RESEARCH REPORT SERIES no. 15-2014

HASLAR GUNBOAT YARD, GOSPORT, HAMPSHIRE
HISTORIC BUILDINGS REPORT

Sarah P C Hendriks

ASSESSMENT

ENGLISH HERITAGE

Research Report Series 15-2014

HASLAR GUNBOAT YARD
GOSPORT

HISTORIC BUILDINGS REPORT

Sarah PC Hendriks

NGR: SZ 61721 99028

ISSN 2046-9799 (Print)
ISSN 2046-9802 (Online)

The Research Report Series incorporates reports by the expert teams within the Investigation & Analysis Division of the Heritage Protection Department of English Heritage, alongside contributions from other parts of the organisation. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series.

Many of the Research Reports are of an interim nature and serve to make available the results of specialist investigations in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation. Where no final project report is available, readers must consult the author before citing these reports in any publication. Opinions expressed in Research Reports are those of the author(s) and are not necessarily those of English Heritage.

Requests for further hard copies, after the initial print run, can be made by emailing:
Res.reports@english-heritage.org.uk
or by writing to:
English Heritage, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth PO4 9LD
Please note that a charge will be made to cover printing and postage.

SUMMARY

Haslar Gunboat Yard is a unique naval site at Gosport, Hampshire. It operated as a yard for the housing and repair of British gunboats between 1856 and 1906. From this time, the yard has retained its association with coastal craft, notably as a site for HMS Hornet from 1912-1973.

The site comprises a series of original iron sheds for housing the gunboats, part of the traverser system used for their movement and a collection of ancillary buildings relating to repair, maintenance and power provision both for the gunboat yard and the Royal Naval Hospital, Haslar on the opposite side of Haslar Road. The site also has two brick structures, designed by William Scamp, for use as a guard house and police barracks. Most of the buildings are at present unused, although some equipment is still in situ as of November 2013. The guard house, police barracks, workshops, boiler house and engine room are all on the Heritage at Risk Register. Most of the structures on site were constructed between 1856 and 1870, with the exception of a large iron shed built in the 1950s.

Haslar Gunboat Yard lies within the Haslar Conservation Area. The guardhouses and boat sheds are listed at Grade II and scheduled and the remaining brick structures, contemporary to the sheds, are curtilage listed. The significance of Haslar Gunboat Yard lies in its association with iron technology through the traverser system designed and used especially for the purpose of moving gunboats and for its historic significance as the only gunboat yard to have been built by the British Navy.

CONTRIBUTORS

This report was drafted by Sarah Hendriks, and read by Rebecca Lane and Wayne Cocroft of English Heritage.

ACKNOWLEDGEMENTS

The author is most grateful to Rebecca Lane, Wayne Cocroft and John Minnis for their input and assistance in creating this report. Thanks also to Steve Cole for his photography, Oona Hickson for providing a copy of her thesis, and QinetiQ for providing access to the site.

ARCHIVE LOCATION

National Monuments Record, The Engine House, Firefly Avendue, Swindon SN2 2EH

DATE OF INVESTIGATION

2013-2014

CONTACT DETAILS

English Heritage, The Engine House, Firefly Avenue, Swindon SN2 2EH
Rebecca Lane; 01793 414775; rebecca.lane@english-heritage.org.uk

CONTENTS

INTRODUCTION 1

HISTORICAL DEVELOPMENT 2

- The Royal Navy and Steam Power 4
- The Development of Gunboats 4
- Construction and the choice of Haslar 5
- The Traverser System 6
- The Gunboat Sheds 16
- Historical Development of the Engine House complex 23
- Construction of the Guard House and Police Barracks 24
- Gunboat Shed changes from 1860 28
- Late 19th century and 20th century 46

SITE DESCRIPTION 51

- Setting and Landscape 51
- Gunboat Sheds 52
- Traverser and rails 60
- Engine House, Boiler House, Chimney and former Well Houses 62
- Maintenance Sheds 70
- Boundary Walls 74
- Guard House and Police Barracks 74
- Jetties 76

CONCLUSION 78

SIGNIFICANCE 79

ENDNOTES 81

INTRODUCTION

This report on Haslar Gunboat Yard has been prepared as part of a wider project being undertaken by the English Heritage Assessment team on the military settlement of Gosport. It is intended to help inform the ongoing management of change at this important site.

The report presents the findings of an assessment visit undertaken in November 2013 by members of the English Heritage Assessment team (West). A rapid assessment of the surviving buildings on the site was undertaken, along with a photographic record held by the English Heritage Archive. This visual assessment has been supplemented by a detailed assessment of documentary archive material relating to the site. This includes earlier reports on the site, particularly those of Jonathan Coad and Oona Hickson. The Portal archive at the Hampshire Record Office (hereafter abbreviated HRO) has been consulted. In addition Admiralty records from the National Archives (TNA) have been consulted as well as primary documents held at the National Maritime Museum (NMM) and English Heritage Archive (EHA). A full list of consulted works may be found at the end of this report.

Preliminary sections of the report examine the landscape setting and historical development of Haslar Gunboat Yard. The central section comprises detailed descriptions of the principal buildings grouped in chronological order. The report concludes with a summary of the architectural and historical significance of the site.

HISTORICAL DEVELOPMENT

The history of specialist construction for the Royal Navy began in Portsmouth in the 1490s, when the construction of the first dry dock in England was ordered by Henry VII.[1] This marked the beginning of a naval enterprise that became the largest and most powerful in the world. From this time, royal dockyards formed an integral part of Britain's naval defence system. They provided the ships that were the main system of defence for the island nation, and were also closely connected to Britain's industrial growth: by the mid 18th-century they were the 'largest industrial enterprise in the world'.[2]

The Portsmouth region has a long association with naval defence, thanks in part to its easily defensible natural harbour. A Norman motte and bailey towards the western side of the Gosport peninsula attests a long history of occupation and awareness of the defensive characteristics of the area. Portsmouth had 'the merits of a good sheltered harbour, the proximity of the New Forest as a source of ships' timber, and a reasonable communication with London'.[3]

By the end of the 17th century, there were three main naval dockyards in England: Chatham, Portsmouth and Plymouth. Each port was equipped not only with facilities for shipbuilding and maintenance, but also had a number of associated facilities such as victualling yards, ordnance yards, factories, hospitals and barracks. As a result of their central role in equipping and serving the Navy, the dockyards became centres for industry and facilitated many advances in construction processes and the development of new technologies.

The immense building works that occurred in the three main ports from 1760-1808 were the result of increased wartime activity and an unprecedented expansion of the Navy. The cost of such expansions led to debates on the merits of the different ports. The Earl of Sandwich wrote that Portsmouth was better able to be secured and defended than Plymouth and that 'Portsmouth is more central and happily situated for facilitating a junction of our ships from Eastward and Westward with a spacious and safe road for the rendezvous of the whole fleet'.[4]

The Royal Navy was responsible for much of the development and infrastructure of the Portsmouth area. There were supplementary sites such as the Royal Clarence Victualling Yard and the Haslar Hospital, but the development was focused around the shipbuilding, repair, maintenance, and storage of the Navy's fleet. This activity occurred largely in the Portsmouth Dockyard, which sits to the east of the main natural harbour. These developments meant that Portsmouth was 'for long one of the most heavily fortified towns in Europe, the defences entirely due to the importance of the naval base'.[5] Haslar Gunboat Yard was developed and constructed solely to be a base for the Navy's gunboat fleet and act as another facility within the Portsmouth naval complex. It was due only to restrictions in space that it was situated away from the central dockyard. Despite this, it nevertheless functioned as an integral part of the main dockyard (Figure 1).

By the mid-18th century all decisions regarding the Royal Navy, including building works, were overseen by the Navy Board and a team of core staff including a Surveyor.

Figure 1. Portsmouth Harbour in 1914. Outlines in red show the land controlled by the navy at the time (TNA Work 41/310)

Despite this, senior dockyard officers in each yard often gave themselves freedom in running their yards. Samuel Bentham was appointed Inspector General of Naval Works in 1795, reporting directly to the Admiralty Board, and in this role began to institute changes that would later alter how dockyard planning decisions were made. He brought in a set of experts including a Civil Architect, a mechanical engineer, and a chemist.[6] In 1808, Bentham and his team were given the new titles of Civil Architect and Engineer and transferred under the Navy Board. Four years later, Bentham's own position was abolished. In 1832, the Navy Board and the Victualling Board were abolished and a new structure with yard superintendents (a combining of the posts of dockyard commissioner and Port Admiral) was introduced.[7] By 1837, the Admiralty Works Department had been established, under the direction of a Director of Engineering and Architectural Works.

The Royal Navy and Steam Power

As the principal naval port, Portsmouth was consistently at the forefront of innovation and development for the Royal Navy. Industrial innovations in factory manufacturing, revolutionary ship building, and applications of steam-power to industry all occurred here. Arguably the most important industrial development to impact upon the Navy was the advent of steam technology.

The Portsmouth Dockyard, with which Haslar Gunboat Yard was associated, was the first naval establishment to employ steam-driven machinery in a factory setting. In 1799, it was used to pump docks and power a saw.[8] The engine was situated in The Block Mills and designed by James Sadler, Samuel Bentham's chief chemist. Its application to repeated tasks was identified by Bentham and Brunel, who developed means of applying it to saw milling.[9] Development of steam power in the Navy halted somewhat from 1815 due in part to Bentham's departure. By the 1840s, steam works and developments in Navy yards were beginning to gain momentum once more and the building programme that subsequently arose rivalled the first spate of dockyard expansion.

By the mid-19th-century steam technology was changing the way in which naval warfare was being conducted, being used for a variety of purposes including ship propulsion, and the use of iron not only in building works, but also in ship design.[10] The first steam factory was at Woolwich (1839), established 'for the manufacture and repair of engines for steam vessels'.[11] Portsmouth acquired a steam basin in 1843.[12] Iron hulled ships also came into use during the 1840s and steam power meant that vessels could now be smaller and manned by fewer men. The first steam vessel to be launched by the Royal Navy was the *Congo* in 1816, when steam technology was in its infancy.

Chatham docks underwent the largest steam conversion from 1840-1860, vastly outdoing the conversions at Portsmouth and Haslar.[13] That these developments were concurrent indicates that the Navy as a whole was embracing this new technology along with the 'advent of the iron ship and its attendant machine shops and boiler shops', such as are found at Haslar Gunboat Yard.[14] Haslar was not, however, at the forefront of such developments in steam technology, although it was equipped with steam power from the outset.

The Development of Gunboats

The term 'gunboat' is most often applied to a class of steam-powered ship, modified during the Crimean War, for navigating in shallow waters close to shore. The term had, however, been applied to small vessels prior to the Crimean War. From the 1850s until the early 20th century, the term gunboat was used of small steam-powered craft with one gun, although a larger form of gunboat, that was able to hold two cannons, was also developed. Initially gunboats were built of timber but by the 1870s, composite boats of timber and iron were being constructed. By the 20th-century, these vessels were made entirely of steel.

The British gunboat fleet only truly developed in the 1850s with the Crimean War (1854-56). Prior to this, the Navy had only a handful of gunboats that were deployed at various

ports around the world. Russia and Sweden, however, both had large fleets of gunboats and in the Crimean War, this type of vessel proved to be highly effective. At this time the Royal Navy was directing much of its efforts to the Finnish Straight, where larger vessels were not of great use as they could not navigate close enough to shore. The shallow-drafted, steam-powered gunboats were capable of sailing much closer to land and were therefore more flexible in their use than larger ships. Due to the nature of naval warfare being conducted, gunboats were ordered in large quantities during the 1850s and into the 1860s. More gunboats would have been ordered by the Admiralty had it not been for the sudden end to the Crimean conflict in 1856.

The gunboat was a notably British naval development. They were frequently associated with British naval forces due to their widespread use across the globe, giving rise to the phrase 'Send a Gunboat!'. Gunboats were, however, also used by other countries, (Russia, Sweden and the United States at least), albeit in lower numbers. Estimates of 1858 assign 28 gunboats to France and 75 to Russia.[15] Because their use developed during the Crimean conflict, the practicalities of storing and maintaining gunboats in Britain does not seem to have been considered until 1856. Gunboat storage sheds in Copenhagen, which are positioned directly along a watercourse, constructed of wood and separated into individually contained sheds, are indicative of how other countries chose to house their small boats when not in use. The Haslar gunboat yard was, as far as records indicate, the only British yard built especially for the store of gunboats.

Construction and the choice of Haslar

Following the Crimean War, it became apparent that a ready fleet of gun-boats was required to ensure the safety of the English coast.[16] Unlike their larger counterparts, gunboats were too small and too numerous (*c.* 120) for the existing dry docks in naval ports such as Portsmouth. Dry and wet docks were reserved for larger ships and the sheer number of gunboats meant that they were frequently, and, sometimes literally, left at sea. Unfortunately their iron parts, which included hulls, engines, and boilers, along with the frequent use of unseasoned timber, meant that storage afloat was not practical.[17] The solution was to construct a separate yard where such vessels could be stored and repaired on dry land, potentially for long periods of time, whilst remaining seaworthy and ready for action.

Although a number of sites were considered for the Navy's first gunboat yard, including sites at Chatham Dockyard, Royal William Victualling Yard at Stonehouse, Plymouth, and Keyham Yard at Devonport Dockyard, the final decision rested on Haslar.[18] Haslar had a number of natural features that made it well suited to such a yard: it was situated within the natural Portsmouth basin meaning it was easily defensible, it was also situated in close proximity to the larger Portsmouth dockyard, a main base for the rest of the fleet and the operational base of the gunboats.[19] The final site chosen at Haslar was to the north of the hospital, bordering Haslar Creek. The waterfront access along the northern boundary was also an asset of the site as this provided for easier launching of vessels at high tide. It was also seen as preferable to the other proposed site to the east of the Hospital as the latter was not designated for naval use.[20]

Maps from the early nineteenth century show that the site was undeveloped farmland prior to the Navy's leasehold (Figure 2). The speed with which the yard was constructed means that there is little map evidence to show the stages of the site's development. However, the site's layout has changed relatively little since its construction and all the principal features have remained in situ.

Figure 2. Haslar Peninsula in 1830 (TNA Work 44/281)

The Traverser System

The biggest challenge in the yard's construction was providing a means by which boats could be easily hauled up and stored; and equally, removed from storage for active service in a timely fashion. The solution was a traverser system, complete with slips, that allowed boats to be hauled up and moved parallel to the waterline before being placed in a storage shed.

The first record of attribution for the design of the traverser is in the *Hampshire Telegraph and Sussex Chronicle* of October 25 1856, which credits Colonel Greene, the then Director of Works, and Mr Scamp, the then Deputy Director of Works.

> The hauling-up slip at Haslar for screw gun-boats is a new and peculiar adaptation of mechanical art to maritime matters. These boats, instead

of, as on the old plan with men of war, being laid up in ordinary up Portchester Lake, &c., will be laid up in ordinary on dry ground, and under sheltering roofs of corrugated iron, on a capacious site, surrounded by a well-built brick wall. That site is a little above Haslar-bridge and directly opposite the houses at the extreme upper end of High-street, Gosport. The works are of a very considerable magnitude, and no less than five contractors, each amongst the most eminent in their respective branches of trade, are engaged upon them. – Thus, the excavation of land and the brickwork is entrusted to Messrs. Rigby, of London; the iron roofing to Messrs. Grissell, of London; the supply of iron rails for the lines of railways required to traverse the boats along, to Messrs. Fox and Henderson; the removal of the mud at the approaches to the slip in Haslar lake is being done by Messrs. E Smith and Co.; and the construction of the cradles on which the vessels are to be conveyed from the water to their berths or resting places, is confided to the well-known Mr White, jun., of Portsmouth, who has made himself so very distinguished in the construction of slip-ways. In addition to all these firms, Government has contributed its share to the works by supplying the sleepers on which the rails rest; they consist of the old timbers of men-of-war recently broken up. Colonel Greene, Admiralty Director of Works, and Mr. Scamp, Deputy Director, are the originators and designers of this slip-way, and Mr. Macdonnell is the resident Superintending Engineer.

From its novelty there is some difficulty, at least to an unprofessional writer, in describing the slip-way well. On visiting it a few days since, we were struck with the extent of the work and the great progress made within the short period of time that has elapsed since we intimated that it was in contemplation. We can only say that, running from low water mark in Haslar-lake, there has been constructed a treble line of railway, about 130 feet in length. It proceeds from the water that distance in a straight line, and then reaches, at right angles, a "traversing" line of rails, of which there are seven separate lines. The "traversing" line is 120 feet wide and, at present, 1,400 feet long; but it may be extended to as greater a length as may be requisite. Running down to this "traversing" line are the berths in which the gun-boats are to be placed. At present 45 of these berths are being constructed; but this is only an instalment of the full number. The length of each berth is 115 feet by 30 feet. They are all covered by corrugated iron roofs, which are supported by iron columns and stanchions of the height of 18 feet. The columns are hollow, and by them the rain that may collect on the roofs will be drained off. Every ten of these berths are separated from the remainder by a stout brick wall, in order that in the event of fire it may not involve the whole fleet in destruction. A line of rails is laid down in each berth, on which to draw the vessel on its "cradle" up, but as soon as they are up they will be supported in position in a way that will allow of the cradle being removed for further use.

The more difficult part now remains of explaining the mode by which

> the boats are to be drawn up to their berths. On the short line, which is on an incline, running from the water, will be a cradle, and upon this a second one, and at high water they will be lowered together under the gun-boat, and thus, when everything is secure, the whole will be drawn up by steam-power to the "traversing" line of rails. Here will be another cradle laying across and running on the whole seven lines of rails; upon this cradle the boat will be drawn, still fixed to the upper of the two first-named cradles – then cradle No. 3 will be propelled by a locomotive up the seven lines of rails, going broadside on, till it arrives at the berth destined for the boat it carries. By means of windlasses the boat, not yet released from cradle No. 2, will be drawn into its berth, and then when the vessel has been fixed in that manner, the last-named cradle will be removed and the same process will begin again with another boat.
> The first boat drawn up will be on the 17th of November, and it will be an interesting event.[21]

A conflicting report in the *Mechanics' Magazine* of January 3 1857, credits a Mr White, shipbuilder, as the author of the original concept, with the design later worked out in conjunction with Mr Scamp.[22] It is possible that this actually refers to the design and construction of the cradles rather than the system as a whole.

