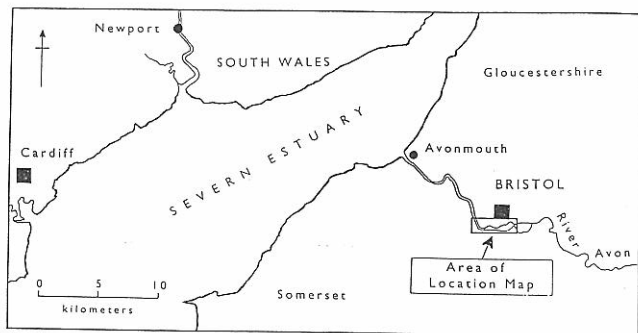
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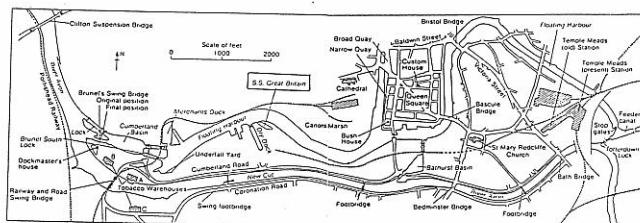




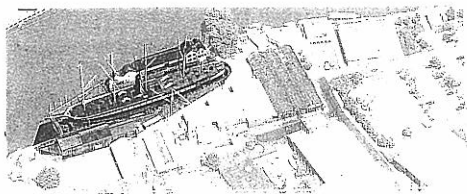
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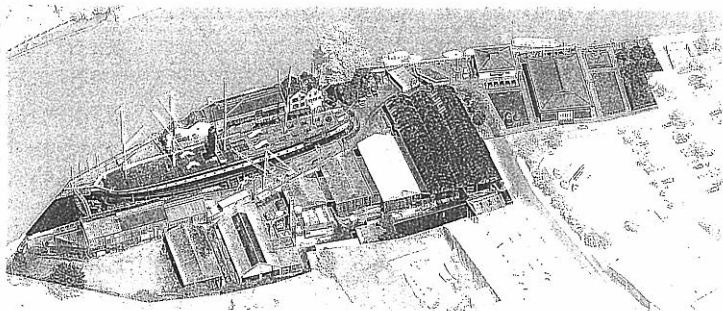
*Bristol in its immediate context*



*Location Map showing the ss Great Britain in relation to the Floating Harbour*



*The site occupied by the ss Great Britain Project in 1998*



*The site proposed to be occupied by the ss Great Britain Project*



## 1 - Summary

The site that is the subject of this Conservation Plan is the west portion (about two thirds) of the former Great Western Steamship Company dockyard, where the *Great Britain* was built and returned to dry dock in 1970. The *ss Great Britain* Project has occupied part of the site since 1970 and is in the process of acquiring, by purchase and lease, occupancy of the whole of the west portion of the former dockyard. The east portion of the former dockyard was used for timber storage by the GWSSC. Unlike the west portion, it was never heavily developed with buildings and, after 1876, was used for the Bristol Harbour Railway. It will remain in the hands of Bristol City Council. The 1980s Maritime Heritage Centre on the east portion will be managed by the *ss Great Britain* Project to which it is already linked. Uniting previously fragmented parts of the dockyard is an opportunity to generate income to sustain the long-term conservation of the *Great Britain* as well as to reveal to visitors the significance of a place of international importance.

### Heritage Merit

The site includes the preserved ship, the *Great Britain*, of international significance as the forerunner of virtually all modern shipping. She would be of international importance whatever her location. The dockyard, developed in tandem with the construction of the ship, is of exceptional interest as the first purpose-built integrated iron steamship works in the world. The survival of site and ship together is an extraordinary conjunction and intensifies the significance of each.

### Statutory and Non-Statutory Designations

The site forms part of the Bristol City Docks Conservation Area. The dock and dock office are listed Grade II\*, their high grades reflecting association with the ship. The ship has no formal statutory protection of her own, although she might, legally, be identified as curtilage to the dock. The ship is accessioned into the collection of the *ss Great Britain* Project. The site is subject to Bristol City Council's Bristol Harbourside Regeneration Planning Brief, approved 8 July 1998 as supplementary guidance to the Bristol Local Plan.

### Vulnerability

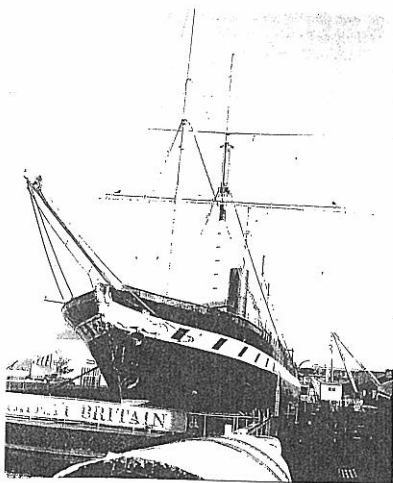
The major issue is the physical condition of the wrought ironwork of the ship. This is discussed in detail in volume 2 of this Conservation Plan. Capital investment is needed to place the conservation of the ship's ironwork on a sound, up-to-date philosophical and technical base and to draw this unique conservation challenge into higher quality and effective interpretation on the site. The maintenance of an industrial character to the dockyard while in heritage use requires delicate treatment. The loss of a wider industrial context, with the exception of the active Albion dockyard to west, makes the preservation of an authentic industrial character particularly sensitive. Bristol City's Planning Brief for Harbourside Regeneration is a crucial document setting out policies in which the Project has a role, including an extension of the harbourside walkway proposed across the west end of the dock.

### Summary of Policies for Conserving and Managing the Site

The policies in the plan can be summarised as covering: Vision Policy; adoption of the Conservation Plan; Broad Aims; Policies covering the Conservation of the Ship; the Philosophy towards Significant Fabric; Maintenance; the Revelation of Significance and minimising Vulnerability; Access and Visitors' Comfort.

### The Date the Conservation Plan was Adopted

This draft Conservation Plan has been put forward for formal adoption by the Executive Committee and Council of the *ss Great Britain* Project after circulation to consultees.



[1] *The 'ss Great Britain', 1998.*

## 2 - Background

### Introduction to the Place

The whole dockyard site has medieval boundaries but contains nothing above ground that can be dated before the 19th century. Between 1839 and 1852 the site was occupied and developed by the GWSSC, who had successfully built the *Great Western*, launched in 1837, in Bristol. In their new dockyard the GWSSC built a dry dock, factory and possibly a dock office and constructed the *Great Britain* between 1839 and 1843 [1]. She was then the largest ship in the world. Isambard Kingdom Brunel was a member of the 3-man building committee of the ship and played a major part in a design which combined and developed features at what was then the cutting edge of technology.

Dr Basil Greenhill, former director of the National Maritime Museum has written of the *Great Britain*: 'it is impossible to imagine a more important survivor of our 'heritage' in terms of her significance to the industrial, economic and social development of Britain' (Allington and Greenhill, 1997, 1).

If the *Great Britain* demonstrates British history, she also has a special place in the history of international communications, first with New York and then, as an emigrant ship to Australia, helping to set the pattern of modern Australian culture and its ties to the old country. After a long active service and then decline to a storage hulk from 1887-1933 in the Falkland Islands, a restoration fund was launched by the Governor of the Colony but abandoned on grounds of cost. The ship was beached on April 12 1937.

The *ss Great Britain* Project was formed to rescue the ship in 1968 and in 1970 she was returned to Bristol. Since her homecoming, the Project has undertaken restoration of the ship and opened the ship and the part of the site leased to them, to visitors, adapting buildings for offices, workshops and visitor facilities.

### Circumstances of preparing the Conservation Plan

This Conservation Plan has been prepared as a joint exercise between staff of the Project, led by Matthew Tanner, the curator; Keystone Historic Buildings Consultants, led by Jo Cox and Eura Conservation, led by Robert Turner with a great deal of help from others, listed in the acknowledgements. It was prepared in 1998 using a Heritage Lottery Fund grant and, in accordance with the requirements of the Heritage Lottery Fund, as part of the Stage One procedure in applying for further funds.

The Conservation Plan was prepared as the *ss Great Britain* Project is at a turning point. The prospect of occupying more of the historic site opens up the opportunity to reveal more of the significance of the site to visitors and generate more income for the conservation of the ship. The physical condition of the ship and the philosophy, management and cost of its conservation, after nearly 30 years in the hands of the Project, is ripe for review.

### Limitations of the Conservation Plan

Until this Conservation Plan was prepared, the over-riding importance of the ship as a technical masterpiece had left the assessment of the significance of the site as a whole in the background. The Conservation Plan has sought to strike a new balance in understanding the site and ship together as well as to suggest an approach to the archaeology of the ship and the conservation of her ironwork. As might be expected, a closer look at the site has indicated the need for targeted archaeological evaluation, should changes be proposed, to develop a fuller understanding of especially sensitive areas. The rich archaeology of the ship, blurred in places by the restoration work since 1970, will not be fully understood without a recording programme allied to the documentary record. The fabric

analysis for this Conservation Plan is a first tentative step in approaching the ship archaeologically by identifying phases of change. The assessment of the condition of the ship's fabric in the preliminary Condition & Treatment Report (volume 3) by Eura Conservation has set the foundation for what must be an ongoing project including both research and practical conservation techniques to ensure her structural survival. The ship is probably the most important wrought iron monument in the world, combining a wrought iron skeleton with wrought iron cladding. This represents a unique conservation challenge relating to a particular material of construction. Solutions here will be of immense value and interest to the whole field of metalwork conservation.

### **Collections Policy**

The collections include the ship, recognised by the Museums and Galleries Commission as 'clearly an outstanding artefact'. There is also a collection of contents and structural elements from the ship, as recovered from the Falkland Islands in 1970. In addition there is a small collection of objects, collected individually, which relate to the ship, I K Brunel and to the *Great Western* and the *Great Eastern*. The *ss Great Britain* Project also holds an important archive collection of about 200 items, including personal letters and diaries relating to Brunel's ships and their journeys. There is an Acquisition and Disposal Policy for the collection and an Accession Register.

### **Consultation Process**

The consultation process involved:

Bristol City Council

English Heritage

The Heritage Lottery Fund

The National Historic Ships Committee

The Maritime Curators' Group

The Museum and Galleries Commission

The South West Museums Council

The International Congress of Maritime Museums

We are very grateful to consultees for their useful comments and corrections to the draft text of the Conservation Plan.

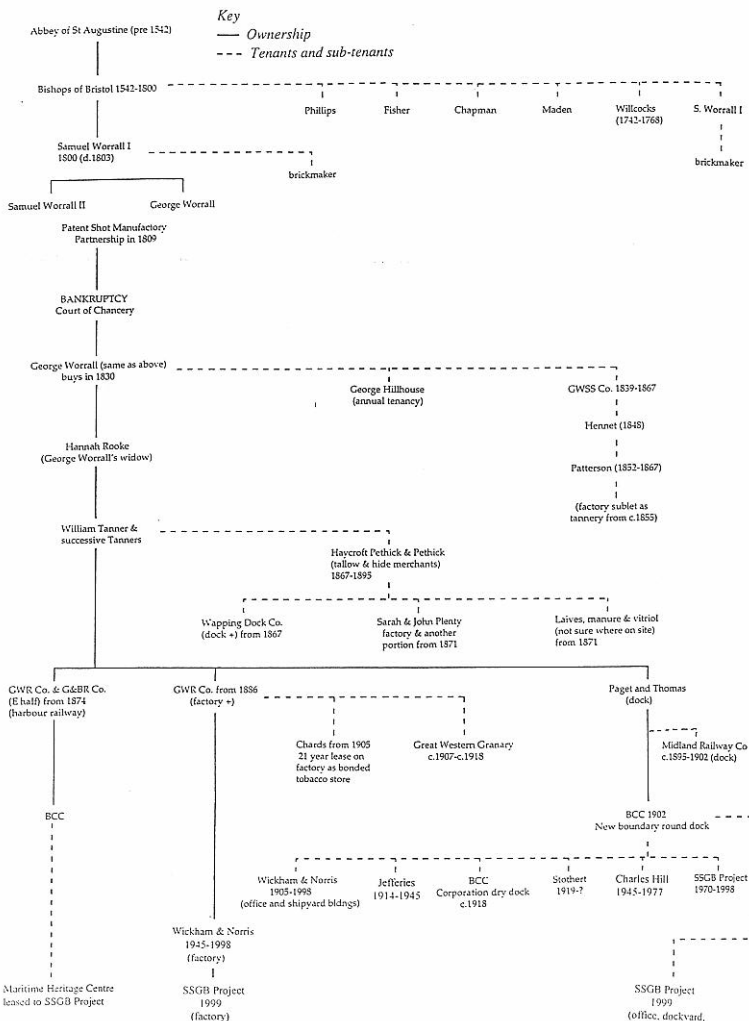


## Abbreviations:

|         |   |
|---------|---|
| ADM -   | Admiralty archives in the Public Record Office.   |
| AGM -   | Annual general meeting  |
| BCC -   | Bristol City Council Archives   |
| BIM -   | Bristol Industrial Museum   |
| BMAG -  | Bristol Museum and Art Gallery  |
| BRO -   | Bristol Record Office.  |
| GWSSC - | Great Western Steam Ship Company.   |
| HB -    | Manuscript account of Brunel's three ships, in Henry Brunel's hand, probably prepared for his brother's <i>Life</i> of their father. Held by the University of Bristol. |
| ILN -   | <i>Illustrated London News</i> .  |
| LB -    | Brunel Letter Books, held by the University of Bristol.   |
| NMM -   | The National Maritime Museum, London.   |
| RAIL -  | Brunel collection formerly held by the GWR, now in the PRO.   |
| SSGB -  | <i>ss Great Britain</i> archives.   |
| V&A -   | Victoria and Albert Museum Picture Library  |

Documentary references are in round brackets. Illustrations are referenced with square brackets in the text.