> OUR GUNBOAT AND MORTAR-BOAT FLOTILLA
>
> As the relations of Great Britain with foreign powers have been neither very close nor very cordial since the recent war, much of the belligerent spirit evoked by it has doubtless continued to the present—sufficient, at least, to assure us that many will learn with interest what has been done, and is being done, with that vast and costly flotilla of light war craft, the mere menace of which did much towards bringing us a speedy peace.
> This flotilla—every vessel of which is of a very light draught of water, and therefore suitable to be applied to numerous services to which the whole of our navy, before the war, was inapplicable—may be said to consist of five classes of vessels, namely, despatch, or, more properly, gun-vessels, gun-boats, mortar-vessels, mortar-floats, and floating batteries, of which all but the mortar-vessels and mortar-floats are propelled by steam. The gun-vessels, gunboats, and mortar-vessels are of wood; the mortar-floats of iron; the floating batteries, some of wood and some of iron, and, in all cases, cased with iron plates of iv ins. thickness. It is evident that craft like the gun-vessels and gun-boats—light, swift, commodious, well-armed, easily handled, independent of wind and tide, and capable of acting separately or in concert—will always be useful in the British Navy, which has at times to attack or menace on the shores of almost every sea, either in waging war, or enforcing treaties, or protecting the Queen's subjects, or capturing slave traders, or exploring barbarous countries. A considerable number of these vessels is accordingly at present employed in the Black Sea, the West Indies, China, and elsewhere; and in all probability there will

always be many of them in commission and on active service. 'The great bulk of them, however, and the whole of the mortar-vessels and floats will have to be otherwise dealt with. A wooden vessel, built in haste, of green timber, put together roughly, and carelessly caulked, is liable, if unattended to, to be speedily devoured by dry rot. And this is precisely the case with these vessels, which were built with comparatively little regard to anything but the time named for their completion. However honourable their builders, and however faithful the dockyard officers who inspected their construction, may have been, the rapidity with which great numbers of them were prepared was such, that unseasoned timber and careless workmanship must necessarily have been resorted to. The examination of many of them in dock has, indeed, shown this opinion to be true. These circumstances being understood by the Admiralty, it became highly desirable that means should be provided for removing these vessels from the water, in order that planks might be taken out here and there, and other contrivances adopted for the double purpose of seasoning their timbers, &c, and of affording opportunities for the necessary inspection and repairs. It was also felt to be advisable that the iron vessels should likewise be removed from the water, as they could be preserved from wear and rust much better out of it than in it.

Now to effect these objects by the use of the ordinary dry docks of our dockyards, was altogether out of the question, because they would not contain a tithe of the small craft we now have in our Navy, and are all incessantly required for the construction and repairs of the larger vessels. Hence arose a difficulty to which many turned their attention, and, among others, Mr. Thomas White, shipbuilder, of Portsmouth, who for years has both used, and constructed for the use of others, a patent arrangement of hauling-up slip, by means of which vessels, either large or small, may be drawn out of the water with great facility, for fitment, repair, or stowage. It occurred to Mr. White that, under the circumstances of the case, it would be very convenient to stow the gun and mortar vessels in parallel tiers, side by side, and to place any number of them thus, by means of one principal slip-way, up which the whole might be successively drawn, and from which they might be removed on lateral rails to front their respective stalls, into which they could then be taken. This plan was submitted to the Admiralty, who approved of it, and committed the execution of it to Mr. W. Scamp, Deputy Director of Engineering and Architectural Works, Somerset House. This gentleman interested himself warmly in the undertaking, facilitated it *by many suggestions and improvements, and, in conjunction with Mr. White, has carried the system out very successfully.

A tract of land at Haslar, near Gosport, bordering on Haslar Creek, was selected to receive 200 vessels, and the necessary arrangements were proceeded with. The plate at the commencement of this Number represents the details adopted. The first vessel (the Gnat) was hauled

up on the 25th of November last, and has been followed by numerous others. In raising a vessel, she is first drawn upon a slip composed of two parts, of which the under part is a carriage running on wheels along rails laid on the principal slip-way, and the upper a carriage furnished with wheels to run on rails laid on the under carriage. This under carriage is tapered, or diminished in depth at its fore end, so that the upper surface of it may lie parallel to the surface of the lateral ways, and of the sheds or stalls. When the vessel is grounded upon the slip, and supported by wedges or blocks, placed under it by means which it is unnecessary to describe here, the slip is drawn up the ways by tackles, &c., worked by a fixed steam engine of sixteen horse power. On its arriving at the upper end of the principal or trunk slip-way, the hauling ropes are connected to the upper carriage, on which the vessel immediately rests, and this carriage is then drawn forward along the rails on the lower carriage, and is received upon rails laid on a lateral transporting table—the ends of the rails on the lower carriage and on the transporting table corresponding with each other. The traversing table, with the vessel upon it, is then drawn away laterally by a small locomotive steam engine, until it is brought in front of the stall appropriated to it. The upper carriage is then again drawn forward off the transporting table, by tackle from the fixed engine, and bears the vessel to its position in the stall. The vessel is now blocked up, and freed from the carriage, which is then run back on to the traversing table, and borne by it to the lower carriage of the slip, on which it is received, and with which it lowered to receive another vessel. It will be evident that by employing an increased number of transporting carriages and tables, the time expended in raising a number of vessels may be much reduced.

The improved system of hauling up and stowing vessels will, without doubt, come into very general use, both at home and abroad. It has, in many instances, great advantages over the practice of dry-docking, particularly in the case of paddle-wheel steamers, the paddle-boxes of which are great impediments to the docking of such vessels. Besides this, merchant ships are now built of such a length that it is becoming impossible to place them two or three on end upon a slip for repairs, as was formerly done. In the event of war, our hundreds of small war craft could not possibly be accommodated in the existing docks, the demand for which, for the reception of large ships, is continually increasing. In many foreign ports, particularly in harbours where there is but little or no tidal change, the arrangement will become indispensable. Mr. White will, therefore, we hope, receive ere long a suitable reward for his labours in extending the employment of hauling up slips.

Ultimately, when the gun and mortar-vessels are sufficiently seasoned and again completed, it would be desirable, we think, to fully fit them for sea, making them their own storehouses, so as to be ready for active service at the shortest possible notice—an arrangement

> which would certainly be attended with many advantages. With the floating-batteries but little more can, we apprehend, be done than to have the best possible attention given them afloat. One of them might, however, be made a target of, as was recently designed, with great advantage; for, as the Times remarks, that is the only efficient method we have of testing their fitness for the service for which they are intended.[23]

William Scamp, the Deputy Director of Engineering and Architectural Works, had exhibited a model for a hauling-up yard at the Great Exhibition in 1851.[24] The model was for an unsuccessful 1849 scheme designed to haul ashore the largest warships.[25] It is highly probably that this was the basis for the design employed at Haslar. It is believed that Scamp's designs for this system originated in US military use and in railway technology.[26]

An earlier traverser system, possibly the first in Britain, was used in the Swindon Railway Works and shows similarities with the design employed at Haslar (Figure 3). It was conceived by Daniel Gooch, appointed by Brunel as the superintendent of locomotive engines in 1837, and has a construction date of 1842. Unlike the traverser at Haslar, the Swindon traverser operated in a sunken pit down the middle, interior length of a repair and storage shed. Initially the system was powered by hand, but it was later converted for steam power with a shallower pit.[27] It was double tracked and used for moving engines between bays and delivering them to tracks at the northern end of the shed.[28] The whole system was 290 feet by 50 feet, making it of comparable size with that at Haslar.[29]

Figure 3. Copy of engraving by Jeremy Bourne of 'Swindon Engine House 1845' showing the traverser in use(EHA BB 94/04685)

William Scamp was a self taught architect who, in 1837, became assistant engineer at Woolwich Dockyard. He began his naval career in Malta, where he was responsible for the design and construction of a large number of buildings, including the bakery. His success in this post meant that upon his return to England, he was made Deputy Director of Engineering and Architectural Works to Colonel G T Greene. In this role he oversaw a number of developments within the English ports, not least of which at Portsmouth. Greene wrote:

> The present Admiralty establishments at Malta, Gibraltar and Bermuda, are almost entirely projected by him. Deptford, Woolwich, Sheerness, Portsmouth and Pembroke owe many of their best buildings to his professional talent. Keyham is almost entirely his own, from first to last.[30]

Despite popular theories that Isambard Kingdom Brunel was the designer, there is no evidence to suggest his involvement. He was, however, involved in the adaptation of steam power for factory use on the main Portsmouth site so was certainly working in the Portsmouth area at the appropriate time. It may have been his involvement in the area in general that has led to his association with the gunboat yard.

An image published in the *Mechanics' Magazine* of 1857 shows how the traverser system operated. (Figure 4)[31] The design was comprised of a slip laid with tracks extending into the water. This allowed the boats to be attached to their cradle at the water's edge. The boats were then hauled up onto land by means of a steam winch. Once at the top of the slip, the cradle (and ship) were conveyed onto the traverser, a series of rails sunk below the level of the sheds that ran parallel to the shed openings. A steam-powered engine,

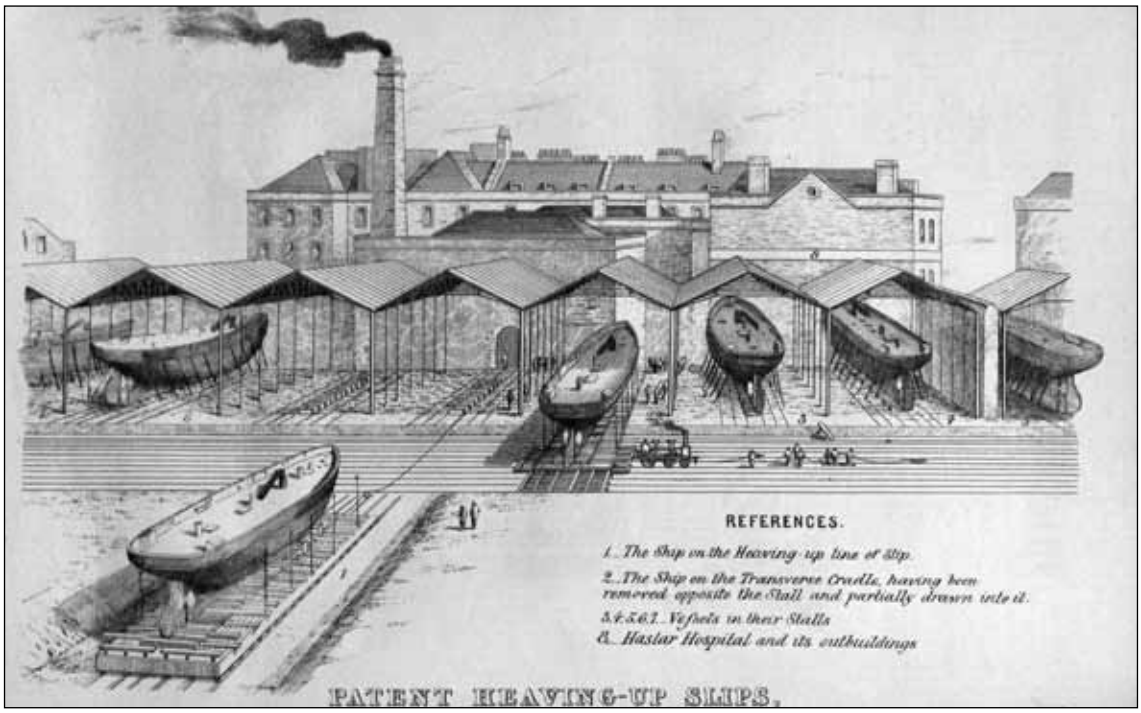


Figure 4. 'Patent Heaving-Up Slips' at Haslar Gunboat Yard (Mechanics' Magazine, 3 January, 1857)

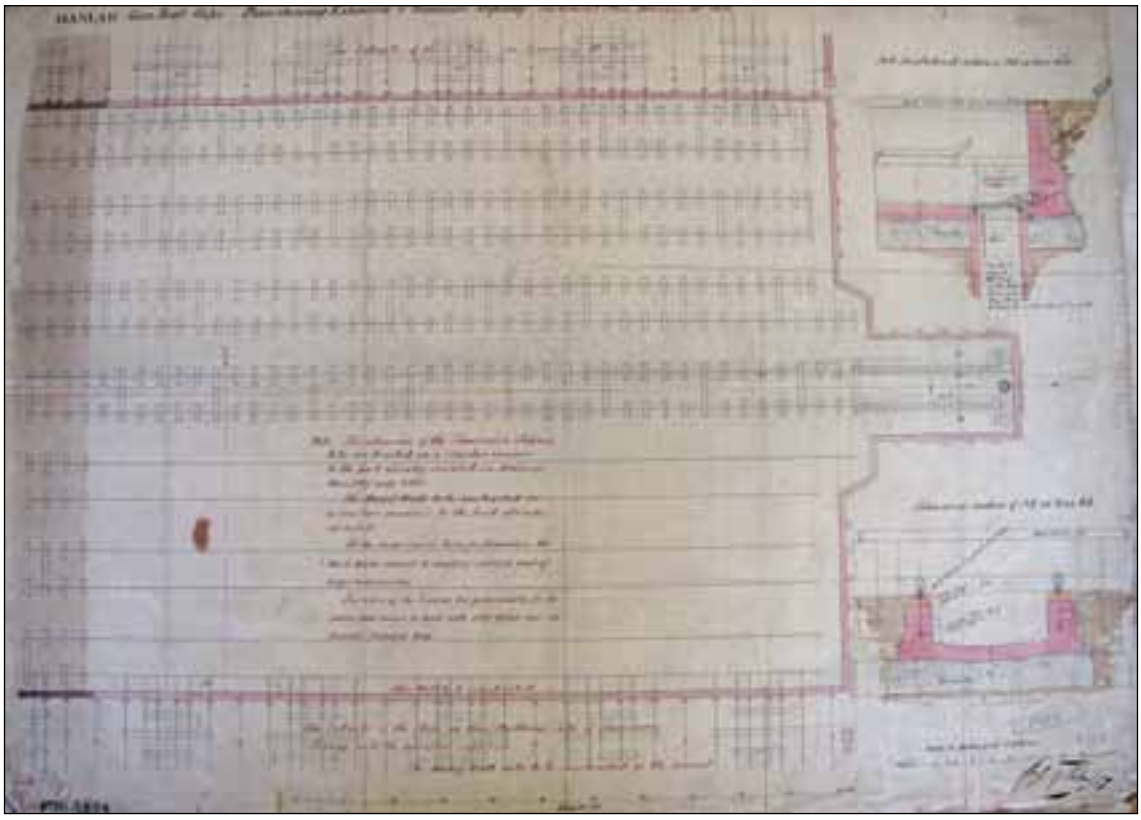


Figure 5. Extension of transverse slipway in 1857 (EHA MD 95/6490)

nicknamed 'The Elephant' and supplied by Messers Humphrys and Tenirant of Deptford, ran back and forth delivering boats to their shed opening where they were then hauled into sheds for storage, repair or maintenance. For ease, they remained on their cradle throughout the process.

The first attempt at hauling and storing a gunboat at Haslar occurred on 25 November 1856, just five months after the Navy had approved the choice of site. The hauling up of the *Gnat* was not entirely successful as the machinery was not powerful enough to haul the ship all the way up. Modifications were made and the first successful attempt was completed in January 1857.[32] The Elephant itself was officially trialled on 16 February 1858.[33] The extensions to the traverser system in 1857 may have been associated with this (Figure 5).

A newspaper account of 1859, when modifications were made to the system, details how it operated and indicates that the Elephant was attached to the south west corner of the platform behind the steam engine. A hydrant was installed on the platform as a fire precaution. It was powered by steam from the steam locomotive, rather than from the steam engine in the repair yard behind the sheds.

> An experimental launch, to test the efficacy of the alterations recently made in the gunboat slip-way at Haslar, was effected on Wednesday morning last, in the presence of Admiral Sir B. Walker, Bart., K.C.B., surveyor of the navy; Admiral Sir George Seymour, G.C.B., K.C.B., Commander-in-Chief; Commander Gardiner, of the Hannibal;

Lieutenant Silver, Mr. Scamp, Mr. Miller, Mr. Woods, &c., &c.
The boat selected for the launch was the Cherokee, one of those of 60 horse-power, then occupying the twentieth berth in the shed – that is, commencing from the eastern end. As many of our readers have not visited these slipways we here add, for the purpose of making the account as intelligible as possible, that the whole of the vessels rest on blocks of wood and are shored up in the ordinary way on both sides by pieces of timber, ten yards width being the allotted space for each vessel: and that the preparations for the launch were effected in the following manner: - The Cherokee, by the introduction of six small hydraulic presses, placed at irregular distances beneath her keel, was forced from her recumbent position and raised a sufficient height to allow of the cradle being placed underneath her: to effect this three lines of movable iron rails were placed on each side of her, and the locomotive then drew the huge platform opposite to the vessel. This platform (on which rests the cradle, formed of heavy balks of timber faced with iron, into which wedges are countersunk, each wedge being fitted with a block and "fall,") is propelled over fourteen lines of permanently fixed iron rails, and travels on 8 perpendicular wheels to each line; down the centre of the platform there works an "endless screw," about 35 yards in length, of a very fine thread. At the bottom of the cradle are the scientific appliances which attach to the screw: on the strength and uniform working of these intricate junctions mainly depends the success of the removal of the boat from the shed and the ultimate launching. A small trunk engine, from the manufactory of Messrs. Humphreys, Tennent, and Dykes, of London, performs the whole of this portion of the work, in addition to which it gives valuable assistance to the locomotive when drawing the laden cradle. This engine is placed at the south-western corner of the platform, and is supplied with steam from the locomotive. The cradle having been taken to its position opposite to the boat is quickly transferred on to the line of rails underneath her, after which she is wedged up, and pronounced to be all ready.
We now proceed to give in detail an account of the removal of the boat from the shed, and the launch as performed on Wednesday morning, and also the time occupied. Sir Baldwin Walker, with Sir George Seymour, Commander Gardiner, and Lieut. Silver arrived on the spot at eleven o'clock precisely, and the preliminary attaching of the laden cradle was quickly accomplished in their presence: at 11.9 the small corner engine before noticed was set in motion, and the boat was seen to glide slowly and almost noiselessly from her position in the shed on to the platform; when about mid-way out a stoppage of half-a-minute occurred, but from what cause did not transpire, at least in our hearing; the screw was again in motion till, at 11.16, a change was required in the adjustment of a large flat-headed kind of staple, some feet in length, which is apparently the principal medium by which the attachment of the bottom of the cradle to the screw is determined;

by this delay another minute was lost: the engine was once more set in motion, and so continued till 11.19, when it was considered that the boat was clear of the shed, but it proved otherwise, for, on the locomotive proceeding a few yards down the traversing rails, it was found that the Cherokee's bulwarks at the bows were not free from the cross-piece of the roof, part of which she would have certainly carried away had not the engine been promptly stopped. This mishap necessitated a retrograde movement of the whole mass and another appliance of the small engine to place her farther on the platform – the hang-up entailing a loss of six minutes. At 11.27 the locomotive was finally set in motion, driving its great burthen the distance of thirty yards in one minute and a quarter: we are unacquainted with the exact weight thus propelled, but, taken at a rough calculation, we should suppose it to be very little short of 250 tons. The fixing of the supplementary rails to connect the platform with the incline and some minor changes expended three minutes and a half; after this the preparations required for the last portion of the experiment caused a delay till 11.46, at which time the boat was entirely freed from all but one connection with the platform. Sir George Seymour then enquired if all was prepared, and a quick answer having been returned of "all ready, Sir," – after a precautionary admonition to every one who was in the vicinity to stand clear from the cradle – the order was given, at 11.47, to "go on"; the connection was severed, and at 11.48 the Cherokee, after gliding down the incline in a most even and majestic manner, was afloat in her native element. The entire time occupied in the whole operation, including all the stoppages, was thirty-eight minutes and forty seconds.

The whole of these performances, which embraced not less than six distinct changes of movement, in the course of which a 60 horse-power gunboat was carried from her shed and launched safely into the sea – a distance of little less than 300 yards having to be traversed – was effected without the slightest mishap other than we have stated at the shed. There was no halloing or unnecessary noise; a simple indication from the hand of the gentleman superintending to the person in charge of the locomotive was a sufficient order, and, notwithstanding the extreme weight of the laden platform, it was driven to within one inch of the spot where it was to finally remain without a stoppage. Exclusive of the delays the launch would have been performed in a little more than half-an-hour, and, although the experiment of Wednesday was deemed eminently satisfactory, it is confidently expected that a similar launch will yet, and that at no very distant date, be accomplished in the space of from twenty to twenty-five minutes.