[2] *The geneology of owners, tenants and sub-tenants on site as understood in 1999. Based largely on material held by Bristol City Council, but supplemented from other sources*



### 3 - Understanding the Site

#### Part One: The Great Western Dockyard

##### 3.1 - Land Use, owners and tenants

*The site that is the focus of Part One of this conservation plan is the west portion of the dockyard of the Great Western Steamship Company, who built the Great Britain between 1839 and 1843. The dockyard site, formerly in Bedminster parish, Somerset, lies west of the heart of the city, on the southern side of a bend to north in the Floating Harbour, with a long waterside front. It now falls into two parts, east and west, divided by Gas Ferry Road. The brief for the Conservation Plan excluded the east part, which was the company's timber yard and after 1874-6 had a separate history of development, being used for an extension of the harbour railway.*

*The history of the dockyard site is well-documented from 1800. Earlier documentation is patchy and what was found consisted largely of lists of tenants of the Bishops of Bristol. The pattern of post 1800 ownership, tenancies and sub-leases is complex [2]. In microcosm, it demonstrates the history of land ownership and use in England. It illustrates successive shifts from ecclesiastical to secular, pastoral to industrial and industrial to heritage. It also demonstrates the local pattern of Bristol's evolving docks and associated waterside industries.*

##### Medieval

In brief, the boundaries of the Great Western Dockyard are medieval in origin, consisting of land on the south bank of the Avon, known as Beaumonds Mead or Warth Meadow and probably used as pasture. Before 1542 it was in the ownership of the Abbey of St Augustine which was made a Cathedral (now Bristol Cathedral) in 1542. According to Kirby (1970, ix), this land was one of the properties with which Henry VI endowed the See.

##### 18th Century

In the c.mid 18th century a house, garden and outhouse were erected and this is probably the group of buildings shown in a painting of c.1800 (BMAG, M5245), showing a pastoral scene, the site with a boundary of trees and rising ground, divided into fields, behind.

Industrial uses, some short-lived, developed from at least the late 18th century. There was a brickworks on site by 1792<sup>1</sup>. In 1800 the plot was sold into secular hands (BRO, EP/E/18/1).

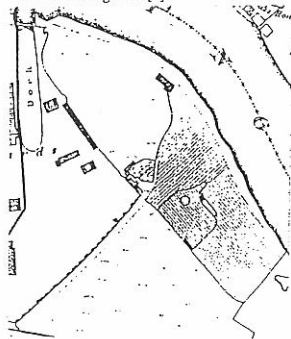
[3] Unexecuted designs of 1792 & 1802 for the Floating Harbour, proposed by William Jessop, show the site that was to become the GWSSC dockyard as a brick yard. This is the 1802 proposal, BRO 11168 (39). The shaded areas are assumed to be clay pits.  
© Bristol Record Office.



## 19th Century

In 1804-1809, William Jessop created the Floating Harbour by embanking and locking the old courses of the Avon and Frome, and sending the tidal Avon through a new cut. The harbour was designed to liberate ship-building and trade in the city from the extreme tides of the Avon and to act as a spur to Bristol's maritime economy, then suffering from competition with fast-expanding Liverpool. The harbour encouraged maritime development west of the docks in the very city centre, where ship-building yards had previously been concentrated.

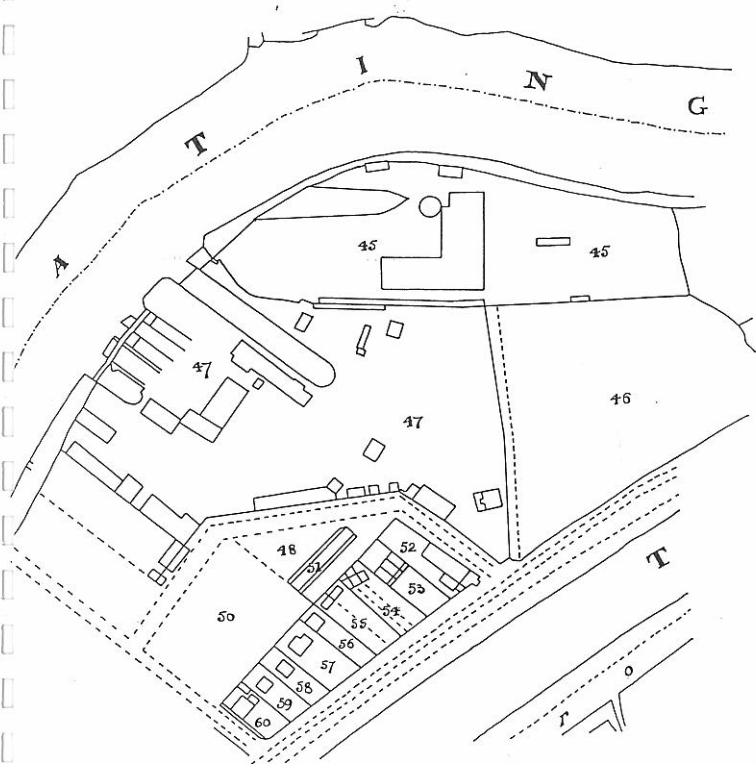
In the early 19th century the site was proposed for a Patent Shot Manufactory (BCC, recited in conveyance of 25 March 1830), an industry with very particular Bristol links (Harvey & Press, 1988, 166). This was not a success and may never have achieved any buildings. The Albion dockyard, adjacent to the Great Western Dockyard and still active in 1998, was founded in 1820 by Hillhouse and Co, later Charles Hill. By 1828 (BMAG, 1828 Ashmead map hung in corridor) the site that was to become the Great Western Dockyard was in use as a garden [4].



[4] The site that was to become the GWSSC dockyard shown in the 1828 Ashmead map. The east portion is rendered with the symbol for gardens and nurseries. BRO copy of map hung in the corridor of the BMAG. © Bristol Museum & Art Gallery.

George Hillhouse is recorded as occupying it immediately before the GWSSC (BCC, recited in settlement, 27 June 1842). The GWSSC took out a 28 year lease on the site from June 1839. They must have had some prior arrangement with the owner or George Hillhouse because they were already erecting buildings in early March 1839 (RAIL 1149/60). In four exhilarating years, they created the first integrated iron steamship works in the world, and produced the *Great Britain*, the Eve of modern shipping. The ship was floated out in 1843. The company became effectively defunct by 1846 and was officially wound up in 1852. They left behind them a large factory, dock, probable sawmills, a range of minor buildings & (probably) a dock office. These were all on the west portion of the site, the east portion was their timber yard and had a few small buildings, probably timber stores, on it [5]. In 1852 they sold the remainder of their 28 year lease to William Patterson, a ship-builder already familiar with the yard as the designer of the lines of the hull of the *Great Britain* (RAIL, 1149/60). Patterson's more modest needs meant that the company's L-plan factory was separated from the dockyard. It was adapted as a tannery by 1855 and thereafter its history of occupation and use was uncoupled from shipbuilding.

By 1871, new tenants, who had taken over the site in 1867, let it between three sub-tenants (BCC, recited in conveyance of 29 September, 1874). The factory continued as a tannery and was paired with another plot of land. The dock, along with buildings that had developed in the angle of the L-plan factory, was let to the Wapping Dock Company, continuing a ship-building and repair use. Another portion of the site was let to the City of London Chemical Manure and Oil of Vitriol Company (*ibid.*), although it is not clear where they were based. In 1874-76 the section of the site east of Gas Ferry Road was compulsorily purchased for an extension of the harbour railway (BCC, Arthur Tanner's abstract of title) [6]. Later, in 1886, the GWR also acquired the factory building (*ibid.*) which they may have used themselves as a grain store, both before and during the period when

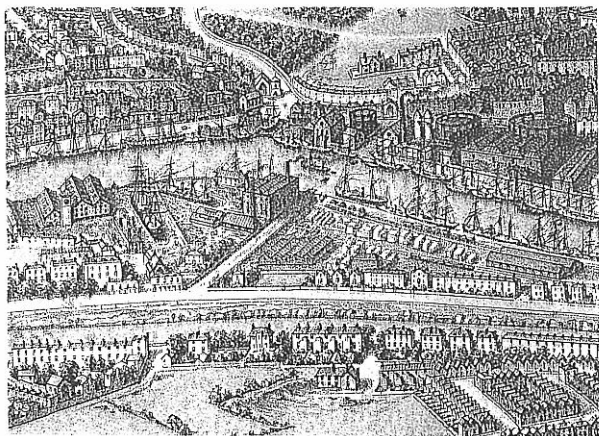


[5] A tracing of the Bedminster tithe map (BRO), surveyed in 1841, showing the GWSSC dockyard during the period when the ss *Great Britain* was under construction.

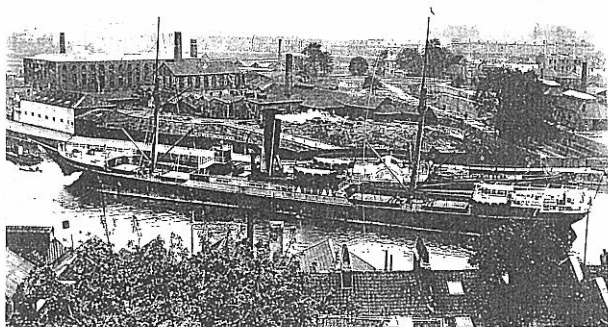
45 - The GWSSC dockyard

47 - The Albion Yard

it was also let out as a tobacco warehouse (Wrights Bristol Directory, 1907-1918 and 1918 OS map). The Midland Railway Company made use of the dock, probably from 1895, succeeding the Wapping Dock Company as tenants.



[6] An extract from Lavers panorama of 1887 (BMAG). This omits some buildings known from map evidence to have been on the west portion of the dockyard side at this date, but shows the dominance of the GWSSC factory & the development of the east portion of the site for the harbour railway. © Bristol Museum & Art Gallery



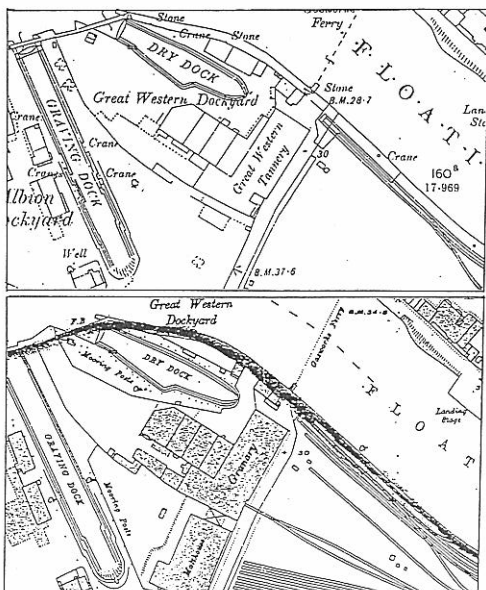
[7] *The dock and associated buildings seen across the Floating Harbour in c.1890*  
*BIM, Keen, 22/147. © Bristol Industrial Museum.*

## 20th Century

Bristol City Council acquired the dock in 1902 (Wells, 1909, 345). This was precisely at the time when major improvements to the dock area at Avonmouth, about 6 miles north-west of the Floating Harbour, were underway. The Avonmouth and Portishead docks had been developed by private entrepreneurs in 1877-1880. Facilities in the Floating Harbour were unable to match those erected outside. Under the Bristol Dock Act of 1884, the Corporation purchased most of the Avonmouth and Portishead competition and made improvements at Avonmouth, with a major scheme following a Parliamentary Bill in 1901. An article in *The Builder* commended the proposed works but noted that: 'Until quite lately the Local Authorities have clung very tenaciously to the idea that the city itself is the proper centre of the port' (30 March 1901, 311). It may have been a residue of this

sentiment that encouraged the City to effect improvements to the city docks, including purchasing and extending the dock on the former GWSSC site, which became the Corporation Commercial Dry Dock.