The launch of Wednesday proved beyond question that the recent deepening and lengthening of the incline for facilitating operations, as well as to dispense with a very unsafe "jump" which existed in the line as at first laid, had been most successfully performed. The

> improvements were carried out by Messrs. Smith, the contractors, and the alterations are regarded by those who witnessed the trial of their efficiency as skilful accomplishments over great engineering difficulties.[34]

The Gunboat Sheds

Contemporaneous with the construction of the traverser system was the erection of the first range of sheds to house the gunboats. An image from 1857 published in the *Mechanics' Magazine* shows eight sheds already standing (Figure 4).[35] The partition on the rightmost side corresponds to an extant brick wall now along the easternmost side of the sheds. This image also shows that the south brick wall was not continuous across the south face of the sheds. The sheds themselves were constructed from wrought and cast iron, continuing a tradition of larger-scale naval building.

Royal dockyards have been credited with pioneering the use of large span metal roofs.[36] Edward Holl's No. 1 Storehouse in Pembroke employs metal trusses spanning 40ft and Greene's No. 7 Slip roof of 1852 reached 82 ft wide.[37] In addition to this, Portsmouth has one of the first examples of a building constructed entirely of iron: both structure and cladding.[38] Structural iron in buildings was also employed, in part, as a fireproofing technology. One of its greatest exponents for use within the dockyards was Edward Holl, Civil Architect initially working under Bentham and then in his own right until his death in 1823. Holl was a strong advocate for the use of structural cast and wrought iron and for their application to prefabricated buildings. His church at Chatham (1806) is the earliest example of structural cast iron in a dockyard building.[39] Numerous other examples of his work still survive including the Plymouth ropery, designed with fireproofing principles in mind.[40] The first iron framed roofing structure to appear in the dockyards at Portsmouth was constructed circa 1810. A metal mill was under construction with a roof design by Simon Goodrich, Mechanical Engineer to the Admiralty and part of Bentham's team circa 1800. The building was designed to include a steam engine and infrastructure for copper-smelting and hull remodelling, amongst other things.[41]

Covered slips were first investigated in 1807 by Bentham when he visited the Swedish naval base at Karlskrona. As a result of this experience, slips in English naval dockyards began to be covered. The first was probably built at Portsmouth by 1814, with Chatham following within the next three years. The technological difficulties of covering such large expanses were challenging for working with timber. By the 1840s the design of all-metal structures was possible, which helped in the design elements of such large expanses. It is Greene that is credited with finessing the slip roof structure.[42] Each was slightly different in its construction, although with Green's completed work 'large-scale metal-framing may be said to have come of age'.[43] Only four sites employed metal-framed slips (Portsmouth, Chatham, Deptford and Woolwich) before ships began to be constructed mostly from metal and therefore required less coverage during construction. Portsmouth was the first to take on metal framing for such structures in 1844. Chatham had a set by 1847-8 and Colonel Greene designed another group for the Medway set. In concept, the Haslar Gunboat sheds had a similar premise to covered slips. By the 1850s, covered slips of this type had not long been the norm in naval construction and were generally 'designed by engineering contractors'.[44]

Design similarities are present between the gunboat yard sheds (the Tuscan columns and iron framing) and other structures within the Portsmouth complex such as the Chain and Cable Testing House.[45] Although the gunboat sheds cannot technically be considered a wide-span building, these works elsewhere in the naval system (which pre-date other important wide span structures such as Kings Cross and Paddington)[46] were occurring at a similar time and demonstrate a cross-fertilisation of construction and technological ideas in the Navy as a whole.

The use of iron in the Navy wasn't restricted solely to buildings, but also extended to the ships themselves. As ship sizes, forms, and requirements developed with the use of iron, the infrastructure and buildings needed to accommodate and maintain them was also modified.[47] The Haslar Gunboat Yard's construction occurred at a point when the applications of iron technology to fireproofing, large scale roofing and iron hulled boats were at the forefront of naval technological development. It also occurred at a time when royal dockyards everywhere were expanding to accommodate a growing Navy and larger ships.[48] The Gunboat Yard was a solution to a particular problem: the storage and maintenance of a particular type of vessel, which had recently come to the fore of naval use with the changing face of warfare. Although unique, its construction reflected emerging practices in British naval building.

With the restructuring of the Navy's administration in the 1830s, external contractors were more prevalent in the building of Navy infrastructure. Haslar Gunboat Yard was no exception. *The Hampshire Telegraph and Sussex Chronicle* details the companies and individuals who were involved in the planning and execution of the site:[49]

> The works are of a very considerable magnitude, and no less than five contractors, each amongst the most eminent in their respective branches of trade, are engaged upon them. – Thus, the excavation of land and the brickwork is entrusted to Messrs. Rigby, of London; the iron roofing to Messrs. Grissell, of London; the supply of iron rails for the lines of railways required to traverse the boats along, to Messrs. Fox and Henderson; the removal of the mud at the approaches to the slip in Haslar lake is being done by Messrs. E Smith and Co.; and the construction of the cradles on which the vessels are to be conveyed from the water to their berths or resting places, is confided to the well-known Mr White, jun., of Portsmouth, who has made himself so very distinguished in the construction of slip-ways.[50]

Messrs Fox and Henderson (who also constructed the Crystal Palace) had a history of supplying slip roofs to the Navy. They were the first company to build such structures, beginning with two slip roofs at Pembroke in 1844, and altogether constructed five such roofs for the Navy, notable for their cantilevered aisles and corrugated-iron roofs (including No. 4 slip roof at Woolwich).[51] Their work, with similar truss design to that at Haslar, is also evident in the paint shop at the Swindon Railway Works of 1847 (Figure 6).[52]

More prolific, however, were George Baker and Son who erected 11 roofs for the Navy.[53] Messrs Grissell of London (ironwork for Covent Garden Opera House and new

Figure 6. Former 'K' shop at Swindon Railway Works in 1994, looking north (EHA BB94/16325)

Houses of Parliament) was also awarded another naval contract in addition to Haslar Gunboat Yard: for No. 7 Slip roof Woolwich. This design drew on elements seen at the Crystal Palace, using H-frame sections rather than curved ribs.[54] Little is known of Mr White of Portsmouth, although reports in *the Hampshire Telegraph and Sussex Times* indicate he was prolific in the Portsmouth naval construction.

The first range of ten sheds, originally called slips, may have had skylights in the corrugated iron roof with lead-covered ridges (Figure 7). Plans of 1860 indicate a permanent roof structure was planned for ten sheds, although it is not clear if these were the original ten sheds that still remain. At this time a wall was also raised (Figure 8). Fabric evidence on the extant east wall of the shed range is consistent with such modifications.

By 1859, 40 gunboat sheds were present on the site housing 45 gunboats. Despite the initial positive investment in gunboats, by 1860 they were outdated technology for current events. Concern for the future of gunboats and the quality of their construction was being publicly aired:

> The Decoy and Blazer gunboats were yesterday launched from the gunboat yard and slipway at Haslar, at high water, and two other gunboats, the Angler and Fancy, afterwards hauled up and placed beneath the vacant sheds. The wards hauled up and placed beneath the vacant sheds. The time occupied in removing each boat from its

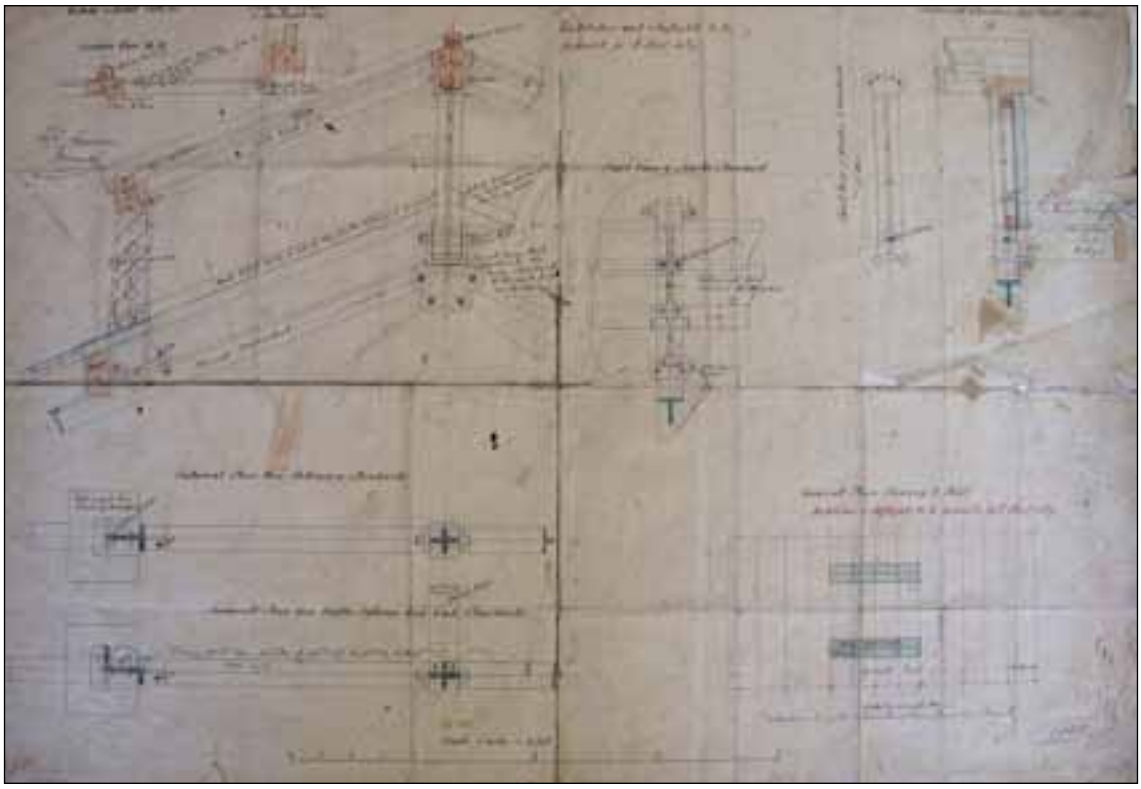


Figure 7. Plan for skylights for roofs over slips 1860 (EHA MD 95/6492)

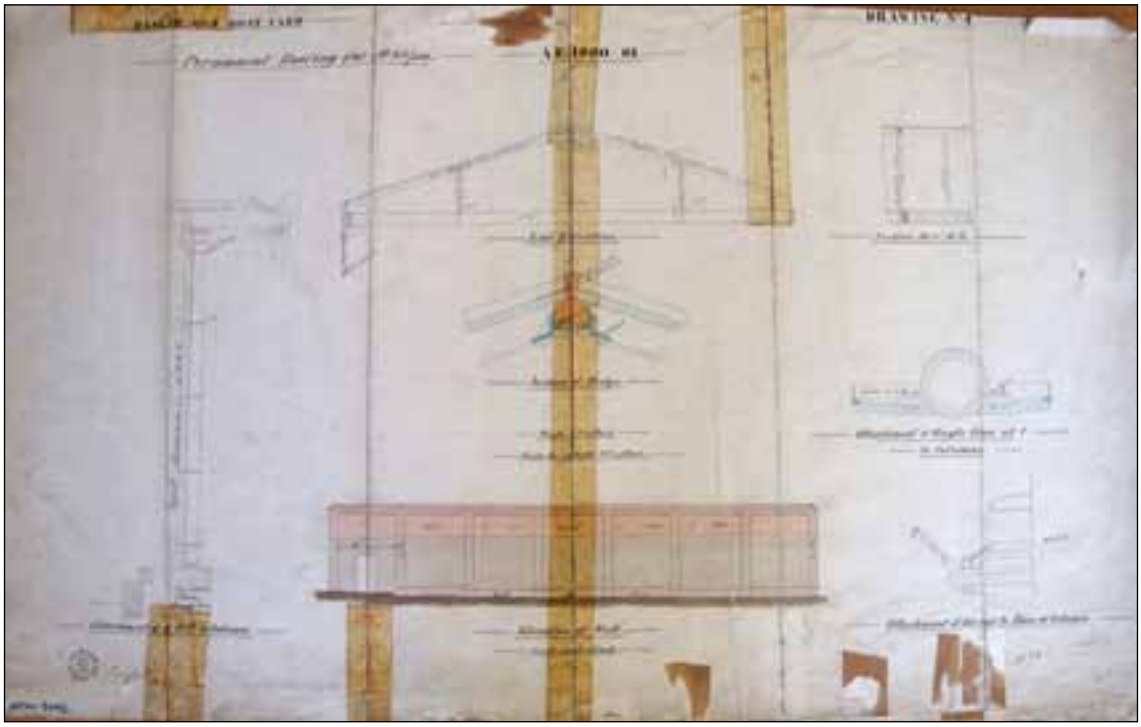


Figure 8. Plan for permanent roofing for 10 slips in 1860 (EHA MD 95/6493)

shed with its cradle, placing it on the transporting platform, transferring it on to the launching cradle, thence to the water, and finally returning the vessel's cradle to the shed whence it was originally taken, was 69 minutes; but this must not be taken as a fair test of the time it would take to launch any of the boats which might be required for service, as the two boats in the present instance were already taken off their blocks and set up on their cradles in readiness for the operation. To select any one of 47 boats – say, one at either end of the line – would occupy nearly four hours, instead of only 69 minutes as yesterday. The plan, on the whole, is good; but a small outlay would greatly simplify the present method of working, and afford a great saving in time. At this time there are 47 gunboats, beside mortar vessels, hauled up at Haslar yard. Twenty-two of these vessels have been repaired at a great cost, and, with the exception of coppering, are ready for launching. Nine vessels are under repair. Fourteen are waiting examination and repairs, five of which are uncoppered, the remainder being coppered. The remaining two vessels are the Fancy and the Angler, hauled up yesterday. This yard was formed at the conclusion of the Russian war, for the storing and preservation of the gunboats which had been built by contract by various private builders during that war. The first boat was hauled up, we believe, on the 1st of January, 1857. Shortly afterwards more vessels were added, the boats were stripped of their copper, and it was supposed that this was the most sensible plan which could have been taken for their preservation. It was not long, however, before it was discovered that the vessels required repairs, and in some instances they were rather extensive. It was at the time stated that this decay in the vessels arose from the fact of their being stripped of their copper, and being set up high and dry on the blocks, and thus exposing the planking of their bottoms to the action of the air-draughts underneath the sheds. This necessitated the employment of a number of shipwrights, &c., under an experienced officer, for their repairs, which have been carried on, and, as before stated, 22 vessels have been rendered fit for service, with the exception of coppering. Late investigations have, however, pointed to another source as the cause of the decay of the vessels. Some of the coppered gunboats which had been kept afloat having been hauled up had on examination been found far more defective than those were which had been stored beneath the sheds, and the only conclusion which can be arrived at is that the whole of our gunboats afloat are totally unfit for service. Of the nine vessels now under repair not one but bears the marks of having been constructed with the most reckless disregard to quality of material. Take two of them, two of the coppered class, which have been kept afloat, as an illustration of what may be expected from the 40, or thereabouts, which yet remain to be examined at Portsmouth alone. They stand on their blocks stripped of their planking, and scarcely a sound piece of wood can be seen about them, every part bearing the marks of "sap," and some of their ribs are completely

> enveloped with it; the pressure of the hand upon their frame crumbles it into dust. The white fungus matter grows over all, and nothing remains but decay and rottenness. The contract price of these vessels is said to have amounted to about 5,000 for each hull alone, and, if so, the cost of repairing each of the two vessels we have named must amount to about 3,500l. Taking one of the completed boats as a medium of the repairs of the boats which have been hauled up for preservation, it will be found that in her case labour and material amount to about 1,400l. The copper bolts, too, in one of the boats, which ought to have gone clean through and been clinched on each side, were found to have been changed into short ends, of about two inches, driven in on each side. In the midst of all this decay there are two boats, which have been examined and repaired, which are declared by the authorities to have been constructed in a creditable manner to their builder, both as regards labour and material; but it is said that the doing so nearly entailed their builder's ruin. They are named respectively the Earnest and the Escort. One consoling reflection is left - the machinery of all the boats is believed to be in good condition. In another part of Haslar yard eight iron and 12 wooden mortar boats are in position on blocks underneath temporary sheds, and it must naturally be expected that the latter will prove to be as defective as the gunboats have.[55]

Aside from the main row of sheds, there was also a smaller range of timber sheds constructed for the smallest class of gunboats, the so-called torpedo boats. This range was situated to the west of the slips, closer to the north of the site and facing the sheds. The only evidence for these is in the historic record and archaeological potential is low. It is possible that the plan for six timber sheds, now in the English Heritage Archive, refers to this group of sheds (Figure 9).

Although the primary focus of the site was on the sheds and the mechanism to move vessels between them and the water, the site also contained a number of other subsidiary buildings. Directly behind the sheds were two sets of ancillary buildings. One was a series of repair workshops; the other, the engine house complex for Haslar Hospital. The design for a storehouse from 1859 is perhaps indicative of other storehouses on the site (Figure 10). Plans are also extant for the Mast House (EHA 95/6504) and a Workmen's Shed. (EHA 95/6511) The plan of 1904 indicates the use of each of these buildings (Figure 11).

The quality of the craftsmen employed to undertake the work at Haslar Gunboat Yard and the investment in the site as a whole is a reflection of the value placed on naval buildings and on the gunboats themselves. This was not a site just for storage, but for the future success of active naval defence. As it was a highly valued site, with valuable contents, it is hardly surprising that it was also designed to be very secure. The whole complex was surrounded by a high brick wall with lookout posts and sentry walks, a guard house, a police barracks and also contained the home of the Master Shipwright.