Bristol City Council separated the dock from the remainder of the site - now consisting of the west portion of the original GWSSC dockyard - with a tight boundary [8]. The extensive buildings and generous working space to south that had been used by Patterson and successive tenant ship-builders were leased out separately to a timber merchant, Wickham and Norris, by 1905 (BIM, J4313). This company also rented the old dock office, north of the dock, fronting the towpath. Access between their two portions of the old site had to be squeezed in round the east end of the dock which was also the only route (apart from the towpath) to the dock itself from Gas Ferry Road.



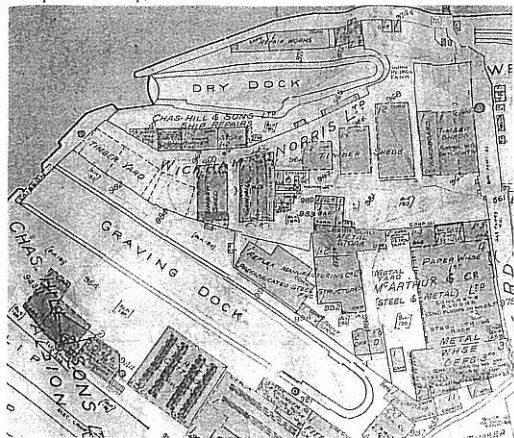
[8] The arrival of the c.1903 Bristol City Council boundary round the dock shown in a comparison between the 1888 & the 1918 OS maps. BRO. 210(a) & BRO. 210(c)



Inside the new dock boundary, on the south side a modest row of ship repair buildings, including a boiler-makers shop and an unassuming brick office was erected in c.1914-1919, for Jefferies, tenants of the dock. A similar range was added, probably after World War II, on the north side of the dock. These were dwarfs compared with the factory erected by the experimentalising and ambitious GWSSC 80 years or so earlier and represent the far more ordinary face of a Bristol ship-repairing outfit.

During World War II the site was bomb-damaged. Raids in November and December 1940 and early 1941 damaged the Albion yard with incendiary and high explosive bombs (Hill, n.d., 75). The most graphic evidence for how this affected the site is to be found on a map stuck on the wall of the Nova Scotia pub (no other copies found to date), which is colour-coded to identify sites cleared after bomb damage (Nova Scotia pub, *Comprehensive Development Area Map, central area*

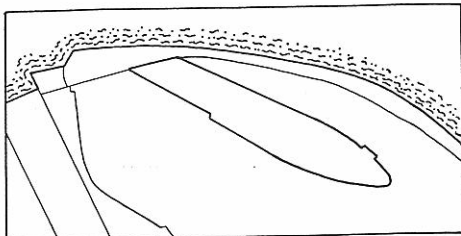
*No 1, land use [1(1)]*). The old factory and the infill buildings stand out as having been cleared. Remnant walls of the factory, however, survived and it was re-roofed and leased to Wickham and Norris in 1945 as a timber store, reuniting its occupancy with that of the old dock office [9]. In spite of all its changes of use since 1839, the factory survived, presumably structurally intact, for more than a century, until World War II. In 1945, Charles Hill of the neighbouring Albion yard leased the former GWSSC dock from Bristol City Council and was still installed when the *Great Britain* came home in 1970, undertaking the early restoration work on the ship for the *ss Great Britain* Project. The Project acquired the lease on the dock in 1977. At the time of writing Wickham and Norris are still in occupation of the factory remains and the old dock office but with the *ss Great Britain* Project poised to take over the tenancy of the whole dockyard on an 125 year lease.



[9] The site shown on the Goad Fire Insurance plan, dated 1945, but probably revised 1952 (date of copyright on plan), BRO 35033/2. The original is colour-coded.  
© Bristol Record Office.

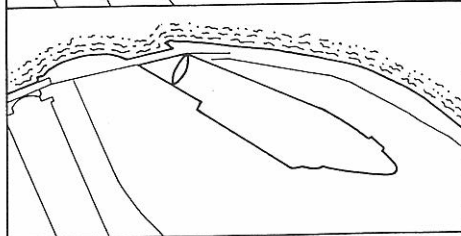
1841

Based on the tithe map, BRO



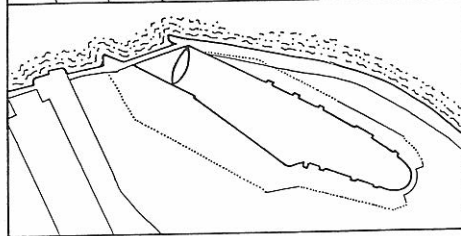
By 1870

The kink on the south side does not appear on an 1855 map & is first shown on a map of 1870, BRO, 'Ashmead 1870'.



By 1903

The blunter nose and extension of the dock to the east is shown on the 6" OS map of 1903, BRO, 210 (b)



[10] The evolution of the dock shown graphically. This sequence is based on historic maps & plans, re-drawn to the same scale by Rupert Ford and Sophie Sharif. Buildings have been omitted.

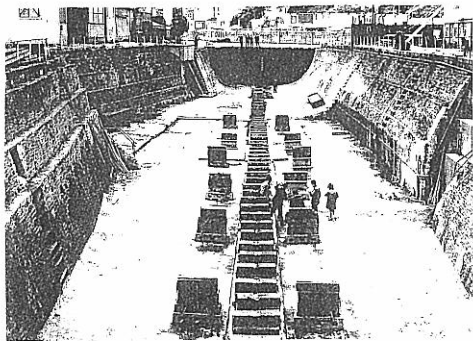
### 3.2 - Surviving Buildings of the Great Western Steamship Company. 'A more convenient Engineering and Ship-Building Establishment than any in the Kingdom'

(AGM of the GWSSC, March 1844).

#### The Great Western Dry Dock

Listed Grade II\*

*The dock was built by the GWSSC in 1839 with advice from I K Brunel. The existing dock, includes evidence for at least three or four major historic building phases, with later phases of post-war concrete repair and alteration. Originally cradle-shaped, a kink was added in the south side of the dock at some time between 1855-1872, probably for William Patterson. At the same time, or maybe later, the east end was rebuilt for a flat floor and finally, in c.1903, soon after the dock had been taken over by Bristol City Council, the east end was extended a short distance [10].*



[11] *The dock in 1970, prepared for the arrival of the ss Great Britain. The first phase cradle-shaped profile can be seen clearly at the west end.*  
© Richard Goold-Adams.

#### Phase 1 - the GWSSC dock, 1839-1852

The dock was built specifically for the construction of the *Great Britain* and for the maintenance of her sister ship, the *Great Western*. It was built under the supervision of Captain Christopher Claxton, the managing director of the GWSSC. Brunel advised when the dock bottom rose, reassuring Claxton that this was common in excavations "in elastic spongy ground" and recommended transverse timbers to secure it (LB1 Brunel to Claxton, Oct 22 1839) - these may be the timbers that

still survive in the dock bottom. There was no previous dock on site. An 1802 plan of a proposed design for the Floating Harbour shows a brickyard on the site of the present dockyard and a clay pit on site includes the area out of which the dock was excavated. This may have reduced the cost of the excavation, which was not broken through to the harbour until the *Great Britain* was floated out.

The dock was not an expensive or high-tech structure for its day<sup>2</sup>. It cost £5,130, was fit

for its purpose and vernacular in character. At the west end it preserves its original cradle-shaped profile, built of neat courses of Pennant rubble, with an apron of finer ashlar masonry at the west end, rising up to form the entrance into which a caisson was fitted for the floating out of the ship. The employment of better masonry here is to be expected; the flooring designed to counteract erosion from water leaking in around the caisson and the full profile ashlar work at the west end providing a carefully-finished lip into which the caisson now fits. The sides close to the entrance include slots roughly cut into the stonework which appear to have been created to take timbers angled towards the entrance. One of the slots contains the stub of a timber. The ground to the Floating Harbour was not broken through until the ship was finished and these slots may be related to some temporary dam erected across the entrance before the caisson was fitted, or a safety device in the event of the caisson failing. The surviving cradle-shaped masonry walls include altars for shores and for access to different levels of the hull during construction as well as flights of steps into the dock.

The relationship between the ship and dock was, and is, a close one [12]. The dock angle and dock shape were determined by the size & shape of the ship. The acute angle of the dock gave room for the largest ship then in the world to float off diagonally across the Floating Harbour, as well as providing working space on a relatively narrow site. The ship fitted tightly into the dock which, in its first phase, had a pointed east end and was shorter than at present. As the ship was altered during construction, so was the dock. The decision to fit the ship's engines at the company's works, rather than afloat in the Cumberland Basin, was reported by the directors in March 1843, along with the throwaway line that the company had had to deepen the dock under the entire length of the ship (RAIL 1149/60) so that she could be floated off her blocks. By September 1842 the *Mechanics Magazine* reported that the dock entrance was under construction and the

bottom of the dock '12 feet below the water in the harbour', as it is today.

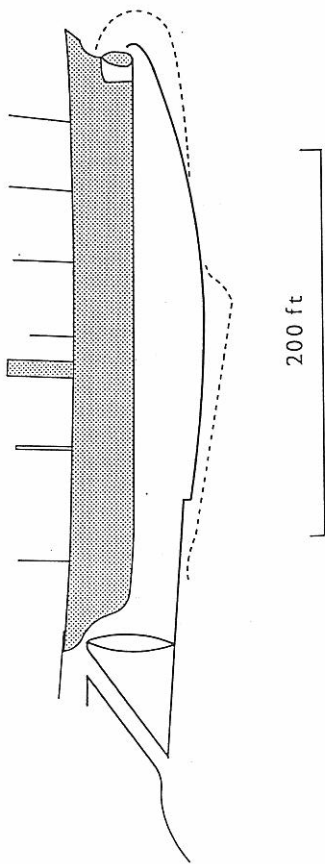
Corlett remarks that the ship's low bilge keels were really used as docking keels (1989, 32). This design element was a direct result of the decision to build a heavy iron ship in a dry dock and float her off rather than launch her.

After the *Great Britain* had been floated out, with due ceremony, on 19 July 1843, she was moored up on the opposite side of the Floating Harbour for completion. If the physical connection between dock and ship was then broken until the 19 July 1970, links by association were maintained. In the winter of that year the *Great Western*, also designed by Brunel as consulting engineer, was refitted at the company's works, presumably in the dock, including new paddle wheels (RAIL 1149/60, March 1844). Both the company's great ships would have been seen a few metres from one another.

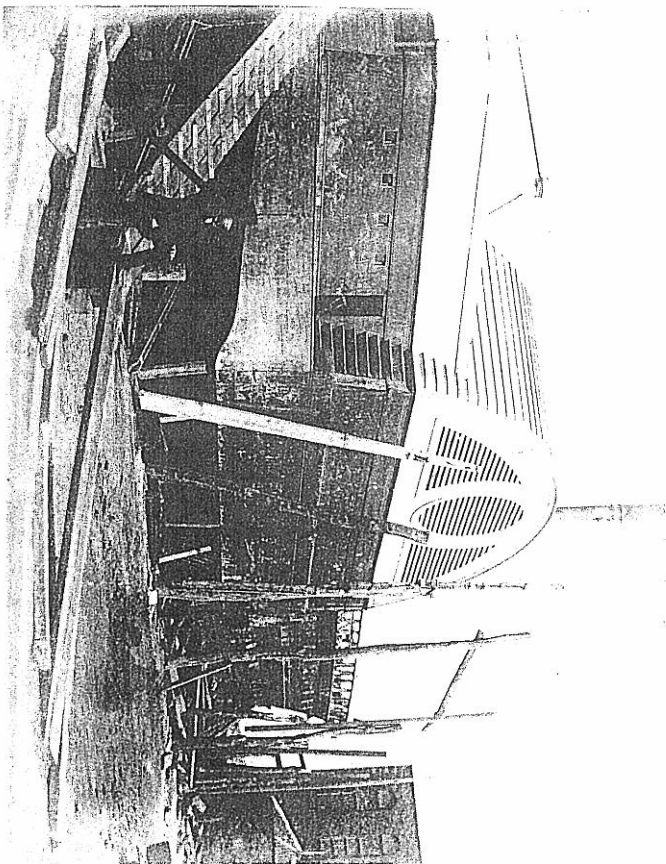
Thomas Guppy, one of the founder members of the GWSSC (and, with Brunel and William Patterson, one of the designers of the *Great Britain*), then used the dock and the company's works for the construction of two more iron steamships, apparently on his own account, the *Tintern* and the *Crete* (Farr, 1977, 11-12). These ships must have been produced before 1852, when the GWSSC officially handed over the remainder of their lease on the site to William Patterson, the ship-builder who had drawn the lines of the *Great Britain* (RAIL 1149/60, March 1852).

## Phase 2 - William Patterson's dock - 1852-1865

Patterson used the dock from 1852-1865. He was a versatile and respected ship-builder and produced some very diverse ships in the period. The *Demerara*, a large paddle steamer which had been built in his other yard on the Floating Harbour, was famously stranded and damaged in the Avon on her way out to sea. Patterson refitted her as a sailing ship in the dock, as recorded in a photograph at the V&A and a watercolour by George Wolfe, dated 1853 (BMAG, K1110).