This house was positioned in the south-eastern corner of the site. It was originally quite a grand house and probably erected after the recommendation of a senior officer post

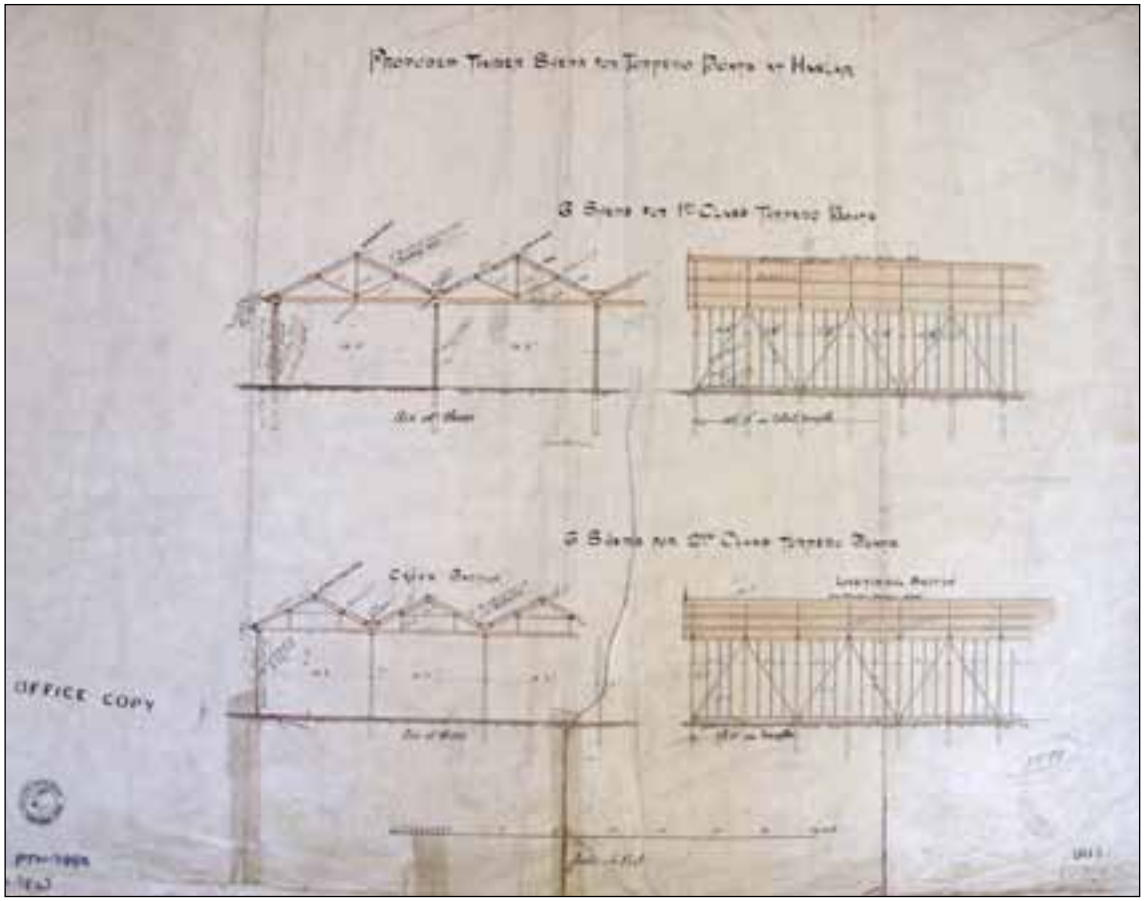


Figure 9. Mid-19th century plan of sheds for torpedo boats (EHA MD 95/6505)

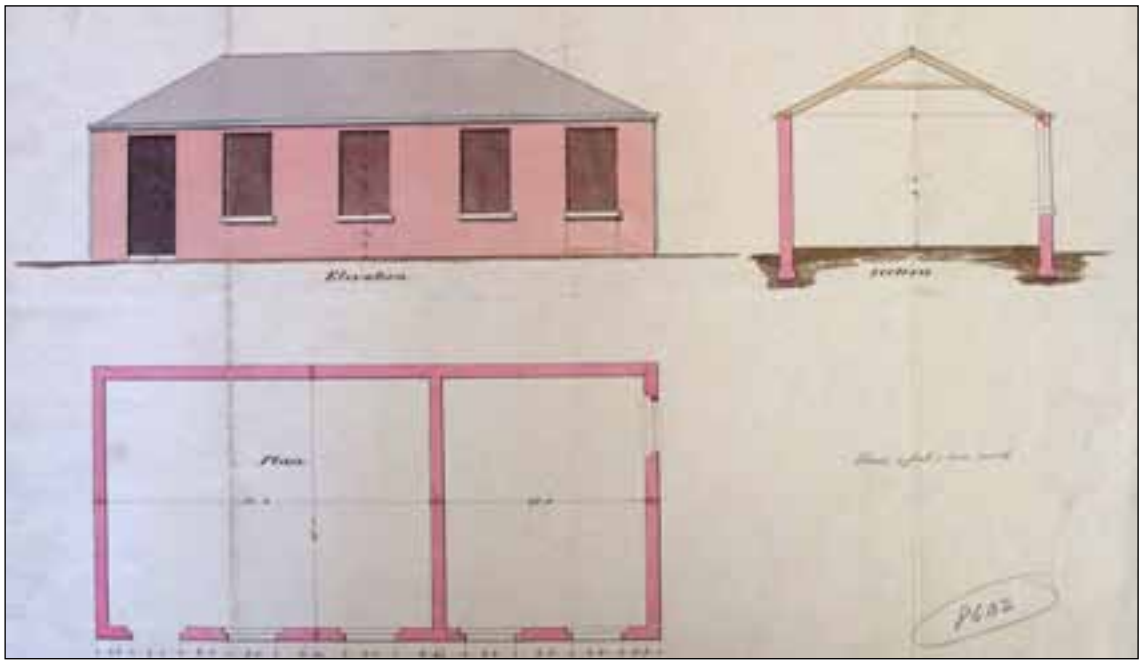


Figure 10. Plan for a storehouse, 1859 (EHA MD 95/6503)

in July 1857.[56] Photographs taken in 1974 and published in Coad 2007 show a three storey brick construction with an entrance porch and detailing similar to that of the two guardhouses.

An undated and unattributed painting, reproduced in Hickson 2012, records an official event at the Haslar Gunboat Yard. The exact event is unknown, although it is possible that the event depicted is one of the official trials or visits by the Navy Board. The image shows 15 sheds. Mid-way along the row of bays a brick partition is visible. An archway can just be discerned in the southern brick wall.

The southern wall does not extend across the entire length of the sheds. The end of the northern-most workshop can also be discerned jutting partway along the rear opening of one of the sheds. This suggests that the rear wall of the sheds was never entirely bricked up but was also open to the workshop area at the south of the site. These three features are still visible at the boatyard today and are further evidence that the remaining sheds belong to the original phase of building.

Historical Development of the Engine House complex

Also to the south of the shed range is an engine-house complex. The complex comprised two wells, an engine house, (powered initially by a steam engine but later fitted for an electric supply around 1905-6), boiler room, coal store and chimney. This was all used primarily for the Haslar hospital laundry.[57] A plan of 1856 indicates that most of these structures were part of the original building scheme for the yard, although linked to the hospital laundry. The exceptions to this are the two wells. The first well (to the south) dates from the first construction phase of the Haslar Hospital in the late 18th-century. The second, deeper well (to the north) is dated to 1859.[58] All structures were present on the 1904 map (Figure 11). The engine house was connected to the laundry

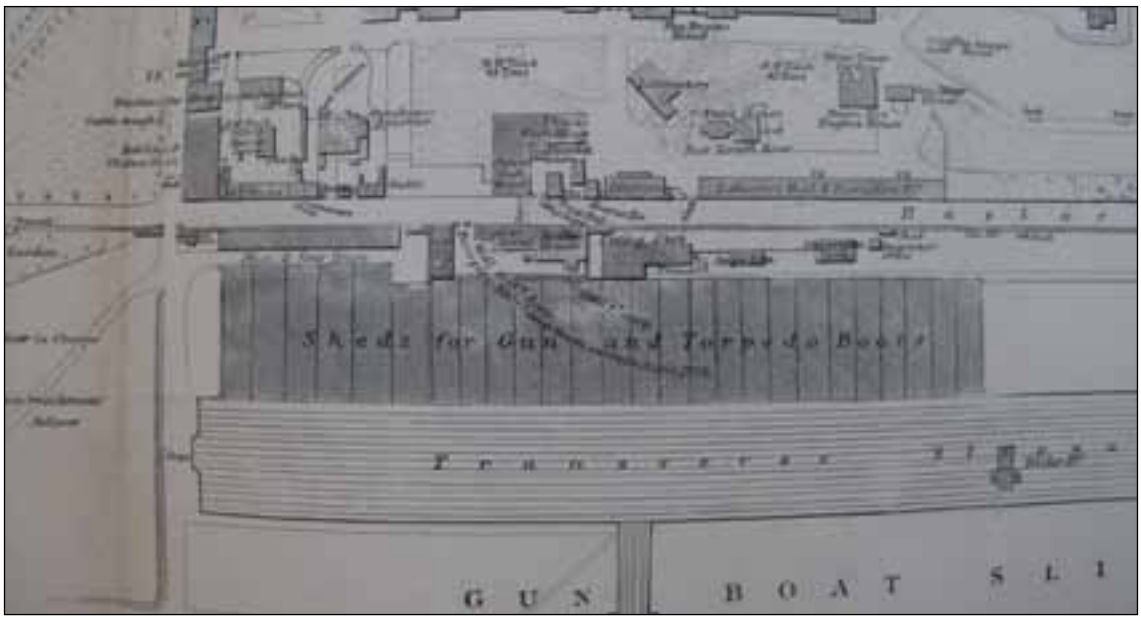


Figure 11. Site detail from 1904 map (TNA ADM 140/1484)

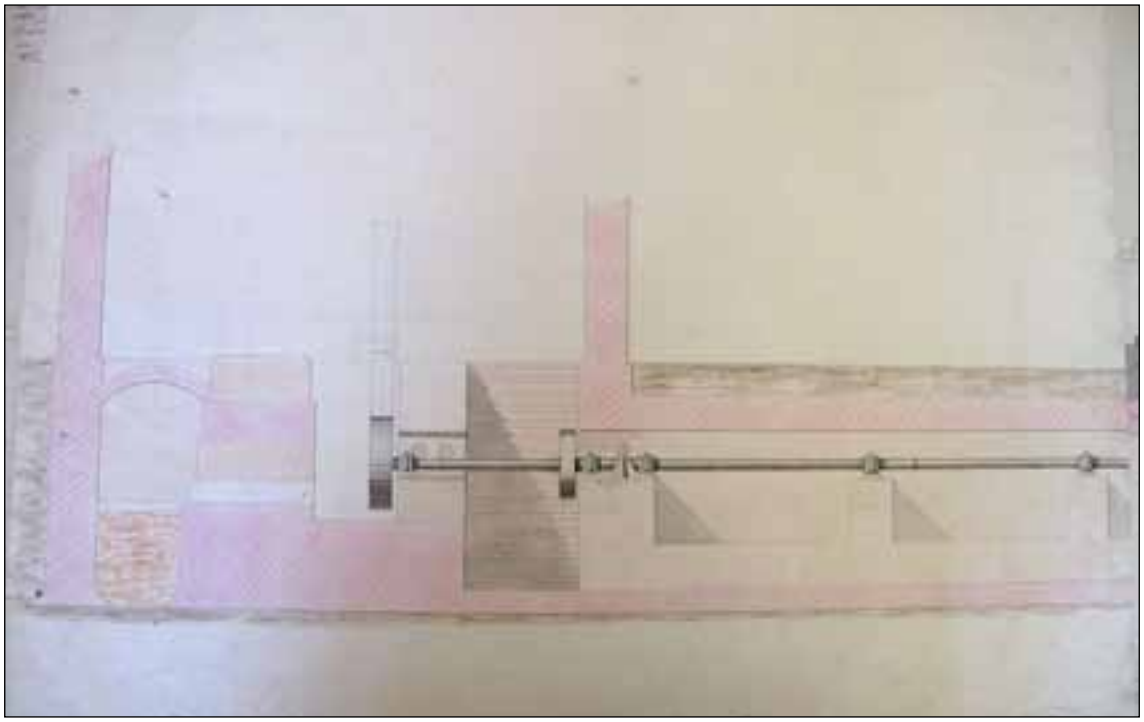


Figure 12. Section through tunnel connecting the boiler house to Haslar laundry (EHA MD95/2798)

by an underground tunnel that also dates to the 1850s (Figure 12). The 1904 map shows boundary walls separating this complex from the rest of the Haslar Gunboat Yard.

Although primarily for the Hospital, it is possible that the engine house played a small role in powering the Gunboat Yard. Piping leading from the boiler room to the sheds suggests that power was directed into the sheds, perhaps to power small machinery in the shed itself. It is unclear if this is primary to the first construction phase.

Construction of the Guard House and Police Barracks

Plans of 1860 show two gatehouses at the eastern end of the site: one a police barracks, the other a guardhouse. These were situated flanking the main entrance gateway (Figure 13). The gatehouses were designed by Scamp and bear a resemblance to his work in Malta.[59] Plans from their original phase of construction, and subsequent renovations in the 1860s, suggest that each structure operate around a courtyard, although their internal layouts are different. These plans also indicate that choice of materials for their construction was carefully prescribed.

The police barracks had accommodation space for an inspector and three sergeants, with a dormitory for constables. There was a central courtyard onto which bathrooms opened out. The southern block was largely the same in plan form, although it had a larger courtyard (Figure 14). The interiors of both buildings were modified over time (Figure 15).[60]

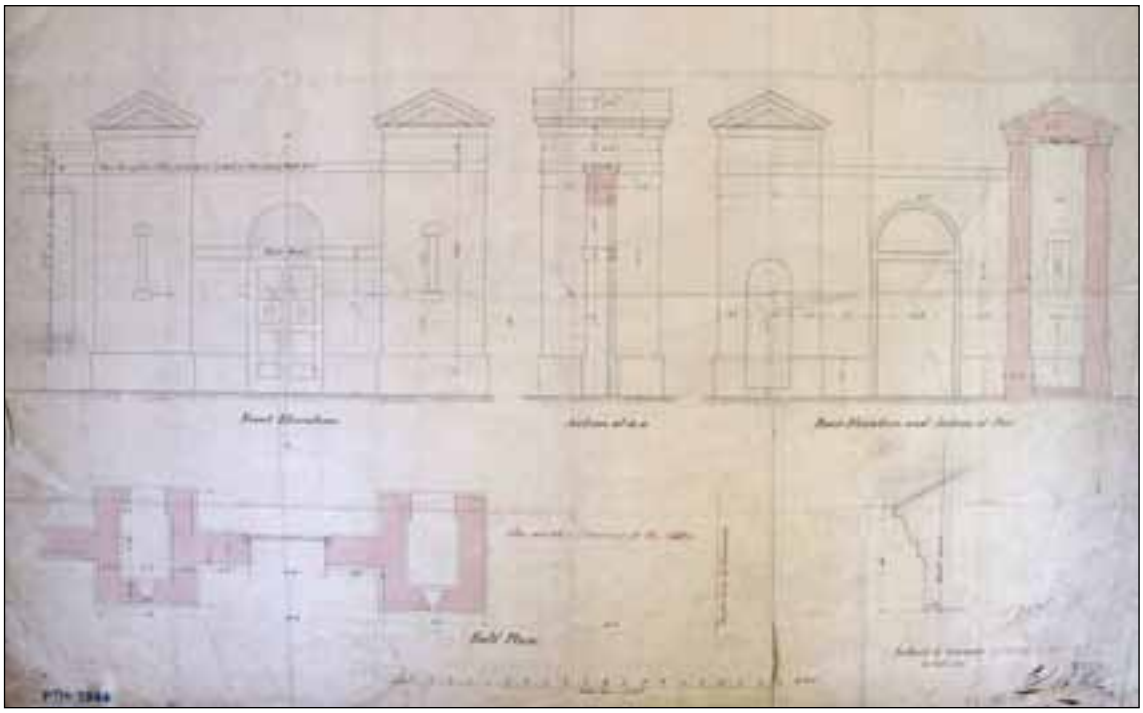


Figure 13. Plan and section of entrance gateway (EHA MD 95/6512)

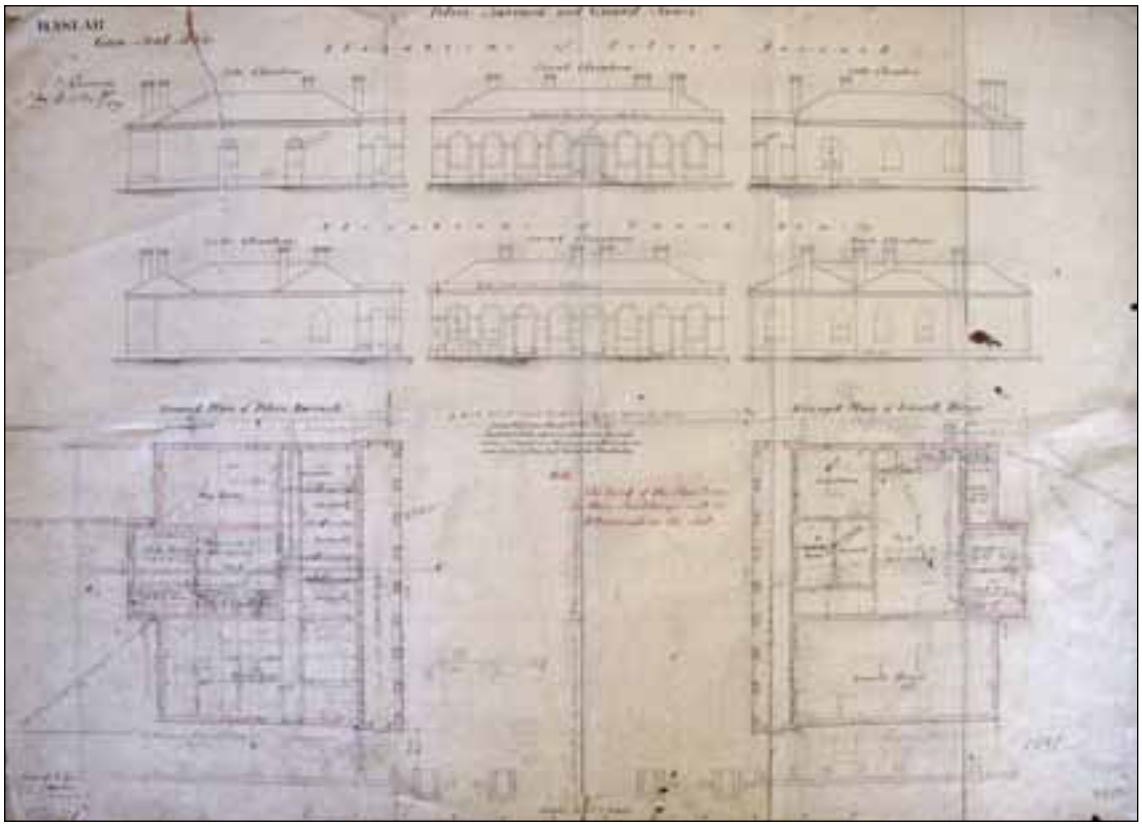


Figure 14. Design for police barracks and guard house , 1860 (EHA MD 95/6506

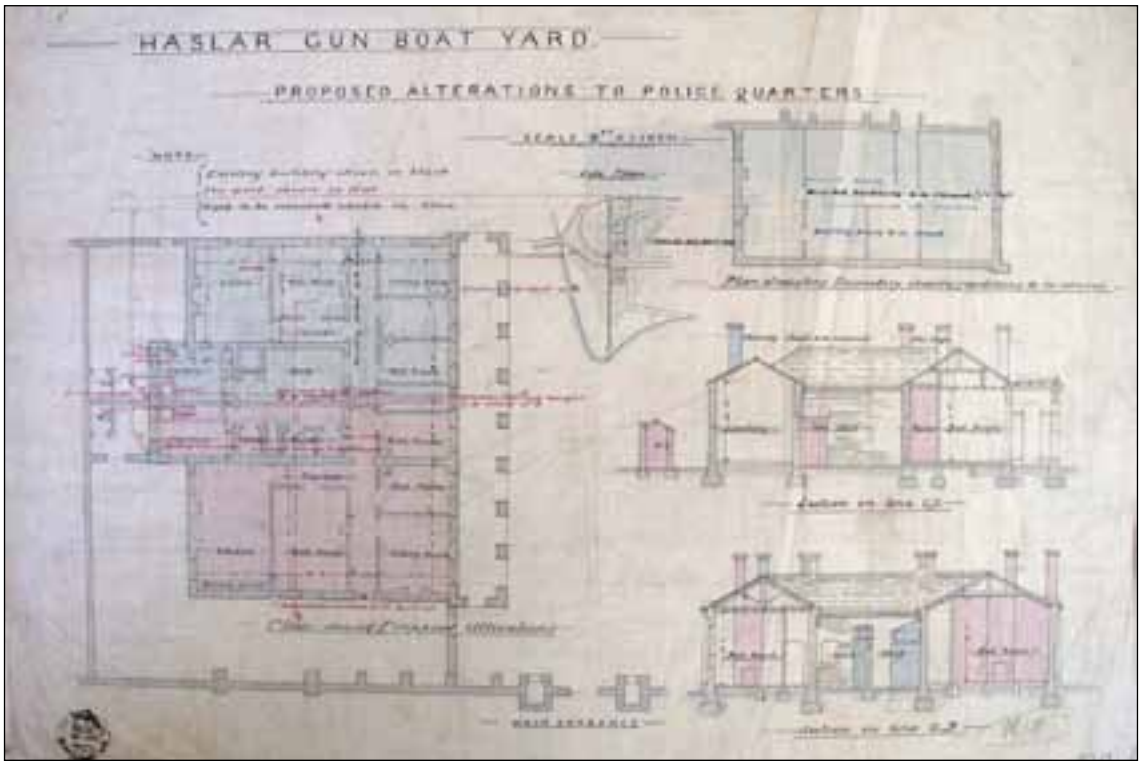


Figure 15. Proposal for alterations to Police Barracks, late 19th century (EHA MD 95/6510)

As a site containing important vessels the yard was guarded 24 hours a day. The importance placed on security was also the reason for the surrounding brick wall and the positioning of the Master Shipwright's home in the south-east corner of the site.