[12] Scale drawing by Rupert Ford, adapted from Corlett, 1971, 17, showing the tight fit between the first phase of the dock and the ship. Later extensions to the dock are shown as a dotted line.



[13] The south side of the dock shown in a photograph dated to between 1853 & 1855, when William Patterson was working on the 'Demarara' in the dock. Surviving cut-down timber posts may be the remnants of the scaffolding shown here. The round building may have been a resonometer. V&A, Ph. 56-1983. © V&A Picture Library.

The photograph (V&A, Ph. 56-1983) is an important record of the south side of the dock in the 1850s, with the factory shown behind [13].

Patterson travelled to Liverpool in 1852 to undertake a refit of the *Great Britain*, and was also involved in her Liverpool refit of 1856/57. A major change in the construction of the dock is likely to have been undertaken by him. This was an extension on the south side in the form of a kink, which was associated with altering the cradle-shaped profile to one with battered walls and a flat floor. The kink has been responsible for the view that there was a dock on site before the GWSSC arrived, which was amended by them<sup>4</sup>. This view is incorrect.

Historic maps show the kink appearing between 1855 (BRO, 40860/map/65,66) and 1870 (BRO, 'Ashmead 1870'). The reason for the extension is unknown. It has been suggested that the dock might have failed on this side and the repair took the advantage of providing more space (*pers. comm.* Dr Robert Prescott), although the inverted arch construction of the original dock seems sound, where it survives. The only comparable kink in a dock is known from a 1758 painting by John Cleveley the Elder in the Caird Collection, the NMM, 'A sixth-rate on the stocks' (BHC 1045) which shows two ships in a dock. Presumably they could have been worked on simultaneously. In 1856 Patterson picked up a contract to produce 2 gunboats and 3 mortar vessels for the Admiralty (ADM 92/17) for the Crimean war (in which the *Great Britain* was also involved, as a hired troop-carrier). The dock extension would have allowed him to fit in 4 of the 5 vessels he was contracted to make, rather than 3 - this is a possible explanation. The kink is flanked by flights of stone steps, which may have been retained from the first phase, the eastern

flight with the evidence of iron balusters set into the lower steps, indicating an original guard rail. The replacement of the cradle-shaped profile at the east end of the dock on both the north and south sides with battered walls and a flat floor may be contemporary with the kink.

### Phase 3 - 1867-1970

After the original lease to the GWSSC ran out in 1867, the dock was sub-let by the new tenants of the site, for 28 years, to the Wapping Dock Company (BCC, recited in conveyance of 29 Sept, 1874). The Wapping Dock Company appear to have worked exclusively out of the dock until 1895. The three ships known to have been built by the Company in their period using the dock included the last ship-rigged vessel built in the port, *Remus*, 768 tons.

Presumably from 1895, when the lease came up for renewal, the Wapping Dock Company was succeeded, rather surprisingly, by the Midland Railway Company who were succeeded in turn, in 1902, by Bristol Corporation. An undated but c.1903 plan by the Bristol City Valuer shows a proposed new boundary, tight round the dock, including the first phase of the surviving curved red brick wall at its east end (BRO, 07783(7)). The area inside the c.1903 boundary is the one currently occupied by the *ss Great Britain* Project. Shortly after it changed hands the dock was extended by a few metres to the east (comparison between BCC map accompanying indenture of 27 December 1902 and 6" OS map of 1903) and given a blunter east end. The floor at this end is of brick which extends and overlaps much further west than the extension. The brickwork appears to be of at least two phases and changes to paving in the nose of the dock.

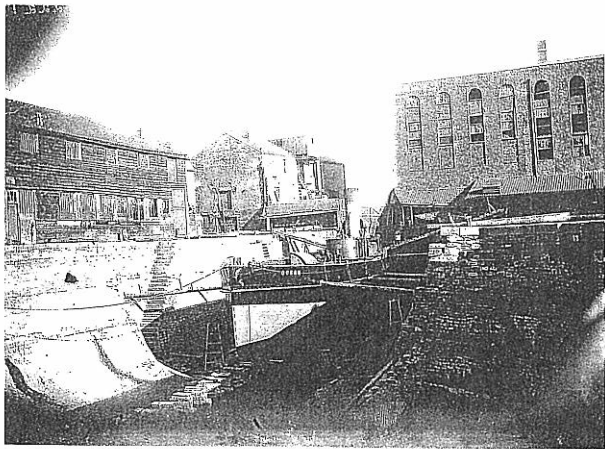
A photograph of the dock & its associated buildings (BIM, Keen, 17/193) can be precisely dated by reference to maps which show the arrangement of steps down into the dock changing on the north side between 1902 and 1903, associated with the extension. The photograph shows the dock as extended, but before the Corporation had altered the buildings on the north side of the dock [14].

Bristol City Council had leased the dock to Jefferies by 1914 (BRO, 32173/645), probably only for ship repair work. In c.1949, Charles Hill of the Albion Yard next door bought an interest in Jefferies, and Hill is shown in

occupation on the Goad Fire Insurance plan, dated 1945, but probably revised 1952 (BRO, date of copyright on plan, 35033/2).

#### Phase 4 - 1970-1998

The Charles Hill company was still using the dock in 1970, when the *Great Britain* re-entered the dock. They undertook restoration work on the ship, remaining in occupation of the dock until 1977, when the *ss Great Britain* Project acquired a lease on the dock. Two flights of steps into the dock have been added to give visitors access to the dock bottom.



[14] *The dock in a photograph that can be dated to 1903, BIM, York 4222.*  
© Bristol Industrial Museum.



## Features associated with the dock

### The Culvert

The first phase of the dock is described in a secondary source as having had a culvert that discharged into the New Cut (*Bristol Evening News*, 6 May 1910), about 250m SE of the Floating Harbour at this point. The culvert must have been amended when the dock floor was altered. The present arrangement of the culvert is shown on a 1930 plan accompanying an agreement of 31 December 1930 (Tucketts) with an outlet in the walling of the kink and a valve pit on the dockside (south) after which the course of the culvert angles to the SE.

### The Caisson

The caisson might be considered to be listed as part of the curtilage of the dock. A caisson was fitted to the dock when it was broken through to the Floating Harbour when the *Great Britain* was floated out. The date of the existing iron ship caisson is 1928 (Blake, 1989, 37).

### The Platform

A simple timber platform with an iron railing was used to work the arrangement for emptying the water from the dock when full. It is probably 1930s, and has been repaired since.

### The Pumphouse

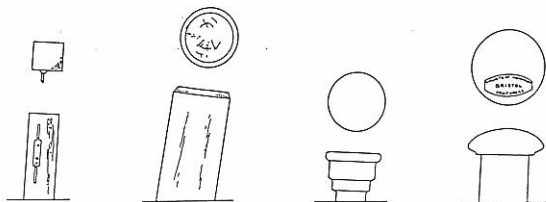
The dock was latterly emptied using a pump in a probably 20th century pumphouse, sited on the south side wall. The pumps it contains are not in working order.

### Bollards

These might be considered to be listed Grade II\* as part of the curtilage of the dock. The dock is surrounded by a variety of bollards of different designs, both timber and iron [15]. Timber posts, noted on Ordnance Survey maps as 'MP', for mooring posts, are part of a very closely-spaced series that may originally have been taller posts used as scaffolding for construction work in the dock, cut down to bollard size later. An arrangement of posts is shown in the important pre 1855 photograph of the south side of the dock, when the *Demerara* was being worked on by Patterson (V&A, Ph. 56-1983). Bollards marked on the 1885 OS map, extend round the kink and (unextended) east end of the dock and also appear (some possibly being cut-down scaffolding posts), in late 19th century photographs (BIM, Keen, 15/57, dated by Andy King of BIM as pre 1898; BIM J127 [18]).

### Berthing Blocks

There are two types. The earliest are c.1900 cast steel; the second set are c.1930 cast iron from a traditional pattern.



[15] A selection of the designs of iron bollards and timber posts round the dock, drawn by Rupert Ford.

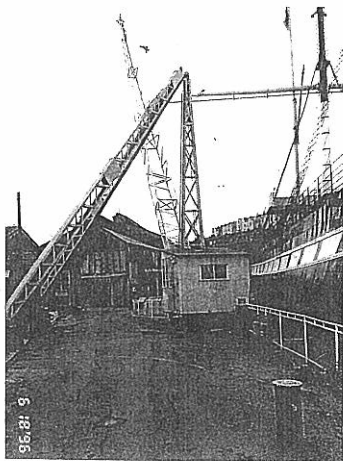
## Cranes

### i) Crane on south side of dock

A Scotch derrick is shown on a 1920 plan (Bristol RO, 32173/839) but just west of the kink, not east, as the present crane is. The present crane has an insurance document dated 1923 [16]. A crane was still in this position in 1930 (plan accompanying agreement of 31 December 1930, Tucketts). It is not clear when the crane was moved/replaced. It is not shown on Goad's Fire Insurance plan (perhaps omitted because it was machinery) of 1945, probably revised 1952 (date of copyright on plan, BRO, 35033/2). Sheer legs are shown on a pre 1895 photograph of the dock (BIM, Keen 22/147). A c.1960 photograph shows a second Scotch derrick on the south side of the dock (SSGB, Aerofilms, C6873).

### ii) Cranes on north side of dock

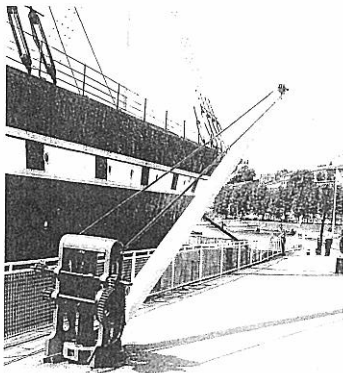
2 smaller hand derricks on the north side of the dock were *in situ* by 1970 [17].



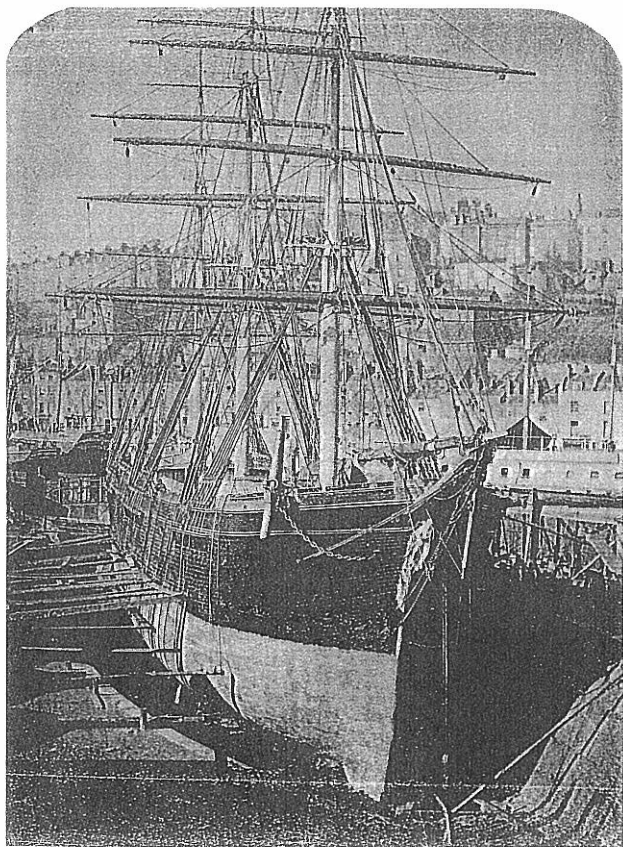
[16] Scotch derrick on the S side of the dock.

## General Assessment

The principal interest of the dock is its close association with the ship. The kink in the south side is not thoroughly understood and might be revealing about dock adaptations. It is also important as a surviving example of a Bristol Floating Harbour dock.



[17] One of the hand derricks on the N side of the dock.