> The system of marching a strong guard into Portsmouth Dockyard, and posting sentries day and night in different parts of the yard, has been abolished, and for the future the presence of the military in the dockyard will only be required during the hours convict labour is employed. For this purpose, a picket, consisting of 1 captain, 1 subaltern, 1 sergeant, 2 corporals, and 30 privates, will be furnished from the troops in garrison, and march in to the dockyard guardroom, where they will be held in readiness in the event of their services being required. The only sentries posted will be one at the Admiralty-house and one in front of the main guardroom. The same regulations will apply to the gunboat yard and shipway at Haslar. These changes are consequent upon the new police arrangements.[61]

The whole complex was surrounded by a high red brick wall with guard posts at each corner and a parapet for patrolling (Figure 16; Figure 17). This was unusual in naval building, although other boundary walls in Portsmouth 'incorporated corbelled look-outs and false firing loops' as part of a 'love of military detail'.[62] Similar sentry walk-style lookouts were also present on the internal dividing walls that once separated the sheds from the rest of the site.

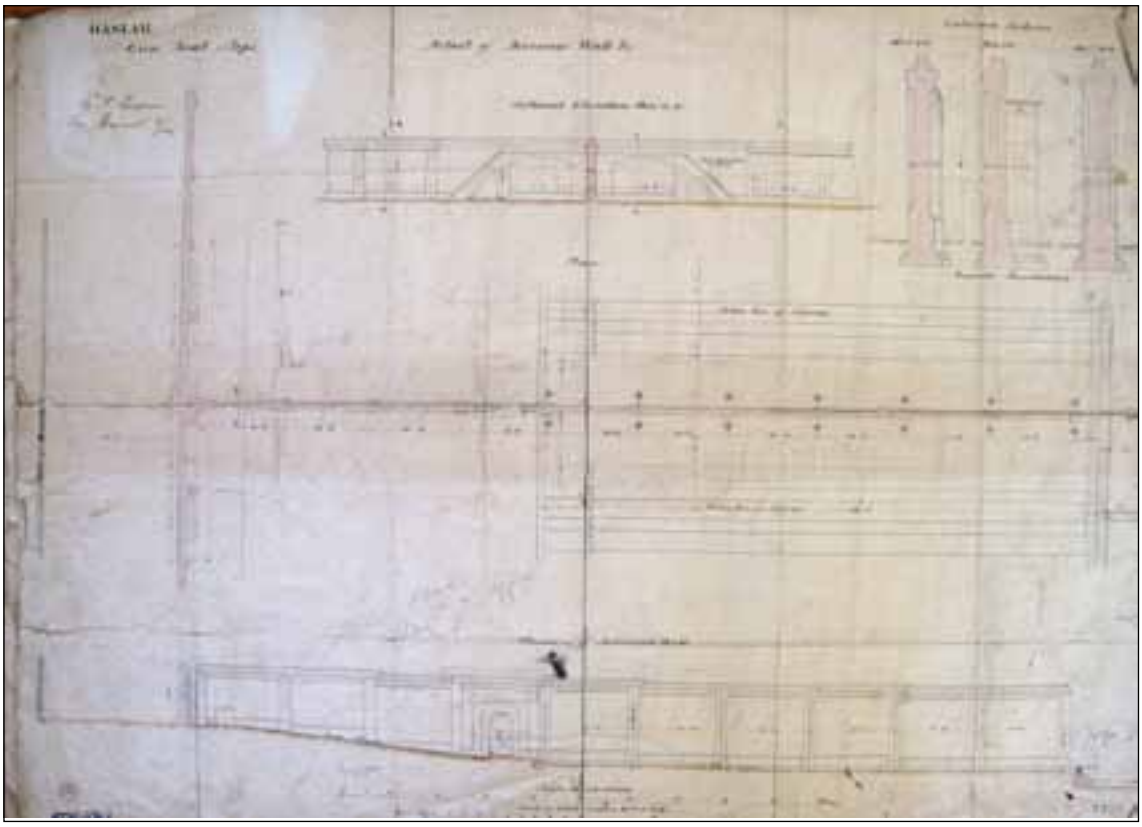


Figure 16. Late 19th century plan for a dividing wall with sentry walk between the slips (EHA MD 95/6513

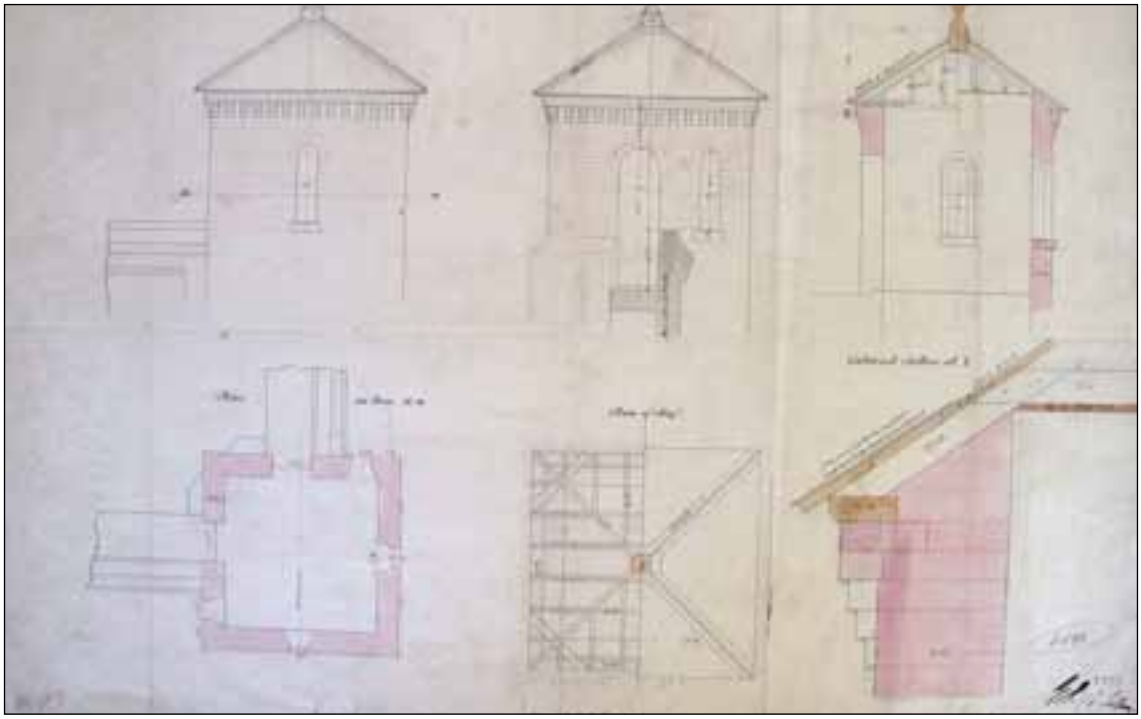


Figure 17. Late 19th century plan of the sentry towers (EHA MD 95/6516)

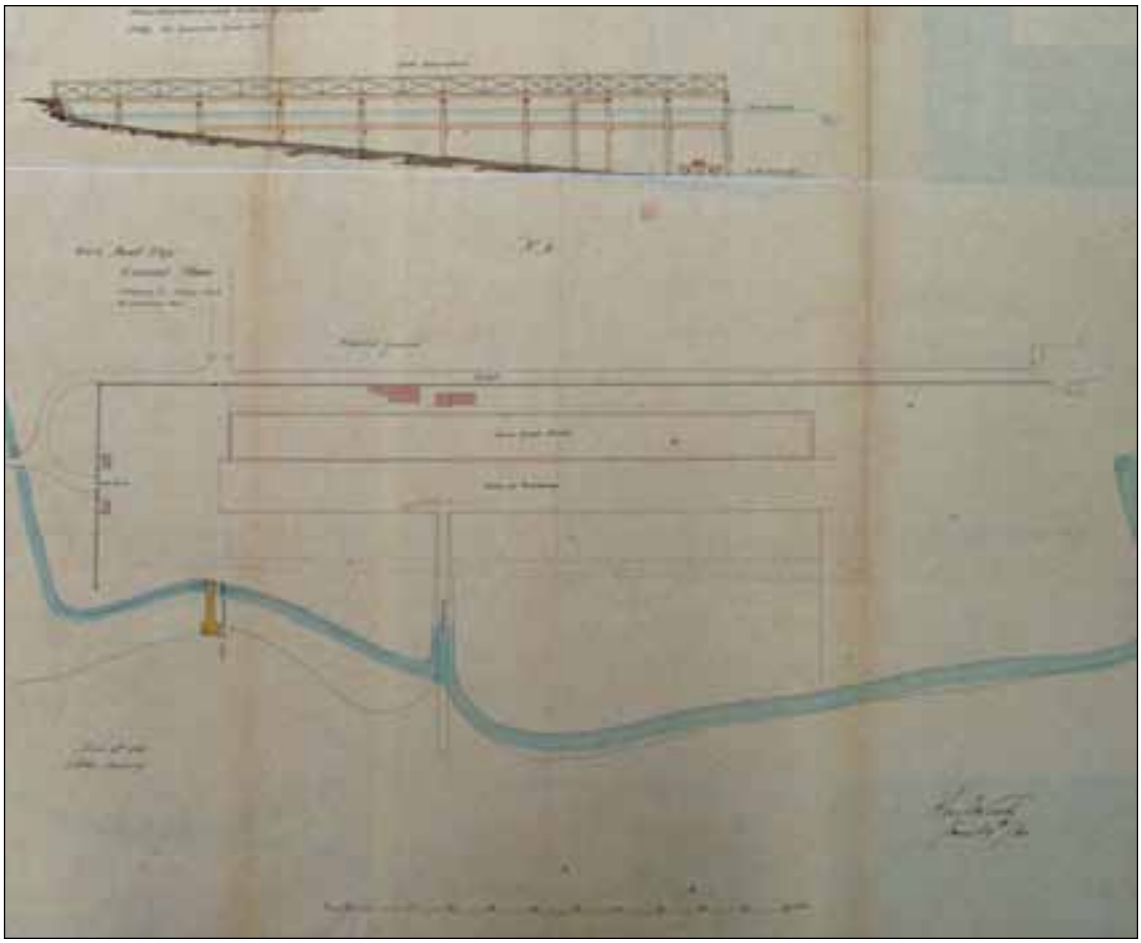


Figure 18. Proposed Pier 1860 TNA MFQ 1/1286

Gunboat Shed changes from 1860

In 1861, plans to add a further 10 sheds were proposed, indicating that gunboats were still in demand.[63] At the same time, the jetty and crane that had been approved in 1860 were erected at the north-eastern end of the site to assist with repairs and lifting heavy machinery, without the need to remove the boats from the water (Figure 18).[64]

An article from *The Times* in 1861 further confirms that gunboats were still being ordered and constructed:

> Six new gunboats have been ordered to be built underneath the sheds at the gunboat yard, Haslar. The keels of two of them are already laid, and a portion of their frame in position. The remaining four will be laid down immediately the blocks have been prepared for them. They will be fitted with condensing engines of 60-horse power, and be of an improved form as compared with the class now under Haslar sheds, and which gained such unenviable notoriety. The following will be their principal dimensions: - Length between the perpendiculars, 120 feet; length of keel for tonnage, 105 feet 7 7/8 inches; extreme breadth, 22 feet; breadth for tonnage, 21 feet 10 inches; breadth, moulded, 21 feet

4 inches; depth in hold, 9 feet 6 inches; burden in tons, 267 82-94.[65]

Although these works on site were continuing, there is contemporaneous evidence to suggest gunboats were no longer the focus of the Navy. During the 1860s, gunboat technology was being superseded and this, combined with the poor condition of many of the gunboats at Haslar, meant that the yard was no longer in such demand. The Gunboat Yard's short lifespan may therefore be attributed to changing technologies in naval warfare. A newspaper report of 1860 outlines the state of the some of the vessels:

> On Friday week the Decoy and Blazer were launched from this slip-way, and accompanied by the description were some detailed remarks on the state of the remaining vessels in the sheds, which have sounded notes of dismay throughout England, and called forth earnest demands for a searching inquiry into the manner in which the contracts for the gunboats were fulfilled during the years of 1854, '55, and '56, by the several builders who participated in providing them in the emergency of that period. It was said in that report that "The copper bolts, in one of the boats, which ought to have gone clean through and been clinched on each side, were found to have been changed into short ends, of about two inches, driven in on each side." It appears that the detection of such a fraud as this is not so easily discoverable as many would imagine, and opinions are hazarded that where such bolts are so found they must have been placed by the workmen to satisfy a personal cupidity, and entirely without the cognizance of the masters; but, of course, this subject must be submitted to the full investigation of a public inquiry before the contracting party can be discharged from blame and the onus of responsibility placed to another's account.
> In the course of a visit to the yard on Thursday we noticed one boat in particular – the easternmost one in the shed – the repairs to which we understood to have been suspended, as a special enquiry was in course of being held upon her condition. From this boat alone we hear that a number of not less than 100 bolts were taken, averaging from five to eight inches, whereas they should have been, to allow for the proper clinching, at least 15 inches long, the result being that, instead of the bolts having been driven from the outside plank through the rib and there clinched, many could barely have reached the ribs at all. From one plank alone not less than five of these short bolts were taken!
> The Times says –"Very quietly do these repairs seem to have been carried on, and no complaints of the contractors have been allowed to become public"; but, albeit the repairs may have been carried on very quietly, and although the public generally might not have been aware of the deplorable state of the boats, we feel assured that official communications were duly made and searching investigations instituted for the information of the Lords of the Admiralty, which it is presumed will now have to be laid publicly before the country. Among the 47 boats we noticed that there are 23 – with the exception of coppering – ready for launching; their names are the Rose, Rocket, Handy, Hunter, Gnat, Pheasant, Savage, Parthian, Blossom, Gadfly, Prompt, Primrose,

Confounder, Garland, Wolf, Camel, Escort, Crocus, Earnest, Pickle, Garnet, Fenella, and Highlander. The coppering of these boats, with the present strength of the establishment, and in ordinary work hours, would probably take from three weeks to a month.

A mere casual observer, - perfect novice though he may be in the art, - visiting the slipway at Haslar, would certainly record his opinion that in the building of some of these vessels the Admiralty had not got their "money's worth for their money"; and the surprise that should be naturally felt at the announcement "that ships can be built for very much less in private yards than they can in her Majesty's Dockyards," would be somewhat modified by the remembrance of the spectral-like figures of some of these four-years-old craft. There is satisfaction, however, in knowing that we possess a yard where not only can the repairs be effected, but where boats of a moderate tonnage can also be built; that in its immediate vicinity there is a splendid area for storing timber, &c. To make the slipways however thoroughly efficient, a few improvements are still essentially necessary. We find, for instance, that, though the launching of the Decoy and Blazer on Friday week occupied – exclusive of course of the time devoted to "setting up" each of the boats by hydraulic presses, - only 100 minutes, that it would be impolitic to reckon on getting a number in the water at that rate; for, in the first place, there are but very few movable rails (about three or four sets only) at present in use, so that the launching of all the boats in an emergency would entail the engagement of a large body of men in the transportation of the irons from one place to another: a distinct set should be provided for each one. Again, from the shallowness of the water, but four boats at the utmost, and then with the most favourable contingencies, could be launched at a tide. To remedy this there must be a caisson made in the vicinity of Haslar bridge, by which means the water could be dammed up to suit the requirements of the service, or a basin sunk at the end of the slipway: with either of these alterations eight boats could be launched in a day, so that in a case of extraordinary demand the 47 could, by having relays of men at work on them day and night, be placed ready for active service in about 72 hours. As far as the machinery and appliances of the slipway are concerned, we feel convinced that these quite answer the expectations of their originators and the requirements of the particular service to which they are devoted; but as launching is really but a secondary consideration to repairing, and as the expense required to make the first-named department perfect would be, comparatively, but a mere "flea-bite," we wait with some anxiety for further particulars as to the manner in which this scamping in the building of the boats is to be dealt with.[66]

Newspaper reports are the best available evidence for the state of the yard and the gunboats. They indicate that the situation did not improve throughout the decade:

> In the Haslar gunboat yard are 47 gunboats, one half of which might be available.[67]
>
> From the notices published of late respecting the extra-ordinary activity displayed in the outfit, commission, and despatch of the first-class reserve gunboats to the Mersey and elsewhere it might naturally be presumed that an equal degree of activity existed at the head-quarter depôt of the gunboats at Haslar. This is not the case, however. With the exception of 30 hands specially employed to complete the Tyrian, begun, but delivered in an unfinished state by a private builder, there is nothing doing in the yard and shipway. It would take a considerable number of hands some length of time to render the boats stored under Haslar sheds fit for commission. Many of them now lying on the blocks with their copper off and an air-strake out of their planking on each side have lain thus for 18 months, and some still longer, since they were partially examined and passed as sound boats. If a judgment may be formed of the probable state of the whole of these, from a recent examination of one of their number, it may be concluded that many of them now are exceedingly faulty. There can be but little doubt that many of these vessels, which at the time of the official examination may have had but a rotten timber or piece of planking at wide intervals, are now very defective. The line of blocks on which the boats are stowed are divided by brick partitions into six equal parts, and the whole covered by zinc ridge and furrow roofing. The mortar boats stand on the opposite side of the yard, with their decks merely covered with penthouse roofing. In the first division of the gunboat sheds are stowed the Caroline, Pet, Pert, Tiny, Wolf, Crocus, Camel, Skylark, Garland, and Gannet. The seven last named have each their copper off, with which exception they are supposed to be complete and sound in their hulls. But it is well known that they are not. The Pet and the Port have portions of the planking stripped from their bottom. One is in a good state of preservation; the other is not. One was built in a public and the other in a private yard. The remaining boat in the shed is the Caroline, still doing penance for her faults of construction. In the second divisional shed stands the Mackerel, fixed like the Caroline. Both vessels should be pulled to pieces and their places occupied by craft that may be some day of use. In addition to the Mackerel is the Flirt, with fore part of keel and some of her timbers crumbling to dust from dry rot. Her after body has not yet been sufficiently opened to give a correct idea of its state. The Cherokee is bare yet to her timbers, which are being completed slowly for planking. The Bravo is rather more forward, and will soon commence planking. The Beaver and the Badger have been hauled up, and still retain their old copper, with an air-strake of planking out, but no one can say what condition they are in until they have been fairly opened. The remaining boats here are the Primrose, the Prompt, and

> the Pickle, belonging to the uncoppered class. In the third shed are the Fervent, the Albacore, the Gnat, the Swan, and the Redbreast, of the uncoppered class; the Grinder and the Brazen, with their old copper on; the Beacon, stripped of planking, and making good her timbers; and the notorious Whiting, at length nearly complete in her new planking. In the fourth shed stands the Snapper, partially opened, and faulty, as also may be termed the Pincher; the Peacock is stripped of planking, and making good her timbers; the Gadfly, the Rocket, the Midge, the Charger, the Parthian, the Blossom, and the Confounder belong to the supposed sound, but uncoppered class. In the 5th division the Thrush and Ready are partially stripped of their planking, and in the adjoining and last division of the sheds are the new class of gunboats now building by the Government, comprising the Minstrel, Netley, Orwell, Bruiser, and Cherub, with the majority of their timbers and framing in position, and the Tyrian, completing, after having been received in an unfinished state from the hands of the contractor, as already stated. The mortar boats in the yard consist of 12 built of wood and nine of iron. Of the condition of the former at present no one can speak with confidence until they have been further opened and examined. Twelve months since they were said to be in good condition. Three-fourths of the gunboats are of 60-horse power. Of those afloat in the port are the advanced flotilla, comprising the Rose, Raven, Blazer, and Highlander. From this class have been recently detached the Amelia and Escort for service in the Mersey. To supply the places of the advanced flotilla in the first-class reserve, the following boats are being hurried forward in the ship and steam basins of the dockyard from the second-class reserve:- The Jasper, 80-horse power, and the Earnest, Savage, Cracker, Foam, Swinger, and Pheasant, of 60-horse power each. The remainder of the gunboats in the port reserve consist of the Fenella and Hunter, of 40-horse power each, and the Chub, Decoy, Ant, Rambler, Daisy, Angler, and Cheerful, each of 20-horse power. The gunboat-yard at Haslar at present is a solitude compared with the chief yard at Portsmouth. In the latter it is one continuous scene of energy and bustle. The efforts of the departments are at present chiefly concentrated upon the gunboats being brought forward for first class, and the vessels in the ship and steam basins and contiguous docks, comprising the Black Prince, 40, screw, ordered for completion by the 30th of April next…[68]

Many of the vessels had been constructed quickly and by a number of different builders. This led to vast differences in the quality of the construction and the life of the vessel. What had contributed to this, and the current state of the fleet, was widely discussed in the papers:

> Created to meet a sudden emergency in the war waged by England and France against Russia, the last vessel of our gun and mortar boat fleets might, in the due course of time, have passed away with and into those convenient "waters of oblivion" into which individuals

and peoples are so ever ready to consign their failures, their defeats, and their disappointments, and their history hitherto been "written in sand." It could not be so, however, under the circumstances of their history subsequent to their creation. The paean sung over the inauguration of this miniature fleet of hornets cannot readily be forgotten. This flotilla of gun and mortar craft were termed "the boat legacy of the Russian war, the only solid advantage that remained to us after all our best experiments. We had not only learnt that a maritime Power requires other vessels besides line-of-battle ships, but we had actually got a strong fleet of these vessels ready built for any future emergency. There they were all hauled up safe and sound, all paid for, and fit to be launched at an hour's notice in strength sufficient to sweep the Channel of an enemy." But this precious flotilla,- this real naval reserve - this squadron on which so much money had been spent, was found rotten and good for nothing, and the boats were only fit to break up or crumble to dust where they lay. They were not broken up, and they were delayed at an immense expense in falling literally to pieces. Two certainly, the Caroline and the Mackerel, were eventually condemned and taken to pieces, but even now fragments of their poor rotten skeletons may be met with in obscure corners of the Haslar Yard, each fragment forming part of a tale of fraudulent copper bolt fastenings and sappy timbers. Others of the gunboats had as much as 1,000l. and 1,500l. each spent upon them; some, it is said, still more, and others less; but the one professed object aimed at was to render this rotten and useless fleet available for some purpose. The exposure of our folly had made us to a certain extent ashamed of ourselves, and we were glad to hide the cause from sight as quickly as possible. All "visible" defects were made good, and each vessel the partial repairs of which only were thus "made good" at an enormous expense had her planking carefully caulked, her bottom payed over with an honest coat of tar and with an "air strake" of planking left out (too near the top sides to be of any service). The gunboat squadron stood under their sheds at Haslar, looking, to all outward sign, bright, sound, and fit for anything. At this time the fact was the boats were only partially repaired, English elm had been introduced alongside partially decayed plank and framing, and the whole closed in, airtight from keel to "air stroke," and now all again are rotten.

The recent annual inspection of the naval establishments at Portsmouth is, however, likely to cause the curtain to descend upon the last act of the gun and mortar boat comedy. In anticipation of their Lordships' annual visit to the yard at Haslar a report of the condition of the boats stored under the sheds was prepared, which led to further investigations being made, and the result is that this too famous yard at Haslar is to be degraded from its hitherto maintained position, and to descend from its high-sounding title of "gunboat yard and slipway," to "a yard for building and repairing ships' boats and repairing gunboats;" the latter, we should presume, means so long as wooden gunboats are still

supposed to be of use.

The gunboats now on the blocks under Haslar sheds are 47 in number (exclusive of six building), and their destiny in the immediate future has been assigned as follows:-

Condemned to be broken up.-The Tiny, 20-horse power; the Midge, 20; the Flirt, 20; the Ready, 40; the Pincher, 60; the Swinger, 60; the Thrush, 40; the Badger, 60; the Beaver, 60; the Beacon, 60; the Traveller, 60; the Savage, 60; the Porpoise, 60; the Pert, 20; the Grinder, 60; the Brazen, 60; the Bullfinch, 60.

To be surveyed further, for sale or breaking up:- The Wolf, 60-horse power; the Crocus, 60; the Camel, 60; the Garland, 20; the Garnet, 40; the Primrose, 60; the Prompt, 60; the Pickle, 60; the Gnat, 20; the Redbreast, 60; the Parthian, 60; the Blossom, 20; the Confounder, 60; the Gadfly, 20; the Rocket, 60.

For repairs, to be added to, or rather, to form the reserve:-The Brave, 60 horse-power; the Peacock, 60; the Cherokee, 60; the Wave, 60; the Swan, 60; the Whiting, 60; the Fenella, 40; the Hunter, 40; the Skylark, 60.

To be fitted for coal depôts:-The Pet, 20 horse-power; the Snapper, 60.

This list only includes the Haslar gunboats, but in addition to these there are some 110 others of the same class of vessel afloat in our home ports and on foreign stations, all of which must be looked upon by the lights of our present experience as possessing a still more unfavourable average of condition than even those quoted above as in the "Haslar" list.

With regard to the original construction of these vessels, while it is admitted that the contractors were compelled to turn them out of hand in a very hurried manner, owing to the nation's requirements at the time, and to build portions of them with unseasoned timber, owing to the impossibility of obtaining seasoned wood, there is at the present moment a vessel under repair in Haslar Yard which, from having been originally constructed with seasoned timber, affords a remarkable contrast in her condition to the exotic gunboats which have cost the nation such immense sums of money, but the days of which we may now reasonably hope are numbered. The vessel alluded to is simply an open dockyard lighter daily employed in doing all kinds of rough work. She was launched 69 years ago, and her original timbers, which now form her frame below the water line, are as sound and hard as on the day of her launching.

So much for the Haslar gunboats, their rotten and fungus-covered hulls, their short copper bolts, their partial repairs, their subsequent rot on the blocks high and dry under the sheds, their last survey and condemnation in the present year of 1863, and the necessarily proposed significant transformation of the designation of Haslar establishment from a "gunboat yard, sheds, and shipway," to the more modest one of "boat building and repairing yard."

The mortar vessels at Haslar have not attracted the same amount of public attention, from the fact of their being fewer in number, and, therefore, more unimportant than the gunboats, and also from their having been left in a comparatively undisturbed state. There are 19 mortar craft now on the blocks at Haslar-nine of iron and ten of wooden construction. The iron ones are being converted as they are wanted into open lighters for dockyard use, and the larger-bodied wooden craft are being handed over to the Coastguard as they require vessels for stations in the different rivers and creeks around the coasts-the very best purpose to which both classes of vessels can now be applied, although both would have done good service doubtless beyond what they effected at Sweaborg, had the war with Russia fortunately, or unfortunately, lasted a twelvemonth longer.
The Haslar gunboat history will also, like every other part of our naval administration, illustrate in the most forcible manner our present system of dockyard "departments." The head of the "wood" department is perfectly aware that the hulls of the useless craft which he is patching up and passing off as sound vessels "to order" are rotten to the core, and are but a horrible sham. The head of the "metal" department, on the other hand, can know nothing (officially, and therefore he must be ignorant) of a wooden vessel's hull being hopelessly rotten, and therefore displays an unwonted degree of activity in "bringing forward" her engines, not giving, as would be the case in any private establishment, any thought or care about the expense, but showing how smart his department can be in producing what will never be wanted, for, as with the poor gunboats, by the time the metalwork is completed the woodwork is condemned, the hull is broken up, and the metalwork goes no one cares to inquire where. As to the future, there is hope, for it is impossible to believe but that with such indefatigable workers as the present First Lord, the Controller of the Navy, and the newly-appointed Chief Constructor, a new era must be inaugurated, and the ruinous system which has prevailed for such a length of time in our national dockyards be superseded at length by one befitting the large interests at stake and the dignity of the nation.[69]

The condemnation of the old class of wooden gunboats at Haslar, and the certainty that iron alone will be used in the construction of this class of vessel in future, has liberated Haslar yard to a great extent from the duties it has hitherto performed as an appendage of Portsmouth dockyard, and raised the all-important question. "What shall we do with it!" To consider this question it will be necessary here to state the present extent and position of the yard, the amount of plant it contains, and the advantages it offers while remaining still an adjunct to the yard at Portsmouth. Haslar yard stands on the south side of a narrow creek bearing the same name at the entrance to Portsmouth harbour, and is 2,640ft. in length and 816ft. in width within the boundary walls ; it has a water frontage throughout its entire length. On the side opposite to

its water frontage stand a line of galvanized iron covered sheds for 50 gunboats, divided by five brick walls into as many divisions, the entire length of the shed line being 1,900ft. In front of and parallel with these sheds are lines of rails exceeding in their collective width the length of the largest of the gunboats. Over these travels the transporting frame and cradle, propelled by a powerful locomotive engine, which conveys the gunboat to or from the launching and hauling up slipway or the sheds as required. Between this line of sheds and the south boundary wall of the yard is established the nucleus of an engineering range of workshops with the necessary forges, lathes, &c., employing about 30 junior naval engineers and 40 stokers, the latter working at their trades as boiler makers, moulders, coppersmiths, carpenters, &c., or fitting the machinery of the gunboats (which will become available for the iron boats to be constructed) with condensers, and doing, in fact, all the work required for the alteration and repair of machinery, except heavy iron castings, which are supplied from the iron foundry in Portsmouth dockyard. About a score of shipwrights are employed on four new wooden gunboats, which have now been building there some time, and a gang of hands from the steam factory of Portsmouth dockyard is employed in taking the boilers and engines out of the condemned gunboats. A few iron and wooden mortar vessels stand on their blocks in one part of the yard, but, as they can only be looked upon as waste material and not as plant, they may be dismissed from all further consideration. The enclosing wall of the yard is of brick, and substantially built, as may be imagined, with brick sentry-boxes at the angles. At the entrance is a spacious guard-house, police-station, and an official residence, now occupied by an acting master shipwright. Such is the present extent and position of Haslar gunboat yard and slipway. The advantages Haslar yard offers as an adjunct to the main yard at Portsmouth are many, and are not likely to be set aside even by the comprehensive scheme for the extension of Portsmouth dockyard which is about to be carried out under the direction of Mr. Scamp, C.E., Deputy-Director of Works to the Admiralty. In the first place the yard may be appropriated as a boat-building, repairing, and storing yard, and thus become wholly attached to the department of the master shipwright; secondly, it may be handed over to the chief engineer of Portsmouth yard, and become a part of the "factory" establishment; thirdly, it may be handed over entirely to the naval engineers in commission afloat, and thus become the head-quarters of the steam reserve; and, fourthly, it may remain as it is, attached in part to all, and a source of continual disputes. It is evident that, as we are to have iron gunboats, Haslar yard, with all its costly plant of covered berthing, high and dry, for 50 boats, its transporting lines of rails, and launching and hauling up slipway, will be retained as their headquarters. This at once narrows the question as to the retention and future use of the yard. As a yard for the storage, repair, and building, if necessary, of iron gunboats, it would come under the management of the steam

> reserve more than any other department, and if the steam reserve is to be continued as a distinct department of our chief naval port, then the iron gunboat yard at Haslar appears to offer unusual and extraordinary advantages as the officially appointed head-quarters of the force. We have already said that the nucleus of a naval engineering establishment exists at Haslar, and there is plenty of space to extend the workshops on their present line of ground, so as to afford full employment for all the naval engineers and stokers on the books of the reserve in the port, who would thus have the advantage of being employed in the shops upon work they might be called upon to do on an emergency at sea. With the Captain of the Steam Reserve in residence on the establishment, and the "factory" system of work and accounts introduced (as now arranged in Her Majesty's dockyards, and than which nothing can well be more efficient), Haslar, as the head-quarters of the Portsmouth steam reserve, would become a most important and economical establishment. There is abundance of room at Haslar to build as well as store 50 gunboats, whether they were built by private contract or not, and there is also abundance of room-and this is a most important consideration-for the erection of a building at the southern extremity of the yard, which would contain the necessary barrack accommodation for the stokers, quarters for the officers of the establishment, including the naval engineers on duty in port, and the school and lecture rooms, &c., which would form a necessary part of such an establishment.[70]

Due to this diminished fleet, the full range of sheds was no longer required. At some point in the 1860s, the eastern sheds were relocated, possibly to the main Portsmouth dockyard. At this same time, the length of the traverser was shortened.[71] A newspaper report of the annual inspection of 1867 describes the state of the yard:

> From the Royal Sovereign the Board went on board the boys' training-ship at St. Vincent, and thence to Haslar, where they went over the Naval Hospital and the 'Deserted Village' of the navy – the gunboat yard and shipway….
> … The gunboat yard and shipway at Haslar, with its 45 covered building-sheds, and its costly parallel lines of railway and launching stages, has at present the following number of men employed there:
> - Master-Shipwright's Department. – 20 shipwrights, 40 labourers, 2 smiths. Engineers of Steam Reserve Department. -4 engineers, 14 stokers (mechanics), 4 seamen, 1 warrant-officer. In the yard there are six wood-built screw gunboats, nine mortar floats (iron), and a number of ships' boats and remnants of machinery boilers stored away under cover.
>
> Three of the gunboats – the Wave, the Cherokee, and the Peacock – are in frame, after rebuilding, and have been in frame seven years. They are, therefore, well seasoned in all their timbers, and now it is supposed they will be planked and fitted with their machinery again. The remaining three it is proposed to convert to coal depot vessels

> to convey fuel to ships at Spithead. They will cost upwards to 3,000l. each to make them fit for this purpose, but it is the only duty they are now fit for, and it would be as well to utilize them even in this manner. Two of the mortar floats have been converted into dockyard lighters; one has been converted into a receiving vessel for coastguard duty; one for a mud-clearing barge for Cowes harbour off Trinity pier; and one for fitting at Malta as a mooring lighter. Four remain at present unappropriated.
> What the Board may eventually decide upon doing with this yard would be as yet premature to hazard any opinion upon. What it appears to be suitable for in any adaptation of its space and capabilities generally is a general boat-building-yard for the Navy, and especially for steam launches, the machinery of the latter being fitted and afterwards kept in repair in the yard by the engineers in the port belonging to the Steam Reserves. In addition to this kind of work there might also be built at Haslar such small twin-screw gunboats as would be serviceable for duty between harbours and roadsteads, as Portsmouth harbour and Spithead, or Hamoaze and Plymouth Sound, and which must sooner or later supersede the present decrepit and expensive small paddle steamers.[72]

By 1868 at least 12 sheds, and by newspaper accounts (below) as many as 40 sheds had been transferred to Portsmouth Dockyards. Discussions were taking place over the future of the yard and 1869 preparations were begun to clear the yard ahead of letting it out in 1870.[73]

> A communication from Whitehall to the Master Shipwright's department of Portsmouth dockyard has called for a return of the shipbuilding or repairing work in hand under the department at the gunboat-yard, as it is commonly termed, at Haslar, Portsmouth harbour, and the time by which all such work could be completed. The return made to the Admiralty in answer to this communication gives but some half a dozen gunboats at Haslar on hand, and the time named for their completion is the early part of November. It may, therefore, be inferred that after November next the gunboat yard at Haslar will cease to exist as a separate establishment and as an offshoot of the shipwright department of Portsmouth dockyard. After that time it will most probably be permanently attached to the steam reserve at the port as its shore factory, at which steam launches and other boats for the navy can be constructed and fitted with their machinery and put in repair as they may require it, or as they are returned into store from service. The steam reserve of the port already have a valuable working plant established in Haslar yard, and the use of this plant in the construction and repair of the steam launches and cutters with their machinery would not only so far be an economical measure in itself, but would also afford practical employment for naval engineers not attached to ships in commission.[74]

The gunboat yard at Haslar, Portsmouth, according to present orders, will be closed at the end of March next. The yard covers a large space of ground abutting on the shore of Haslar creek on the west side of Portsmouth harbour, and was created some years since at a very great expense for the hauling up, storing under sheds, and the repair of gunboats, mortar vessles, &c. It is fitted with a hauling up slip and cradle, connected with expensively-constructed and very efficient lines of railway running at right angles with the entire length of 50 sheds, with their blocks, &c., for the storing of the gunboats. A powerful locomotive engine draws the boats up the slipway on the cradle, and to and from the sheds in hauling up or launching, and a fixed engine working an endless screw takes the boats in or drives them out from under the sheds as may be required. In addition to this there is a valuable plant on the ground belonging to the shipwright and engineering departments, with officers' residences, &c., together with a large space of spare ground within the walls of the yard, that is available for extending the present workshops, should it ever be found necessary to do so. Altogether, the present gunboat yard at Haslar represents the investment of a very large sum of the public money, and it is well worth the consideration of the First Lord and Board of Admiralty whether some more profitable use might not be made of so much capital. The very opposite opinions have been entertained regarding the value of Haslar yard. At this moment the demolitionists have the upper hand, and the decree has gone forth that it is to be officially closed on the 31st of March next, and the 50 costly sheds taken down and removed to the dockyard at Portsmouth to be employed in storing timber. This latter proposition will at once be condemned if rightly understood. To do this it is only necessary to consider the cost of the pulling down of the 50 sheds, their removal across the harbour of Portsmouth to the dock, and their re-erection. There is another consideration. How is it that now, when we have abandoned the building of ships of war in wood for iron, we suddenly are told that covered sheds must be provided for the storage of timber? Supposing, even, for the sake of argument, that the small quantity of timber which in future will be kept in store at Portsmouth dockyard must be kept under cover for its preservation, surely the six building sheds of enormous area, which have nothing building under them but a small gunvessel and a dockyard lighter, will hold more timber of all kinds than can ever be required; but, if even these should be found insufficient there is the now vacant and disused ropery, of some 1,700ft. in length, and other old stores, that could be used on an emergency – a circumstance, however, that is never likely to occur. We now come to the consideration of the present value of Haslar-yard, with its slipway, lines of railway, sheds, workshops, and plant, in its abandoned position as a gunboat-yard. This has been discussed on several previous occasions in The Times, and we only repeat opinions formerly expressed when we say here that it is admirably adapted