[18] *The dock in a photograph of the c.1880s. This shows the kink; posts (possibly cut-down scaffolding posts) along the southern side and the south edge of the dock before BCC bought the dock in 1902 and extended it, BIM, J127. © Bristol Industrial Museum*

## The Factory

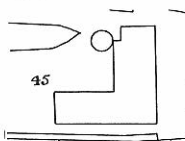
*The L-plan factory built by the GWSSC, survives as single-storey high sections of walling to the first phase range on a north/south axis, with good original corners at the north & south ends. The fabric includes evidence of several phases of alteration. The factory was re-used as a tannery from c.1852-c.1886. Tanpits were added inside. The north doors were blocked, probably in the late 19th century, perhaps when the building was occupied by the GWR and used as a granary and, later, a bonded store for tobacco. Alterations to the fenestration on the east elevation were probably made in the early 20th century and finally, after bomb damage, a re-roofing exercise of the reduced walls was undertaken in three stages to convert the building to a timber store [21].*

### Phase 1 - the GWSSC factory 1839-1852

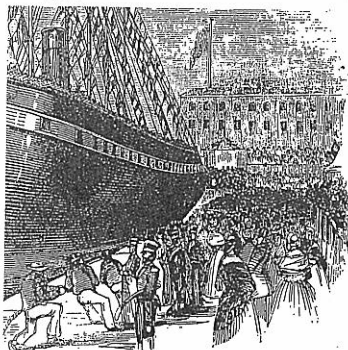
The GWSSC's original intention to establish a 'works' for re-fitting the *Great Western* evolved into a place in which they could also construct, not only the hull, but also the engines of the *Great Britain* (RAIL 1149/60, March 1843). The factory was the largest building they erected on site and dominated the dockyard until 1940/41. Its appearance is known from illustrations of the floating out of the *Great Britain* and from the photographic record which extends from the 1850s to the bomb damage that reduced it to a ruin in the 1940s.

### Exterior

The building shown on the factory site on the 1841 tithe map was L-plan.



[20] The factory shown on an extract of a tracing of the tithe map, surveyed 1841 (BRO)

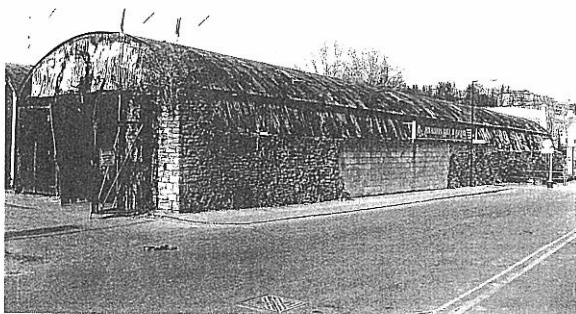


[19] The factory and probable gasometer shown in an extract of an ILN print, 22 July 1843 of the 'Great Britain' being floated out.

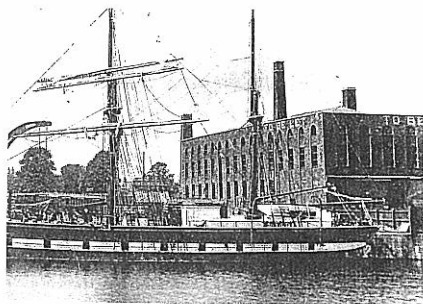
A north/south range was rectangular apart from a recess in the north/west corner. This recess had disappeared by 1846, the date of a map by Ashmead (BRO, 9389 (8)). An east/west range adjoined the west side at the south end. The original north/south range of the factory was a large, handsome, functional building.

In their factory, the GWSSC brought most of the activities required for marine engineering and the construction of the hull under one roof. The use of gas lighting was innovative (SSGB). The round building shown on the tithe map was probably a gasometer of the type patented by Stephen Hutchinson in 1833 (Patent 6486). By comparison gas-lighting was not to be completely installed in the Admiralty yard at Woolwich until 1855.

The range aligned north/south was built, like the dock, of Pennant stone. It was 3 storeys with a triple roof and 16 bays long x 8 bays wide [22]. The second floor windows were round-headed, with square-headed windows to the first floor. The west/east range is something of a mystery. The cartographic



[21] *The remnant walling (east side & south end) of the factory as surviving in 1998.*



[22] *The east side & north end of the factory in an extract from a c.1900 photograph, BIM, York 4424. © Bristol Industrial Museum*

evidence suggests that the tithe map surveyor may have been inaccurate in rendering the relationship of this block to the boundaries. It is unclear whether it is shown on the Lavers panorama of 1887 (BMAG), which omits some buildings, probably for artistic reasons. The real issue is whether the west/east range can be identified with a building - known from photographs of the 1890s - roofed parallel to the north/south range. This was a single-storey block with tall-rounded headed windows [24]. From its appearance it could be a foundry, although a secondary source (of the 1930s) states that it was a mast-erecting shop<sup>5</sup>. The balance of probabilities is a delicate one here, but until better evidence comes to light (and this might exist below-ground) it is suspected that the single-storey block was not part of the original GWSSC factory, but was built for William Patterson after 1852 for his ship-building works on the site.

### Interior

The detailed internal arrangements of the GWSSC factory are uncertain. Late 19th century photographs show the north/south range with three stacks with tapering shafts of industrial scale, corroborated by the Lavers panorama of 1887 (BMAG), one on the south end, one on the west elevation, towards the south and another on the east elevation, towards the north. The position of the stack on the west elevation can probably be equated with concrete infill in the footings.

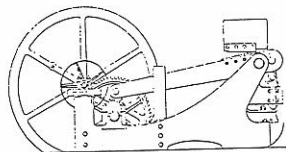
There was certainly a 'smiths' shop' somewhere in the factory. That was the room used for the celebration banquet attended by Prince Albert after the ship was floated out. The blackened walls were disguised with fabric trappings and the 'pillars' supporting the roof disguised as Corinthian columns for the occasion (*Bristol Mirror*, July 15 1843). An illustration in the *ILN* is impressionistic and does not accord with the accompanying text regarding on which floor the banquet was held. However, it does indicate, what would be expected, that the triple roof was supported on rows of iron columns [25]. Where the floor level is original, at the north end, scars in the

brickwork flooring may mark the position of the original columns.

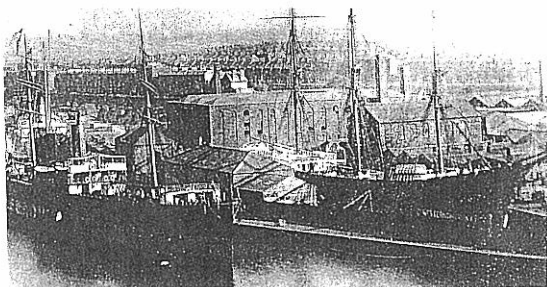
If the smiths' shop was on the ground floor, a large expanse of floor was probably needed to trace out the lines of the ship full size; this scribe board was traditionally placed under the roof for light, but it might have been on another floor in a gas-lit factory. Pattern-making and other small turning operations could be carried out on an upper floor, as they were to be placed at Portsmouth in the 1848 steam factory there. The arrangements of the upper floors of this factory will probably never be known for sure but, should disturbance be necessary, below-ground archaeology might identify something of the ground floor layout.

The factory was expensively kitted out with machinery. Machinery supplied by Nasmyth, Gaskell and Co is recorded in their order and letter books, held by Salford Archives. Some of the machinery is probably that illustrated by Monsieur Dupuy de Lôme of the French Navy who visited the yard as part of a survey of latest methods and machinery in British shipbuilding practice (Corlett, 1990, 220) and reported back to his superiors in December 1842<sup>6</sup> [23].

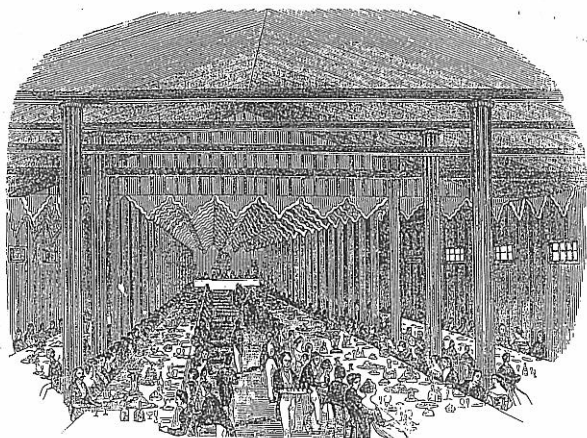
*Cette machine à percer à vapeur*



[23] Combined piercing and shearing machine illustrated by De Lôme (reproduced from Corlett, 1990, 220).



[24] Extract from a c.1890 photograph showing the single-storey gable-ended block (to right), BIM, Keen, 17/149. © Bristol Industrial Museum.



[25] A representation of the interior of the factory, decorated from the floating out banquet. The accompanying text states that the banquet was held in the 'pattern makers shop'. The engraver has fudged the roof as the text indicates that there was a floor over the room, ILN, 22 July 1843.

The factory was an obvious choice for de Lôme's visit. It out-distanced any facilities the contemporary Admiralty could claim - their contemporaneous Woolwich steam factory, designed by George Ledwell Taylor, was built for the overhaul and repair of engines, not for construction. The first Admiralty workshop for building an iron ship was not built until 1861, at Chatham.

The factory was used by the building committee of the ship - particularly Brunel and Thomas Guppy - for research and development on the design of the *Great Britain*. This makes it a place where much of the intellectual genesis of the ship took place, as well as the manufacture of her fabric and engines.

#### **Phase 2 - c.1852-c.1886, the Great Western Tannery**

The GWSSC sold the 16 remaining years of their lease on the site to William Patterson in 1852. It seems that the factory was in excess of his needs and it was in use as a tannery by 1855 and remained in that use until at least the 1870s. The evidence of the tannery phase comes from maps, which show the tanpits (BRO, 40860/map/65,66) and label the building the Great Western Tannery (1883 OS), as well as physical evidence. Rather than digging the tanpits, they were erected on the original floor level and have subsequently been floored over. Some of the factory ground level survives at the north end and some of the flooring at the higher level has slumped into the former pits. The west elevation of the tannery formed a boundary to the west portion of the dockyard and acquired single-storey lean-tos on the dockyard side.

#### **Phase 3 - c.1886-1940/41, a granary and warehouse**

In the later 19th century the tannery use was replaced by warehousing. The date is difficult to identify as the tannery name seems to have outlived the change of use. The change may have occurred when the GWR acquired the

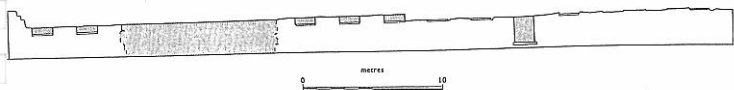
building in 1886. The rails from a system of wagons for shifting goods survive inside. Map evidence shows railway lines into the building on the east side from the harbour railway (built on the east side of the dockyard on 1876) in, e.g. 1918 (OS). The building is recorded both as a granary and a tobacco store around the turn of the century and, by 1930, was a 'bonded warehouse'.

#### **Phase 4 - 1940/41-1998, bomb damage and re-use as a timber store.**

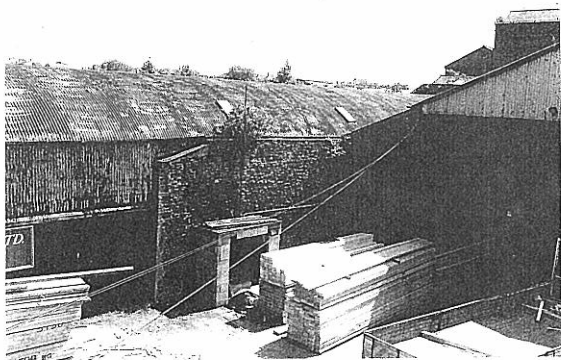
Bomb damage in 1940 or 1941 is illustrated in a sad photograph, dated January 1941 (Reece Winstone, 1988, photograph no 83). This is difficult to make out but appears to show the badly damaged remains of the factory from the south east, looking through to the roofless ruin of the probable mast-erecting shop. A couple of iron stanchions were still standing and a figure in the foreground gives some idea of the enormous pile of rubble left after the bombing. A gable-ended block, shown front left may be part of the entrance arrangement south of the building, off Gas Ferry Road.

The remnants of the standing walls were used to provide a single-storey timber store for Wickham and Norris in 1945 [26]. They had lost the other former dockyard buildings on their site in the bomb damage. The walling was given a triple galvanised corrugated roof carried on Belfast trusses, respecting the original 3-part arrangement. The factory was re-roofed in three stages, as can be seen inside and on photographs, firstly leaving the north end un-roofed (SSGB, Aerofilms C6873), but extending the roof covering before 1962 (photograph, BIM, Keen, 8/44) and finally covering the entire north end after 1962<sup>7</sup>.





*Scale drawing of the surviving walling of the east wall of the factory in 1998, measured and drawn by Rupert Ford and Sophie Sharif*



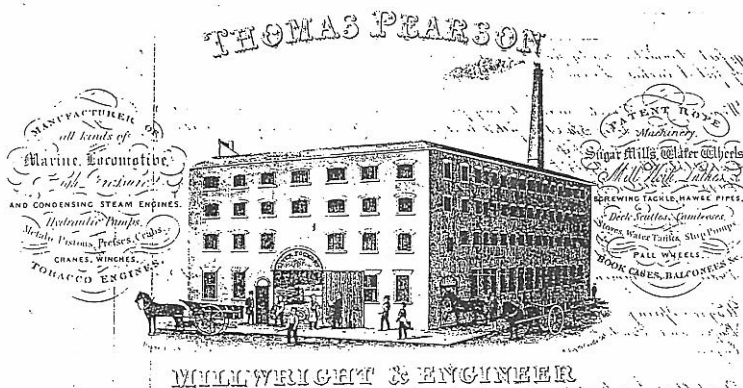
*Photograph of the west wall.*

[26] *The factory in 1998.*

## General Assessment

As industrial architecture of its day the factory was pretty much indistinguishable externally from a large mill and not unlike a contemporary factory in Liverpool [27]. It was very different, however, from the building arrangements next door in the Albion dockyard, where a more traditional set-up divided various functions in separate structures [28].

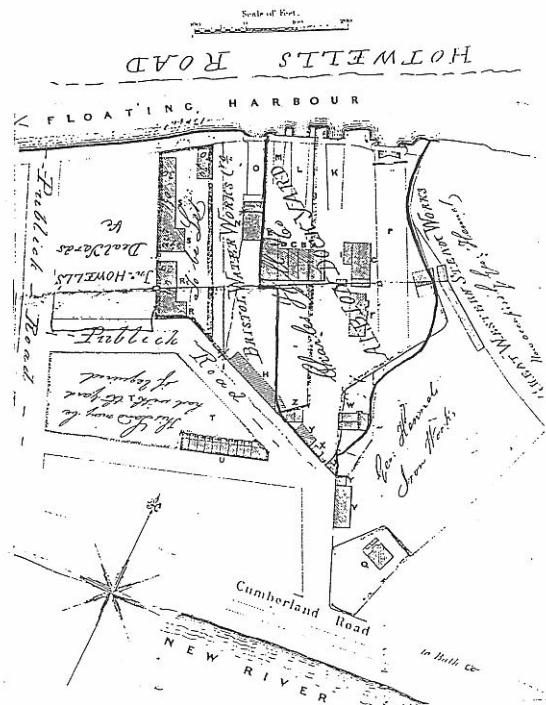
The significance of the factory is compromised by the loss of such a large percentage of its fabric in 1940/41. What remains is still of value. Historically it was a very important building and had a major visual impact on the site until the Second World War.



[27] An advertisement showing a building contemporary with the factory.

# NEW FREEHOLD DOCK YARD.

Chimberland Road.



[28] The layout of the Albion yard in c.1848 (dated on internal evidence) showing a scatter of small and medium-sized buildings. The GWSSC factory concentrated most of the company's manufacture into a single large building, the Charles Hill Collection, the NMM.  
© The National Maritime Museum, London.

## The Dock Office - possibly part of the GWSSC building group

Listed Grade II\*

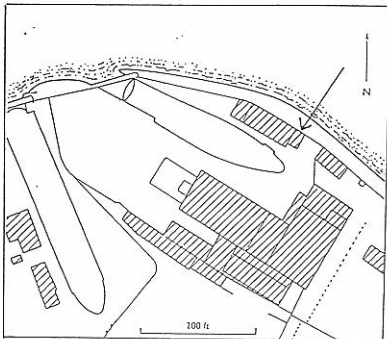
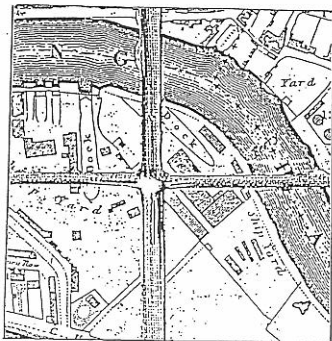
*The dock office, known as 'Brunel's drawing office', is a multiphase building. The main phases of evidence in the fabric suggest an original build of the east block in the 1840s, although the map evidence indicates a date between 1846 and 1855. The office was separated from the dockyard in c.1903 and modernised at about the same date. It was enlarged in c.1930, on stylistic grounds, although the map evidence does not show the west block until after World War II.*

### Phase 1 - a dating problem

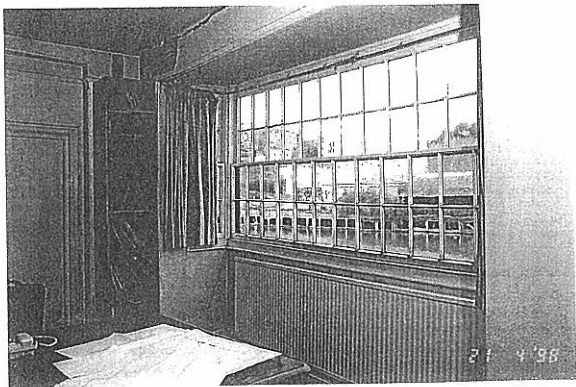
The map evidence for the date of the dock office has proved awkward. It may be shown on the tithe map (surveyed 1841), but inaccurately and to the west of its actual position<sup>8</sup>. Comparing two later maps (1846 & 1855) involving the same cartographer, Ashmead, the office appears to have been built between 1846 and 1855 [29]. The 1855 map shows a narrower building added at the end of an existing range on the north side of the dock and corresponding to the existing dock office. On the basis of the maps it is therefore not contemporary with the construction of the *Great Britain* and Brunel is very unlikely ever to have entered it, although it may have been built by the GWSSC, as part of their improvements to the site in 1849 before they left. Alternatively, it must have been erected by their successor, William Patterson, who took over the lease from 1852. Patterson's

address, however, remained at his other Bristol dock until c.1856 when his company address was moved to the former GWSSC Dockyard.

The stylistic evidence, however, suggests that such a late date, i.e. after 1846, would be surprising [30]. It also raises the question of where the GWSSC dock office was, and why it did not survive. There must have been a dock office and the present building is ideally sited for one. In short, the answer to the question of whether this is the GWSSC office or one built for Patterson depends on whether you believe the Ashmead cartographic record or put your faith in an analysis of the style of the building detail. Historic maps do have variable accuracy and survey updates can predate the date of publication. On balance it is the opinion of Keystone Historic Buildings Consultants that the office is GWSSC period<sup>9</sup>.



[29] A comparison of maps of 1846 and 1855 suggests that the office was built between these dates. Ashmead's 1846 plan of Bristol, BRO, 9389 (8) (© Bristol Record Office) & Ashmead's map of 1855 BRO, 40860/map/65.66. The 1855 map has been traced and reduced.



[30] Stylistic evidence - the small panes of the oriel window and the joinery in the office suggests a date of c. 1840



## Exterior

The office fronts onto the towpath [31] and there is internal evidence for a front doorway here. It is ideally situated to receive visitors to the site coming from Bristol by ferry, or goods received by water. The landward access by means of what is now Gas Ferry Road was probably of minor importance until the advent of motorised transport. The office included a drawing office, on the evidence of the remarkably long north-facing sash window in the projecting oriel.

The office building is now made up of twin 2-storey blocks built end on to the towpath. Their parallel roofs create double gables to the front (north) and rear ends. They have plastered mass walls which appear to be brick and a pantiled roof. Judging by appearances, the western block was added to the original eastern block in c1930, although the map evidence indicates a later date. The west block has a west doorway.

## Interior

The main structure of the east block with some joinery and other detail on the first floor date from the first phase. The mouldings on the doors and doorframes are old-fashioned for a date after 1846 and look more like c.1840. This might reflect the conservative nature of dock offices, somewhat cut off from fashionable trends in domestic buildings. On the ground floor a plain axial crossbeam supported on two cast iron posts probably dates from the first phase.

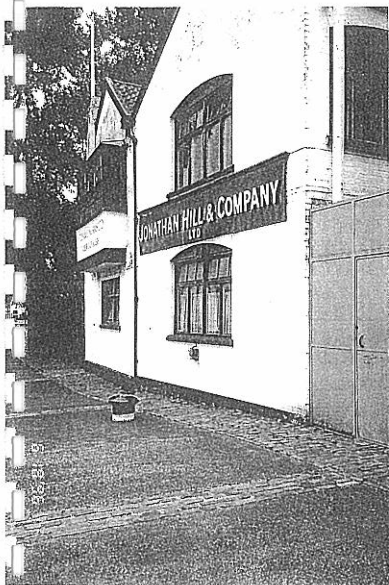
The first floor preserves the original arrangement in the northern half, comprising the drawing office, middle office, water closet and north south access corridor. The drawing office includes interesting detail with first phase joinery. A plain timber chimneypiece is almost impossible to date on stylistic grounds. However it may be the original since this room was little affected by the alterations of c1905 in which all the other fireplaces were given cast-iron chimneypieces in Art Nouveau style. The cupboards to left of the fireplace are certainly first phase since their panelled

doors have the same mouldings as the original main doors. The drawing office oriel window is impressive. It is a wide front small-pane sash window, 13 panes wide making a 26/26-pane window, and with 2/2-pane sash returns. The eastern sash is an 8/8-pane sash with an architrave given the same moulding as the first phase door architraves. If the drawing office is as late as 1852, it seems odd that advantage was not taken of cheaper plate glass, available by that date, to provide windows with fewer glazing bars and more light into the room.

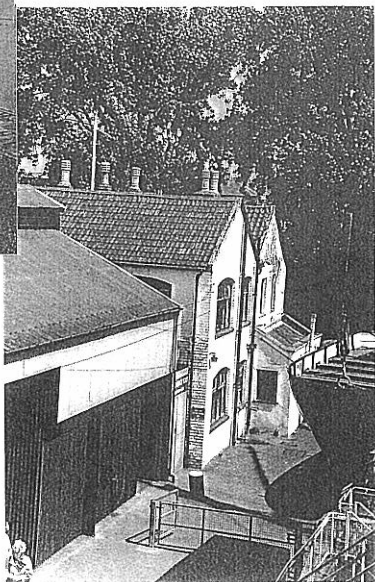
## Phase 2 - Interior, alterations for Wickham and Norris, c.1905

It is assumed that the dock office continued to be used by the lessees of the dock: Patterson: the Wapping Dock Company and the Midland Railway Company, until Bristol City Council acquired the dock in 1902. Their new boundary to the dock cut it off from all the buildings that had developed round it, including the dock office. By 1905 they had let the old dockyard buildings to the south to timber merchants, Wickham and Norris, who used the dock office as their company office until Autumn 1998.

A refurbishment programme, dated to c.1900 on stylistic grounds, was almost certainly undertaken for Wickham and Norris shortly after they moved in 1905. The ground floor was completely refurbished, apart from the axial crossbeam on cast-iron posts. The c.1905 parquet floor indicates that there was a contemporaneous front doorway from the towpath at the west end of the north wall. The north end was screened off to create a narrow space across the full width of the building. The east end of this space was apparently a small lobby which was heated by a stove associated with a flue to the chimney rising above the northeast corner. This lobby is also associated with a hatch through the screen. The space between the lobby and west end doorways was presumably a waiting room. The main office has two fireplaces both with similar cast-iron chimneypieces in Art Nouveau style but there is no visible evidence for internal partitions. The walls are lined

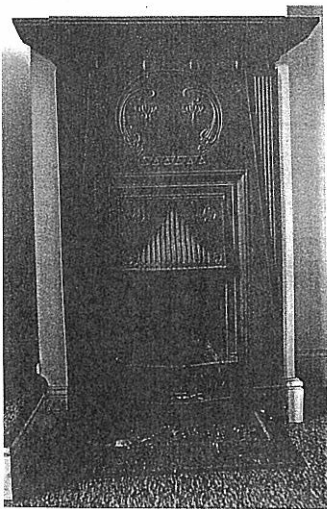


31] The dock office from the towpath  
(N elevation) and to rear (S) from inside  
the dockyard in 1998.



with matchboard and parquet block floor shows that the part-glazed northern screen is contemporary with it, c.1905. The stair has a plain construction with thick stick balusters and an oval handrail. It could date from any time in the 19th century but it is built round a post which is chamfered with straight cut stops which ties it to the refurbishment of c1905. Moreover the position of the first phase first floor window suggests that it was meant for a room rather than to light a stair. The single storey lean-to on the south side is probably also c.1905, where the water closet and corridor are also lined with matchboard.

The first floor was less affected by this refurbishment although the middle and southern offices acquired new chimneypieces in Art Nouveau style.



[32] One of the c.1905 chimneypieces.

### The west block & alterations to the east block, c.1940?

By 1918 (OS 1:25000), the adjacent buildings to west had been demolished and a photograph in the Industrial Museum shows the exposed west end of the east block [32, 33.]

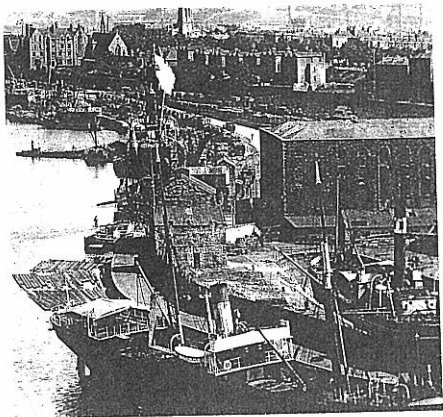
The map and plan evidence found for the west block is as puzzling as that for the first phase. A 1930 plan (Tucketts, accompanying an agreement of 31 December) shows a building, or planned building on the site, but apparently buttressed on the north side (probably the remnants of a demolished building, the north wall retained for the dock boundary), and probably not the extension. The west block involved connecting doorways knocked through the dividing wall, the old west wall of the original office. New wide plate glass windows with a high transom were provided to the ground floor level on the north and east sides of the east block. The insertion of the new northern window was apparently associated with the blocking of the old front doorway onto the towpath and the creation of a new doorway in the east wall, the existing one towards the north end. On stylistic grounds this modernisation would be dated to c1930 but the 1946 map does not seem to show the extension. It is there by 1952 according to Goad's Fire Insurance Plan. It is difficult to believe that the extension dates from between 1946-52, but that is the story the maps tell.