> for a general boat building yard, including steam launches and the manufacture and repairs of their engines and boilers, for the service of all of the ships of the Royal Navy. The yard at present contains everything that is requisite for the purpose, with the single exception of an extension of the present workshops. If this, or some similar plan, were carried into effect at Haslar-yard, the petty and extravagant boat building and repairing establishments at the several dockyards would necessarily be abolished, and the work in future done in one establishment and under one independent system of accounts and supervision. The manufacture of new engines and boilers and the repairs of others that have been in use would also find remunerative employment for the engineers and mechanical stokers of the steam reserves – a matter that has been hitherto, strangely enough, entirely neglected. In conclusion, it certainly appears that the appropriation of Haslar-yard as an establishment for the building and repair of all boats for Her Majesty's ships, with their machinery, as steam launches or cutters, would satisfactorily meet many of the requirements contained in the Admiralty circular letter, dated January, 1869, published in The Times of yesterday, and more especially in the first instance with regard to the "skilled artizans," "fully and properly employed," "economy in the use of stores and materials" and a "reduction of useless accounts."[75]

> The clearance of the gunboat yard at Haslar, near Gosport, preparatory to its being closed as a working public establishment at the close of the present financial year, is being carried out as rapidly as the labour available will permit, and all the stores and material at present there are being removed across the harbour to Portsmouth Dockyard. The three gunboats Brave, Peacock, and Cherokee, which have been standing in frame for some considerable time under the building sheds, are being taken to pieces and transferred across to Portsmouth Dockyard, where probably their frames will be utilized in the construction of a more powerful description of vessel. Ten of the buildings are also being taken down for re-erection in Portsmouth yard as stores for timber, planking, &c.[76]

Although put up for let in 1870, by 1871 the yard was once again being used for its original purpose and towards the end of the century a larger western range of sheds was constructed to accommodate larger boats.[77]

> The Haslar gunboat yard, which has for some considerable time been cleared out and closed, is again to be brought into use for storing gunboats, orders having been received at Portsmouth Dockyard to remove over to Haslar, for hauling up and storing underneath the sheds there, the iron-built twin-screw gunboats of the Blazer class. These boats are each of 245 tons, and have a collective engine power (nominal) of 25 horses. They carry as armament one 18-ton gun. There

are 12 of these boats at present on the Navy List, but the two earliest built are rather smaller than the other ten, and carry each one 12-ton gun.[78]

After the signing of the Peace Treaty by England, Russia, and France at the close of the Crimean campaign, it became an important consideration with the Admiralty Board of this country where to store and preserve the many wooden gunboats which had been built to Admiralty order by private shipbuilders for special service in the Baltic and Black Seas, but which had only been delivered to the Admiralty authorities when a further prosecution of the war was dispensed with by mutual consent. A piece of land on the southern borders of Haslar Creek, a narrow serpentine stream of tidal water on the port hard of the immediate entrance of Portsmouth Harbour, was selected, and here was created a gunboat store-yard, where the vessels could be hauled up out of the water and placed on blocks of timber, at some distance above high-water mark, under zinc-covered sheds, where they could at all times be thoroughly kept under proper inspection in their hulls and machinery and "preserved" for immediate service afloat whenever required. The appurtenances of the yard consisted of an enclosure wall, officers' residences, guard and police stations, its 50 covered sheds, steam power in fixed engine and the numerous workshops, its hauling up slipway, with cradle and lines of rails, for raising the gunboats out of the water, the 14 lines of rail running at right angles with the line of storing sheds, and over which a "platform" is worked by a powerful locomotive engine for transporting the gunboats from end to end of the keel to any particular shed. During the time the wooden-built gunboats remained stored there, Haslar yard assumed an important position as an adjunct to the principal yard at Portsmouth, and a very useful addition was made to its capabilities by the growth of workshops for small engineering work under the control of the Steam Reserve Department of the port, in which a very large amount of work was done by naval engineers and mechanical stokers. The yard had certainly cost a large amount of money thus far in its establishment, but full value was being obtained for work done. Next came a new and unexpected phase. The gunboats, built necessarily in a great hurry, and in the majority of instances of unseasoned timber, were found to be rapidly decaying in their hulls, and the result was simply that many were repaired as best they could be and then removed from the yard, while the remainder were broken up, and their machinery afterwards utilized in the construction of steam launches. The yard now was deprived of all its former apparent value, and it was then discovered by some official, of course with the sanction of the Department of the Admiral Superintendent, that the Haslar Gunboat Yard was now useless for all present or future public service, and a general wreck was made of the place, 40 out of its 50 sheds being taken down and

removed across the harbour to Portsmouth Dockyard, where they were "utilized" in various ways according to official notions, the cost of their pulling down at Haslar, transport across the harbour, and fixing up again at Portsmouth quite equalling, if not exceeding, the value of the materials. Haslar yard is now a ruin, and also a practical protest against the want of administrative forethought in the management of public property intrusted to the care of public paid officials. Where the 40 covered sheds stood is now a chaos of uprooted timber slabs, upon which the old gunboats stood, sprinkled over with heaps of old iron and other débris, with half-starved cattle and goats in full possession, endeavouring to browse upon the scanty crop of thistles and tufts of grass which is gradually and slowly taking possession of the shingly ground. Now, another discovery has been made. We are creating another fleet of gunboats, this time of iron, and storeroom is wanted for them, high and dry as before, where they can be looked after and properly preserved, and no place is so available, or, indeed, so suitable for the purpose, as Haslar. Some 24 of these boats have already been built, and more will follow. There are, as already observed, but ten sheds left at Haslar, and, therefore, more sheds must be built, and the yard again, in fact, restored to its original condition. The yard in its original condition would have been suited for the reception and storing of these new gunboats, which can be stored nowhere else. As it is, the revivification of the yard has to be accomplished, and the work, in fact, has been begun in the storing under the ten remaining sheds of some of our new class of gunboats rejoicing in the old names of Bonetta, Snake, Blazer, Scourge, Bustard, Victor, Bloodhound, Mastiff, Arrow, &c. They are sharp in their length, broad of beam, draw little water, about 6ft. mean, and are driven by twin screws by 28-horse power (nominal) engines, and each carries one gun of 18 tons mounted on a "Scott" carriage and slides. They are the "Wasps" of our home navy for work at the mouths of estuaries and rivers and in shallow waters generally, have cost considerable sums in their production,- and cannot be neglected by being allowed to lie afloat and rust their bottom plates in the tidal water of any harbour. The only refuge for them is the gunboat yard at Haslar, and the gunboat yard at Haslar has been, as we have explained, partially dismantled. Whatever arguments may be advanced to the contrary, it will now have to be refitted and restored to its old state of efficiency.

The hauling up of the new class of iron gunboats at Haslar has afforded an opportunity for an examination of the various preservative and anti-fouling paints which have been applied to their hulls below the water line, and this has furnished some most interesting data for our future guidance. Without going into any lengthy, and indeed unnecessary, details relating to the appearance and action of the various compositions tested, it is only necessary to observe here that the preservative and anti-corrosive paints applied to the bottoms of the vessels under Dr. Robert Sim's direction have beaten all others. With

> his preservative paints, laid on immediately next to the bare iron of the vessels' hulls, a perfect protection of the iron has been obtained, and this is most conclusively shown at the valve openings for flooding the powder magazine, where the iron and copper fittings remain closely covered as on the day they were first painted with his preservative composition, whereas, with the dockyard and other compositions the paint-coating is dissolved and action set up between the iron and copper. With the Arrow and Bonetta-the former hauled up at Haslar yesterday-this is most distinctly shown. All the vessels are fouled with grass and zoophyte, from lying in anchored berths off mudbanks in Portsmouth harbour for ten months past, but Dr. Sim's anti-fouling paints are very much less coated with weeds than other paints, and have no adhesions of mussels or other shellfish.[79]

A copy of a lithograph from *The Illustrated London News* of May 4 1878 shows nine sheds (the eastern wall and first bay is out of picture) with the traverser in the foreground running on rails set below the ground level of the sheds (Figure 19). From this evidence, it is clear that the gunboat yard was once again being utilised for its original purpose.

In the 1880s 'new iron gunboat sheds' were ordered and it is likely these were

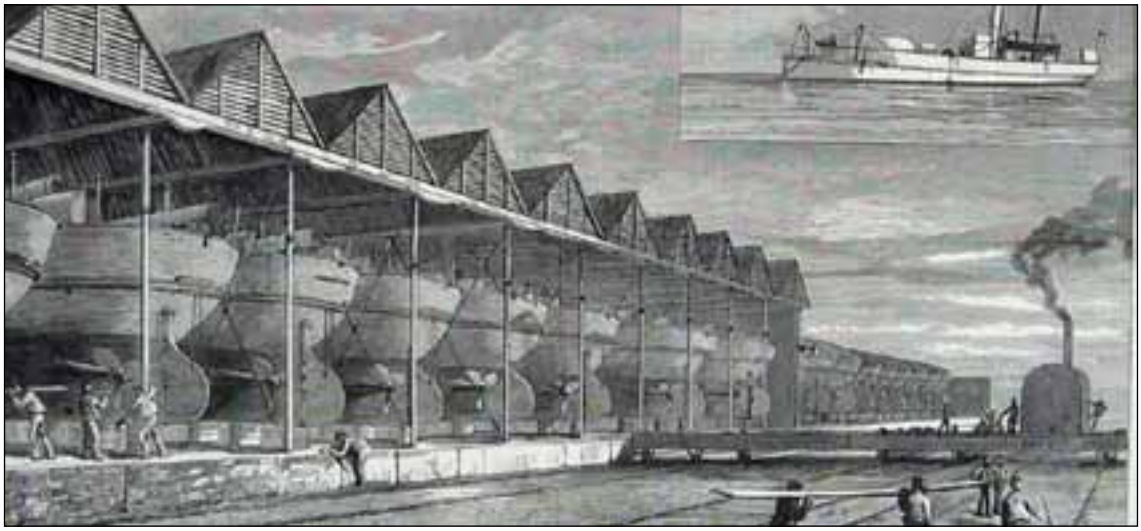


Figure 19. The Haslar sheds (Illustrated London News, 1878)

constructed to the west of the current range.[80] These sheds have not survived. During this decade, further work was conducted on the site. Dredging of the creek was reported in *The Times* and plans suggest a Jetty extension and reconstruction may have taken place around the same time (Figure 20; Figure 21).

> It will be remembered that a short time since surveys were made, plans were drawn, and estimates given of the probable cost of executing some important alterations at Haslar Lake, Gosport, whereby ready

access would be given for small craft of the Royal Navy to reach or be launched from the Haslar gunboat yard. The consideration of the subject was shelved at the time, it being understood that the Admiralty could not see their way to recommend the expenditure of some £30,000, which in round numbers was about the sum the new scheme would have cost. If present reports are to be credited, however, the future of Haslar Lake and its neighbourhood will be an important one. Extensive alterations are to be made at Forts Monckton and Gillkicker for the study of submarine mining, and it is further rumoured that a small barracks will be built for the Royal Engineers at the rear of these forts. But these would appear to be only one part of an extensive scheme for the utilization of a valuable, but hitherto neglected area, for not only will Haslar Lake be deepened and widened at its eastern end, but a further communication with the sea will be effected by cutting a channel from a spot just westward of the Royal Military Hospital to the arm of the lake flowing at the back.[81]

The gradual development of the Portsmouth establishment has necessitated a steady growth in the sums demanded for new works and foundations, new machinery, and repairs and maintenance. In 1882-3 the amount asked for was £147,677, of which £69,760 was granted; in 1883-4 the amount fell to £128,722, the decrease being in the charge for new works, £85,160 being granted. In the following year the total of the submissions rose to £168,088, the increase being principally in the item "other works"-that is, other than now; while in 1885-6 the aggregate demands for the yard shot up to £198,501. This year the submissions from the various departments, 81 in number, reach the almost unprecedented total of £354,605. This sum includes a large number of derelicts from previous years, and several charges for the continuation of works already begun. The authorities proceed upon the policy of asking for money for the carrying out of all conceivable improvements, and though the demands are certified as being "desirable," "very desirable," and "urgent," they are perfectly aware that only a comparatively few of them will receive the sanction of their lordships in the first instance, and of the Treasury in the last resort. Among the heavier items discussed by their lordships were the following "urgent" requisitions:- £20,000 for dredging and deepening the tidal basin and the water on the sea wall and Burrow Bank; £1,000 for new battery on Whale Island, 500ft. in length, for gunnery instruction to seamen, in the place of the present flying target range; £7,400 for the erection of 10 permanent iron sheds for either gun or torpedo boats at Haslar, a work rendered imperative by the substantial increase in the torpedo fleet and the importance of protecting them against exposure to the weather.[82]

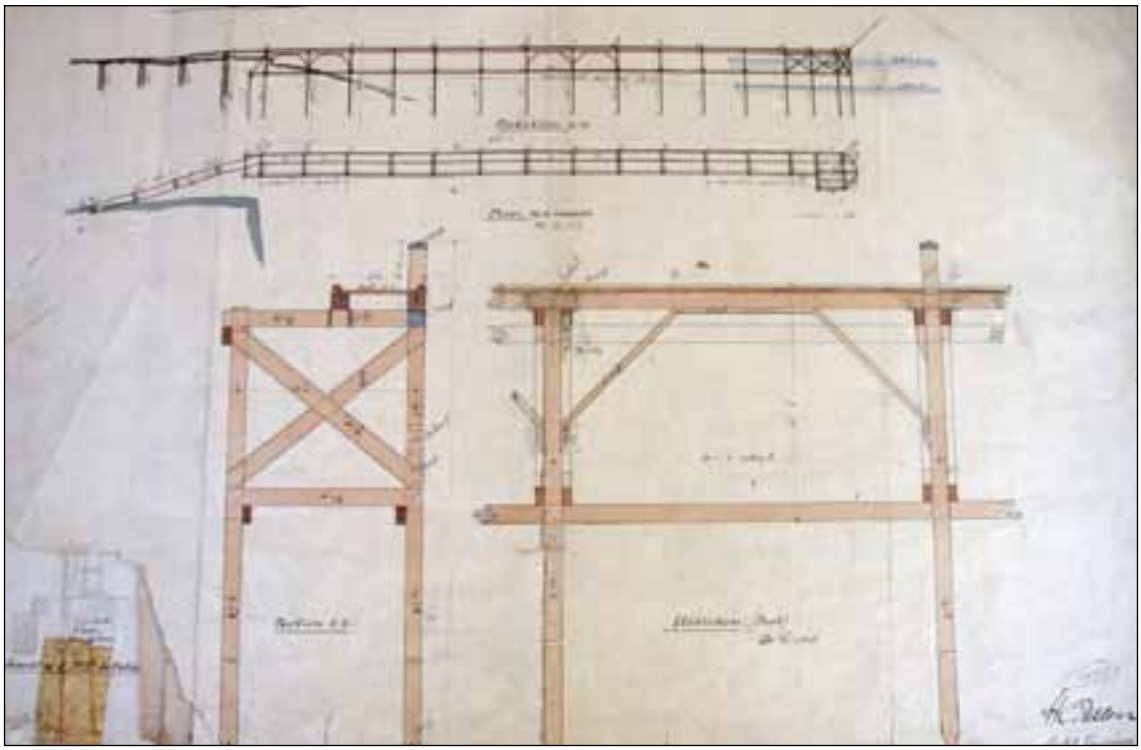


Figure 20. 1880s plan for the east jetty extension (EHA MD 95/6482)

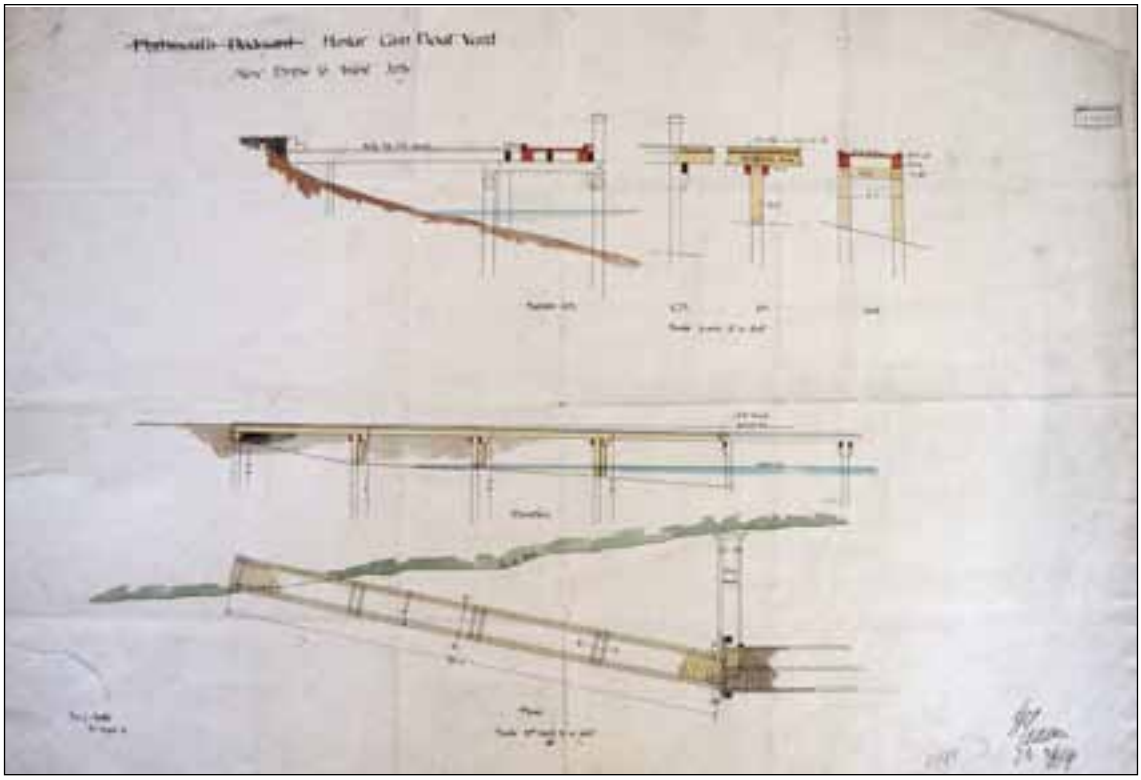


Figure 21. West jetty alterations (EHA MD 95/6483)

Undated plans in the English Heritage archive show details for a series of six torpedo sheds (see Figure 9). Based on the style of the plans, it is possible that they date from the time of this request.