It is likely that the office needed repair after the bomb damage that required the old factory to be cleared. The south gable sashes are replacements and the stretcher bond brickwork (used in the 20th century as a facing bond) in the south gable suggests that the gable may also be rebuilt.

### General Assessment

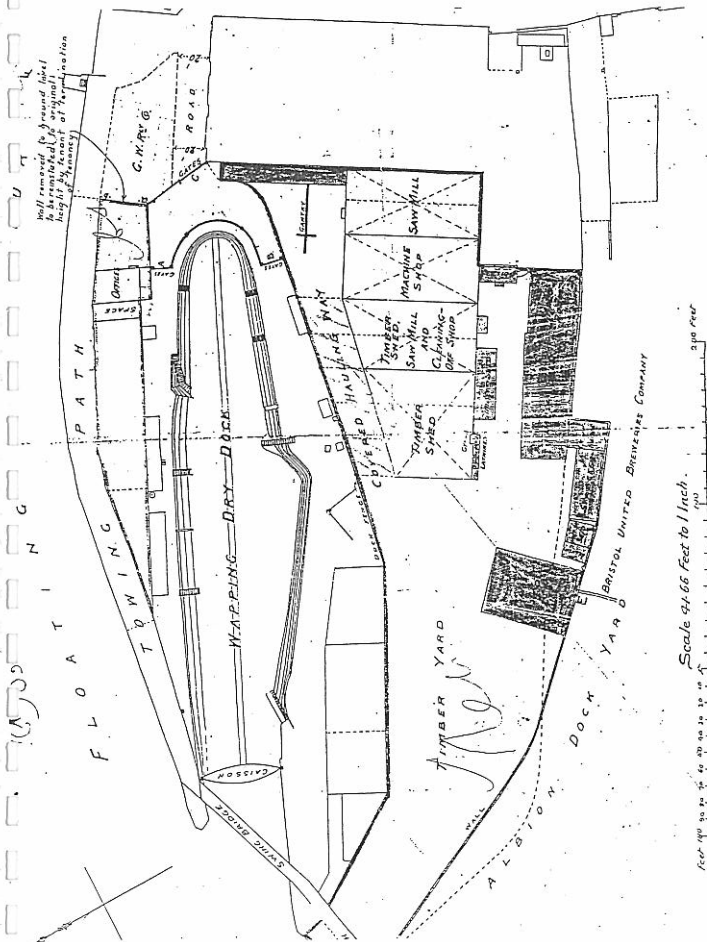
The dock office is an important physical reminder that the Floating Harbour was the main transport route to the site before motor transport brought goods in from the south, via Gas Ferry Road. The front elevation of the east block, with its small-pane oriel window overlooking the harbour is extremely





[33] *The east block of the dock office in c.1917, after the adjacent buildings had been demolished. The 3 chimney shafts are clearly visible, BIM, York 3309. © Bristol Industrial Museum.*

attractive. The office is also good physical evidence that 19th century industry required paperwork as well as machinery. The drawing office is a fine example of a modest office room of the early 19th century with continuity of use to 1988. The c.1905 refurbishment chimneypieces are rather smart for an otherwise modest and largely utilitarian office.



[34] A 1920 site plan puts the office in context and shows a 'space' to W of the earlier block.  
BRO. 32173839. © Bristol Record Office.

### 3.3 - Later Buildings on the site

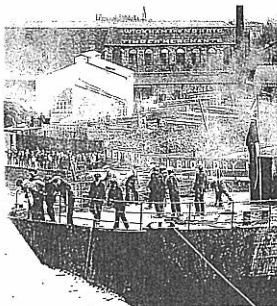
#### The Jefferies Range

*This range on the south side of the dock was used as part of a ship-repair outfit of c.1914-1919 including an office and workshops. It was repaired following bomb damage in 1940/41*

#### Ship repair buildings for Jefferies and Son, c.1914-1919

The new boundary round the dock added by the Corporation in c.1903 divided the dock from the buildings further south that had been used by previous occupying shipbuilders. The dock was shown on maps as the 'corporation dry dock' but it seems that ship-repairing work, after 1914 at any rate, was undertaken by Jefferies and Sons. This range is first shown on a pair of plans of 1914 following a lease to Jefferies from Bristol City Council [37]. The range is not, however, shown on the 1918 OS map, 1:2500, but that may be a matter of the survey date.

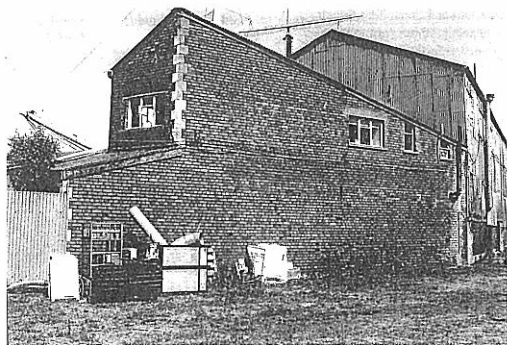
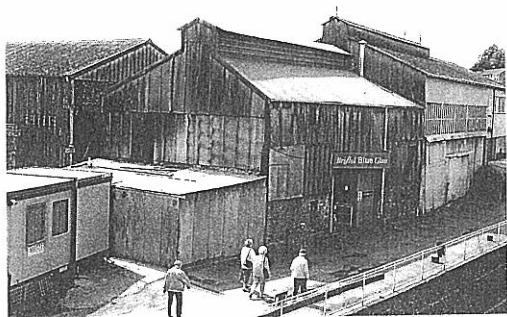
The range consisted of an office and workshops. The office was set back from the adjacent industrial sheds to east. It is fronted with red brick, the rear wall is now brick of a slightly different colour. The small yard in front (north) of it shown on the 1914 plan has been replaced with a lean-to with a corrugated roof supported on re-used wagon rails. Given the complications of access to the site after fragmentation between two Bristol City Council tenants, Wickham and Norris, and Jefferies (using the dock) the office was conveniently placed close to the towpath, where it passed over the swingbridge and had a gate in the boundary wall. The office has a quirky, asymmetrical triangular plan to squeeze it on to a limited site. The rear wall appears originally to have been stone (shown in a 1917 photograph of the launch of Boston City II, BIM, York, 124), the wall presumably being rebuilt in brick after 1940/41 bomb damage but retaining its unexpectedly superior stone quoins. It was almost certainly re-roofed at the same time. The building, shown in the 1917 photograph with timber casements with glazing bars was also refenestrated, the



[35] *The range in 1917, showing the W end of the office. Extract from a photograph, BIM, York, 124. © Bristol Industrial Museum.*

window openings reduced slightly with bullnose brick inner jambs, probably to accommodate available metal-framed windows that would not fit the original embrasures.

There was a fitting shop and smiths' and boiler makers' shop adjoining to east. The third building was probably still under discussion in 1914, as it is shown differently on the map and not assigned a function. The fitting shop and smiths' and boiler makers' shop are of girder construction and clad and roofed with a mixture of corrugated iron and asbestos, with some brick infill. Where windows are required, the cladding has simply



[36] *The Jefferies range in 1998.*

been chopped away to make room for them. Sliding vertical plank doors on the ground floor are equally flexible. The fitting shop, now 2 storeys inside and used for office purposes on the first floor, retains a first floor external door and the smiths' shop preserves a ridge ventilator. The third building, perhaps a little later than the others, is currently in use for making Bristol Blue glass. This building has deep brick footings and a relatively new roof with a ridge ventilator and 4 iron roof trusses. There was a fourth gabled building in the range, of a similar character, added between c.1952 (Goad insurance plan) and 1962, when it appears in a photograph (BIM, Keen, vol 8/44). This has subsequently been reduced to a single storey shed with a monopitch roof.

### Changes of use by 1952

The Goad insurance plan dated 1945 but probably revised 1952 (BR0, 35033/2), labels the space between these buildings and the dock 'Charles Hill and Sons, Ship Repairs'. Hill, of the adjacent Albion yard to the west, acquired an interest in Jefferies in 1945 (Hill, n.d., 89) and access between the two yards would have been easy via the towpath. It seems that by this date the ship repair works had been shifted to the opposite side of the dock, where a more modest range of sheds had appeared. The Goad insurance plan identifies the uses of the Jefferies range by then as two offices with stores over, an oil burner factory (in the former smiths' and boiler makers' shop) and a store (present Bristol Blue Glass works). The external first floor door to the fitting shop was probably used for office access and was formerly associated with an external stair (there is no internal stair).

### Use by the *ss Great Britain* Project

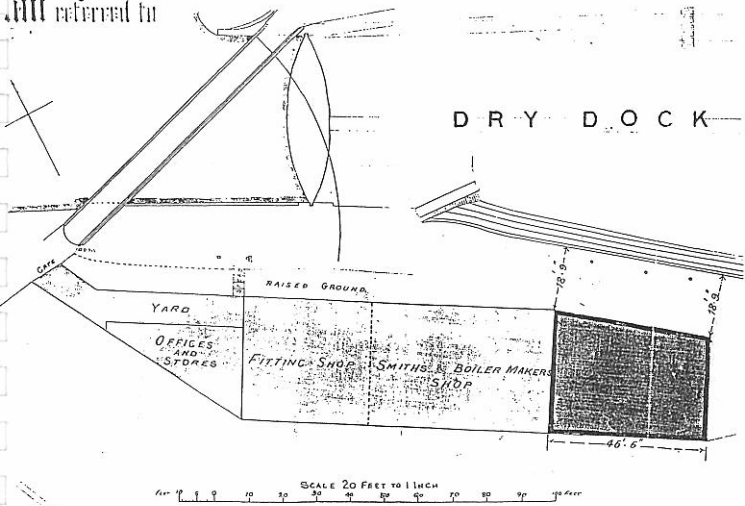
The range of buildings is now used partly by the *ss Great Britain* Project with offices in the brick office block and first floor of the fitting shop. Attached to the west end of the office and projecting forward from it, is a lavatory with a monopitch roof for visitors to the site,

is of unknown date, but probably cobbled together after 1970 and incorporating sections of butted planking in the Ladies, possibly recycled from the dock fence. The fitting shop (ground floor) and the smiths' and boiler makers' shop are used as a repair shop for site and ship maintenance. Both buildings have travelling cranes fitted. The east end building of the range is used for the manufacture of Bristol Blue glass, unconnected with ship-building but a welcome example of a hot trade on site and visible to visitors to the ship who can watch glass objects being made.

### General Assessment

This range is important to the present character of the site. The eccentric office and the *ad hoc* adjacent sheds, using industrial materials and patched up piecemeal and amended as needed, represent the authentic face of a small-scale ship-repair outfit. They are a telling example of the more modest scale on which the reduced dockyard, occupying only a narrow space round the dock, functioned after 1902, very different from its grandiose beginning in 1839.

referred to



[37] The Jefferies range shown on a plan of 1914, BRO, 32173/645. © Bristol Record Office.

## The range of buildings north of the dock

Identified by Bristol City Council as an unlisted building worthy of retention<sup>10</sup>.

*This range of ship-repair workshops was probably built after World War II. The buildings were converted, post 1970, into a cafeteria and entrance-cum-shop to the site for the ss Great Britain Project [38, 39].*

To date, no firm evidence has been found to establish that the existing buildings were erected before World War II, although buildings on the site were proposed in 1930 (Tucketts, accompanying agreement of 31 December 1930). By 1918 the City had cleared away two old gabled buildings on the site (OS 1:25000) having first hacked them back (or proposed to do so) on the south side, narrowing them, to accommodate a new dock fence on the north side of the dock. This pushed the plot of land on which these buildings are constructed, outside a proposed new dock boundary (undated but c.1903 plan, BRO, 07783 (7)).

A c.1928 photograph (held by the Queen Elizabeth Hospital School, Bristol) might show the range, but the definition is not good enough to be sure. The first clear map or photographic evidence for their erection found to date is post-war. The Goad insurance plan, dated 1945 but copyright date of 1952, shows these buildings, labelled 'repair works' (BRO, 35033/2).

### Exterior

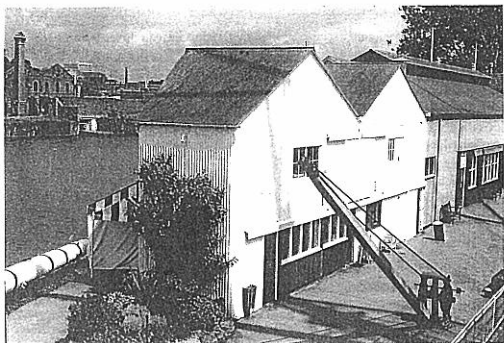
The range has a similar flavour to the Jefferies range opposite, being girder construction, clad and roofed with corrugated, but neater and more altered with some modern timber cladding at ground floor, added during their

conversion. The plan of the 2-storey western building, now used as the cafeteria on site, narrows towards the west end and has two gables<sup>11</sup> to the front. The sympathetic conversion has only substantially affected the ground floor and has preserved the fascia over an original sliding door and/or ribbon window. The first floor has windows, one to each gable, with a sliding door in the centre. The building to east has been more altered, but preserves a ridge ventilator. Part of the front has been set back for shop windows and a doorway, but using corrugated iron and, towards the east end, a full height entrance has been created, leading out onto the harbourside. The entrance to the shop has been provided with a post 1970 canopy on the north side.

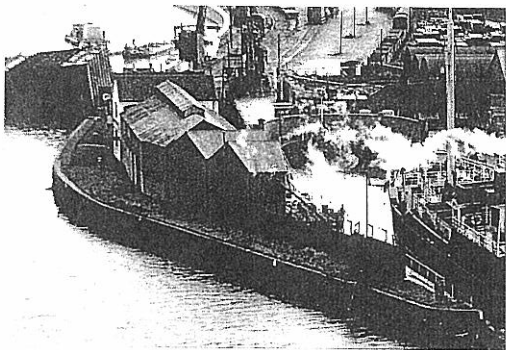
### General Assessment

Like the Jefferies range, these buildings are important to the character of the site for scale, textures and date. They are the last phase of ship-repair buildings on the northern perimeter of the dock, the first being shown on the tithe map of 1841. Their modest scale and the odd plan of the west building demonstrates the flexibility of dock-side construction, making the most of available space, as well as the practical merits of buildings. Built of utilitarian materials with pleasing textures, their re-use reflects their adaptability.





[38] *The range N of the dock in 1998, taken from the 'Great Britain'.*



[39] *The range N of the dock taken from the N side of the Floating Harbour in 1962, BIM, Keen, 8/44. © Bristol Industrial Museum.*

## Timber yard buildings

*The timber yard buildings consist mostly of post World War II stores and an incinerator on the site of former dockyard buildings, for which there may be below-ground archaeological evidence.*

Wickham and Norris, timber merchants, arrived on site in 1905. They were able to adapt the dockyard buildings south of the dock, one probably dating from Patterson's era and other blocks probably erected by the Wapping Dock Company (see section on buildings known from documentation below), with relatively little alteration until 1940/41 when bomb damage required them to rebuild the site, using purpose-built sheds [40].

### Exterior

The surviving Wickham & Norris purpose-built buildings consist of a series of timber stores and an incinerator. Most of the buildings above ground are likely to be 1940s and later, with some exceptions. The remains of the GWSSC factory, converted to a timber store after bomb damage has been described above. The south boundary wall (including a section of masonry walling projecting off it) is covered under the section on boundaries below, but almost certainly contains archaeological evidence of structures from the dockyard period, some perhaps dating back to the GWSSC phase.

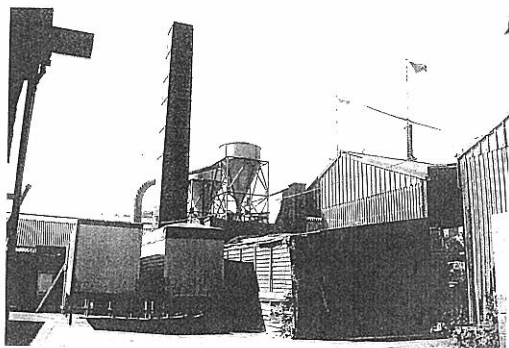
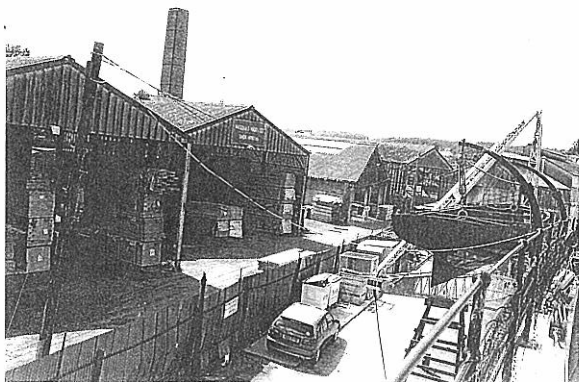
There are two main areas of timber stores. Various ramshackle stores with a mixture of roofing types, lean-to and monopitch, are built off the south boundary wall of the site. These are post 1952 according to the Goad insurance plan (1945 but copyright date 1952, BRO, 35033/2) and are not shown on an undated but c.1960 aerial photograph of the site (SSGB, Aerofilms, C6873).

A series of 5 staggered stores occupies the central space with an incinerator and office buildings built between stores 2 and 3, counting from the west. Stores 1, 3, 4 & 5 are of steel girder construction with gabled roofs covered with steel or corrugated asbestos and clad in a mixture of timber slats and corrugated sheets. The steelwork of store 5 has been zinc-coated (Whicheloe Macfarlane

MDP, report based on inspection of 2 September 1998). Store 2 is brick and is pre-war, judging from its construction (its horizontal roof web is badly-distorted which might be bomb-damage) and a map of the bomb damage to the site. The Goad insurance plan shows store 2 to have been partly used as a sawmill and it was clearly the active heart of the operation, connected to the incinerator. One of the stanchions of store 4 is stamped EARL OF DUDLEY STEEL 10X4½ BSB 117 SKINNINGROVE. A photograph dated 11/12/62 shows a westernmost store with roof with a Belfast truss profile (BIM Keen, 9/143). It is not clear whether present store no 1 is a replacement of this, or if there was a sixth store that has simply disappeared. The Goad insurance plan shows what appears to be 3 additional proposed timber stores off the south boundary wall of the site at the west end, but it is not clear whether these were ever constructed.

### General Assessment

These buildings are the last survival of the timber industry on the site that went hand-in-hand with the ship-building industry in the 19th century. Stores 1 & 2 occupy an area that was known to have been open ground in the dockyard (BIM, York 4872) until at least c.1903, when the site was divided by Bristol City Council's new boundary. Stores 3, 4 and 5 are partly built over the area known from map and photographic evidence to have been developed with dockyard buildings from at least 1855. The south end of store no 5 is probably built over the area on which the west/east range of the GWSSC factory stood. There is potential for below-ground archaeology. There is also an area of brick flooring in the open space west of store no 1. The buildings themselves are clearly a moveable feast, their lightness of construction allows the free-standing stores to be shifted about if required.



[40] *The timber stores in 1998.*

### 3.4 - Small structures on the site

#### Bristol Dock Company boundary posts

There are two BDC boundary posts adjacent to the post 1952 garages on the north side of the site, east of the dock office. They are probably at least 1922, as shown on a plan accompanying an indenture of 11 April 1922 between the GWR & Bristol City Council (Tucketts).

#### Bollard on the west side of the former factory, aligned with the west end of the dock

A bollard here, now divided from the dock by the intervening red brick wall of c.1903 is possibly located for warping heavy weights into the dock (*pers. comm.*, Matthew Tanner). It may be part of the GWSSC dock furniture.

#### Iron latrine

This is not shown on a 1914 plan (Bristol RO, 32173/645), but a structure on this site appears on a 1920 plan (Bristol RO, 32173/839) &, on the same site, labelled 'latrine' on a 1930 plan (accompanying agreement of 31 December, 1930, Tucketts). The iron panels include a maker's stamp inside: 'James Allan Senr and Son Elmbank Foundry, Glasgow'. The handsome latrine, with decorated iron panels, may have accompanied the Jeffries range [41].

#### Lights

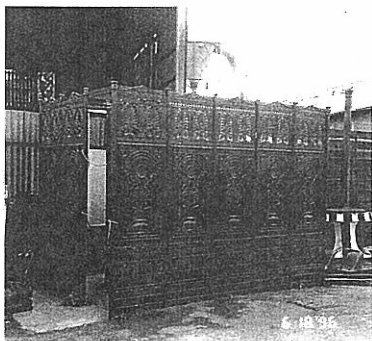
4 standards, two retaining some of their light fittings, survive. Two are on the south boundary between the dock and the timber yard. They have tapered, fluted cast iron standards but lack their lamp containers. They are probably c.1914-1919. Two other light standards survive, one probably lighting the former towpath on the north side of the dock, with a ladder rest & glazed lamp container [42] Another light, attached to a post lights the access route from the Albion yard. This has a ladder rest and a round shade.

#### Viewing Pulpit

A post 1970s viewing pulpit on the south side of the dock, west of the caisson, is used by visitors taking photographs. It provides enough height to get a good shot of the bow.

#### Garages

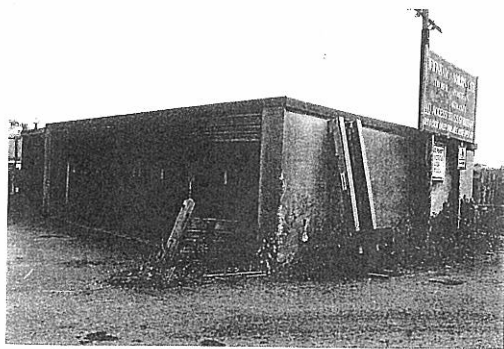
There are two garage blocks east of the dock office, one backing onto the boundary with the towpath and another at right angles to it [43]. These post-date the Goad insurance plan (1945 but copyright date 1952, BRO, 35033/2), which shows smaller buildings on the site, one identified as a garage.



[41] The iron latrine in 1998.



[42] *The light standard on the north side of the dock.*



[43] *The post World War II garage block at right angles to the towpath.*

### 3.5 - Boundaries

*The boundaries of the site consist of outer boundaries to the west portion of the GWSSC site, and an inner boundary dating from c.1903 when the site was divided by the Corporation.*

The GWSSC dockyard would have needed physical boundaries for security, as well as for privacy. The machinery in the factory was extremely valuable. The construction of the *Great Britain* excited curiosity and although numerous people did visit the site during construction, the company was clearly not keen for all its changes of plan to be on public display: 'The Directors take good care that the public shall be kept in ignorance of their proceedings as much as possible; for they will not allow anyone to inspect the vessel and their works at Bristol, without an order signed by two Directors, and a contribution of 5s towards the sick fund of the workmen. Whoever heard of such a demand?' (*The Civil Engineer and Architects Journal*, vol 6, April 1843).

The important side of the site for access was, of course, the Floating Harbour with goods, iron and machinery arriving by water. The location of the dock office, overlooking the harbour with its 'back' to the site, is good evidence of this. The labourers and mechanics could have used the towpath to get on and off site. After 1876 the harbour railway must have proved useful for goods arriving by train and the importance of Gas Ferry Road as a route to the site can only really have developed in the 1920s and later as water transport gave way to road.

#### **Masonry Wall: the south boundary**

The title map, surveyed in 1841, indicates that the whole site had a physical boundary. The dockyard was demarcated from the towpath on the Floating Harbour side and there were buildings built against or forming its boundaries on the north & south sides.

The south boundary wall of the west portion of the site, dividing the yard from the Albion, is a rubble masonry wall with extensive

evidence of patching, amendment and, in places, apparent fire damage, perhaps from the 1940/41 bombing. The boundary has a noticeable kink in it, roughly level with (though quite unconnected to) the kink in the dock. While the ground levels on either side of the west section of the wall are similar, the ground rises sharply south of the boundary behind the malthouse and here the boundary wall doubles as a retaining wall. This change in ground level is shown on Jessop's 1802 design for improving the harbour at Bristol (BRO 11168(59)) and predates the construction of the adjacent malthouse, built in 1895. Unfortunately, the existence of buildings on the far side of the wall makes it impossible to inspect throughout on both sides.

There was a masonry wall round the Albion dockyard by c.1848.<sup>11</sup> The date of the surviving wall, east of the kink, is probably pre 1848 and contemporary with the GWSSC, although it might have been built by the Albion. West of the kink the wall can be no earlier than 1872 and is probably of that date, when a boundary change with the Albion is shown on a plan [44]. This change gave the Albion more space round the east side of their dock. As shown on the plan, the new boundary cut through two existing buildings, one on the Albion side and one on the Great Western Dockyard side.

Projecting at right angles off the boundary wall, east of the kink, is an unexpected survival. A section of walling, partly Pennant rubble, partly brick, includes a blocked segmental-headed archway [45]. The neat ashlar arch with keystone partly missing on the north side is held in place with a bolt. The design of the arch could be of the 1840s. Archaeological recording of the walling (including evidence in the boundary wall), allied to careful interpretation would probably sort out this