> In the afternoon the Lords of the Admiralty, leaving the Controller, Mr. Forwood, the Director of Dockyards, and Mr. Gordon Miller to examine the establishment accounts, crossed over to the Gosport side of the water, landing from their steam pinnace at the Royal Clarence Victualling Yard. Postponing the inspection of the yard until to-day, they drove to the barracks of the Royal Marine Light Infantry. After having been inspected in line, the troops marched past in various formation. The buildings and drill batteries were afterwards visited, and at the conclusion of the inspection the party drove to Haslar Hospital and adjoining gunboat yard. They were met at the gate by Inspector-General Breakey, Deputy Inspectors Davies and Slaughter, and the medical staff of the hospital. This concluded the work of the first day.[83]

Late 19th century and 20th century

Despite the focus of gunboats at Haslar, not all the gunboats with the Royal Navy were confined to Haslar in the late 1850s and beyond. Many of them were assigned to overseas bases and they were fundamental symbols of Royal Naval supremacy and British rule. Their use in patrolling waters, quashing small levels of resistance, and monitoring piracy meant that they were of great use during the quieter years at the end of the 19th-century. Their use led to the notion of 'gunboat diplomacy' and through this they attained a symbolic role in English global dominance being described as 'a symbol of the power of the nation, not a concrete embodiment of it'.[84]

This prevalence was not to last. The changing balance of power towards the end of the century, due in part to activities in the Suez canal in 1882, meant that Britain no longer had an overwhelming dominance at sea. Admiral Sir John Fischer was instrumental in the final demise of the gunboat as an official part of the Royal Navy. He called for the abolition of all obsolete warships: 'gunboats, and all vessels of like class, have been gradually losing value except for definite purposes under special conditions. As far as this country is concerned, the very places consecrated as the spheres of gunboat activity are those remote from the covering aid of large ships…

… since the redistribution of the Fleet the Empire has had to do without the ubiquitous gunboat, and, if the truth be told, scarcely seems to have missed it.'[85]

The report of an official visit in 1905 indicates that the yard was then being utilized for a number of classes of vessels, not only gunboats:

> Next the Committee proceeded to the gunboat yard at Haslar and viewed the reserve of torpedo-boats there. At the sheds here there is a large number of horse and troop boats maintained in readiness for use in any military expedition requiring to be landed on hostile territory. At Haslar the Committee were met by Professor Froude, superintendent of the Admiralty experiment works, and

were conducted by him over the premises, where all models of new warships are thoroughly tested for stability and correctness of form before the designs are placed in the hands of the constructors. An establishment has recently been founded at Haslar for the instruction of officers and men in the use of oil fuel in marine boilers, and this was also visited by the Committee.[86]

By 1906 gunboats were considered obsolete naval technology and all had been scrapped or retired due to maintenance costs and the advent of smaller craft that were more versatile closer to land. Some gunboats however were kept on at foreign bases, conducting local patrols.

The changing role of gunboats, and therefore the yard, had implications for the use and layout of the Haslar complex. The plan of 1904 shows the site still as a single entity, although the interior landscaping was modified to include a tennis court in 1908 and gardens in 1912 (Figure 22; Figure 23). At some point after 1914 the site was split into two sections. The boundary between the two sections runs along the existing eastern wall of the remaining sheds and continues to the water line.

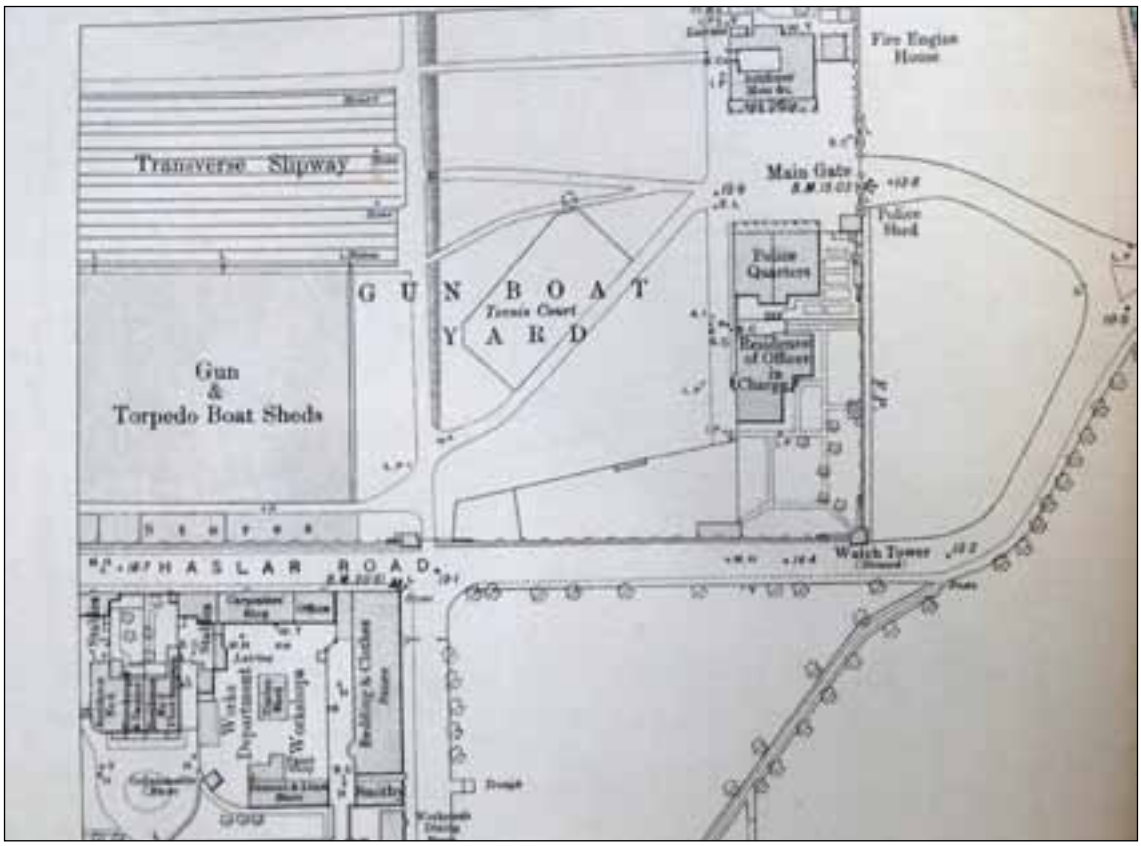


Figure 22. Detail of 1908 map showing tennis court (TNA ADM 140/1484)

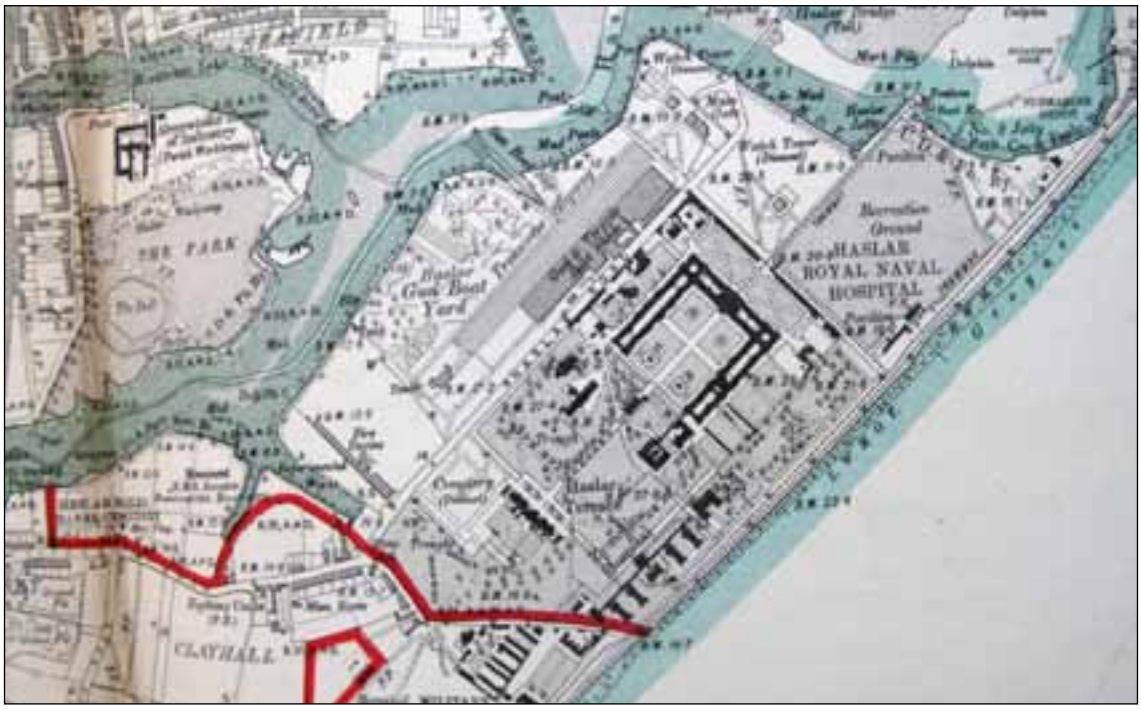


Figure 23. Site plan of 1912 (TNA ADM 140/1484)

Figure 24. Detail of 1914 map (TNA Work 41/310)

A map of 1914 shows additional buildings to the west and east of the site (Figure 24). Their purpose/function is unknown.

The Haslar yard continued in its general purpose and was used throughout the First World War and the Second World War to repair coastal craft including motor torpedo boats and motor gunboats, the replacements of gunboats.[87] From 1939 to the 1950s, the eastern part of the gunboat yard was part of HMS Hornet, the Coastal Forces Patrol. By 1951 further subsidiary buildings were erected within the open space of the yard. These were partially demolished by the 1980s. The two large corrugated iron sheds in the centre of the site that are still present today first appear on a map of 1970.

On the western side of the yard, the 1950s probably saw the building of a new slip, alongside the original, and the replacement of the Elephant (the original traverser engine) with an electric version in 1952.[88] A series of technical drawings for the electric Elephant are now housed in the National Maritime Museum.[89] A brick double height room, inserted into the seventh bay along from the eastern end of the sheds, probably dates from this period.

In 1974 HMS Hornet was closed and with it, the yard went out of use. This is directly attributable to the construction of the new Haslar Bridge. It was too low and had no provision for lifting, thus preventing ships from entering far enough in to the harbour to reach the yard.[90] In this same year the cradles and traverser were scrapped. The mechanisms associated with the traverser system were possibly removed in 1974 (Figure 25). At some point after this, the Master Shipwright's house was also demolished. By 1978 the yard was empty and disused and available to treasure-hunters:

> Treasure-hunters are officially criticized for the damage they do to archaeological sites, and an increased awareness of and use of the law by magistrates to deter them is suggested in a report published last week.
> The courts have not been aware of the harm done by users of metal detectors, so "legislation has not worked effectively against treasure hunters", the Ancient Monuments Board for England conclude in their 1979 annual report to Mr Michael Heseltine, the Secretary of State for the Environment…
> Official carelessness is also castigated by the board. Among recent "disastrous consequences" has been the destruction of the machinery installed on the Traverser Slip at Haslar gunboat yard, Alverstoke, Hampshire, which was a scheduled ancient monument.[91]

The photographic record, partially available in Coad 2007, fills in much information for changes to the site during the 1980s and 1990s: Some of the eastern sheds were demolished after 1980; on 3 November 1993, sheds were still present to the east and west of the now remaining range; there was no roof or reinforcing present in the remaining sheds and the traverser rails were still visible in front of the sheds. The sheds have since been re-roofed and reinforced.

From 2005 the eastern half of the site was used by the Joint Services Adventurers'

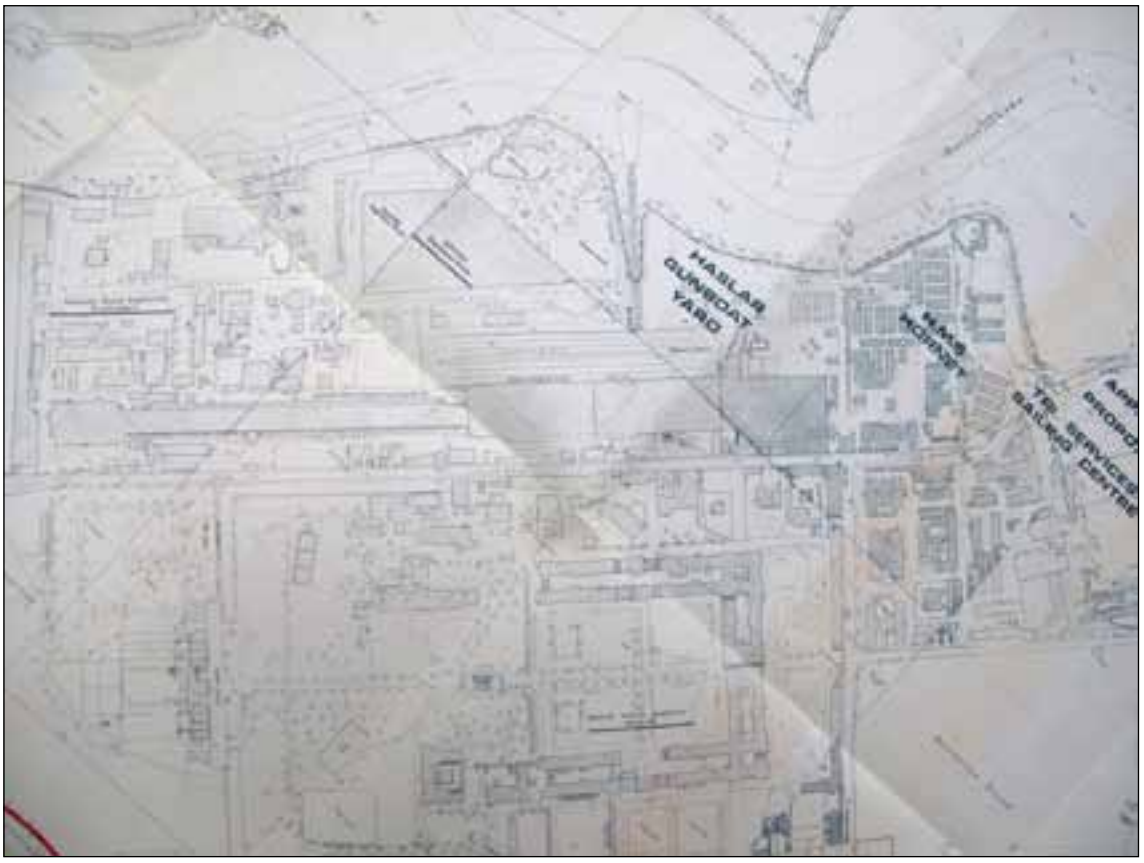


Figure 25. Site plan of 1974 (TNA TS 68/120)

Sailing Centre, who still occupies the site today. The remainder of the yard, including the sheds and maintenance sheds, has been under the control of QinetiQ since 2001. The remaining structures and the land directly in front of them do not appear to have been used for any particular purpose during this time. The site is currently in the process of being sold.

SITE DESCRIPTION

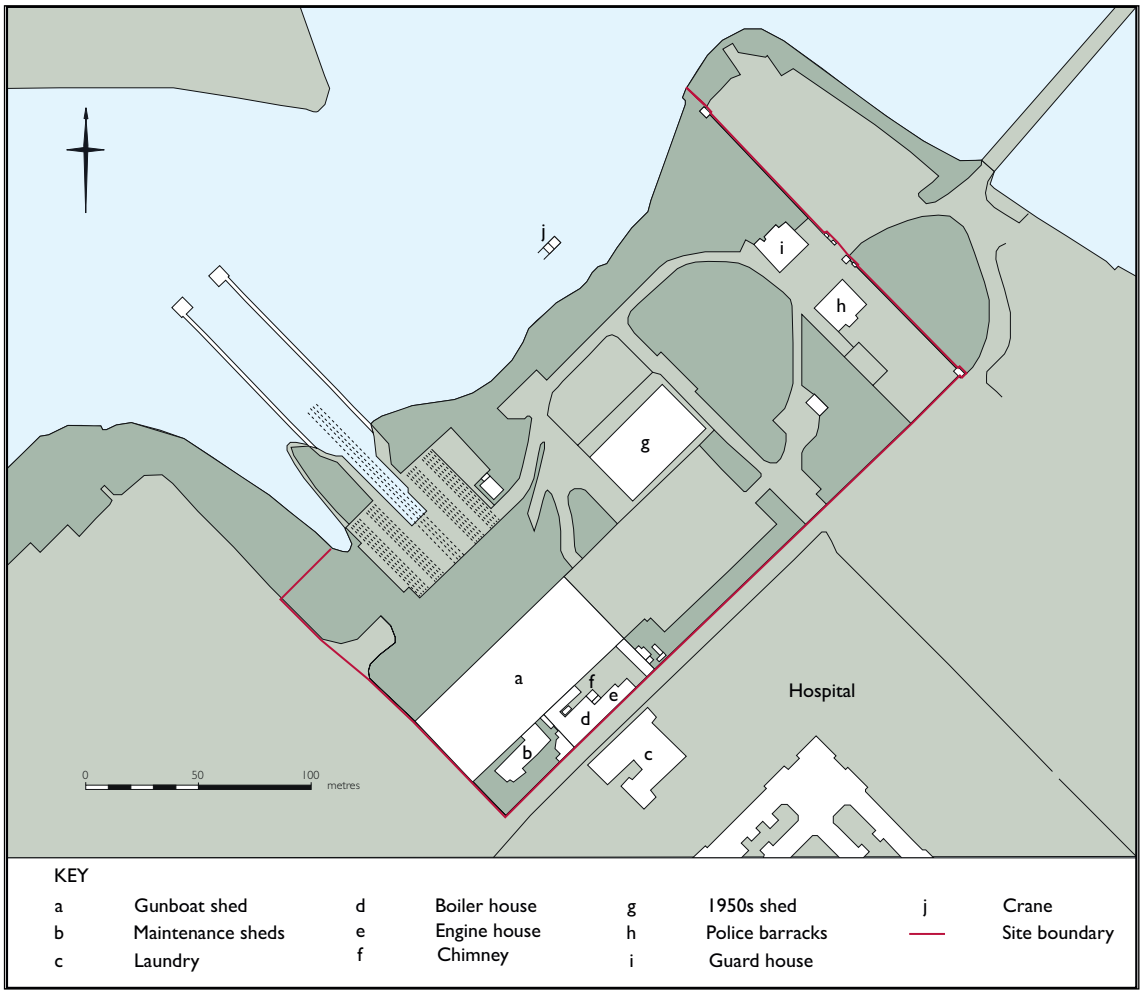


Figure 26. Site plan

Setting and Landscape

Haslar Gunboat Yard is situated on the northern side of the southern-most spit of land on the west side of Portsmouth Harbour. The site slopes gently downwards from the south. It is bordered to the north by Haslar Creek and to the south by Haslar Road and the Haslar Hospital. To the west is the Naval Experimental Works, now QinetiQ, and directly to the east is the Haslar bridge. The site is bordered on its east, west and southern sides by a brick wall with small watch towers and sentry walks. At the time of construction, it was 2,640 ft x 816ft within the walls.[92] The site is orientated on a northwest-southeast alignment. For the purposes of the following description, the site has been orientated to the main cardinal points.

The gunboat sheds are situated towards the south-west of the site and positioned roughly parallel to Haslar Creek (Figure 26). Between these sheds and the southern boundary wall is the engine house complex, along with a series of workshops and various

ancillary buildings. The main entrance to the site is in the centre of the eastern wall. Flanking the entrance-way, inside the site, is the guardhouse and police barracks. The Master Shipwright's house once occupied the south-easterly corner of the yard. The slips and traverser were in the central space of the yard directly in front of the sheds though like the sheds, they once extended further to the east and west. In the 1950s two large corrugated iron sheds were inserted at the approximate eastern end of the traverser. Two modern jetties, associated with the traverser system and directly in front of the sheds, are in situ along with a small offshore platform with winch to the east of the site.

Gunboat Sheds

Materials

The ten remaining gunboat sheds are all from the first phase of construction (Figure 27).[93] The sheds are constructed of a freestanding cast and wrought iron structure with weather-boarded gables and a concrete floor. Original iron rails from the hauling up system are still in situ, embedded in the concrete shed floor. The shed range has red brick end walls and a south wall that extends behind the seven eastern-most bays. The seventh bay from the east has a double-height brick building inserted into it. Each bay has a modern corrugated iron pitched roof and some also have plastic skylights.

Plan

A red brick wall separated each group of ten sheds. This was intended as a fireproofing

Figure 27. Gunboat sheds from the north east (EHA DP161539)

measure and the surviving walling is not structurally integral to the sheds. The extant row of sheds has retained the original brick walls at either end, indicating it is a complete range of ten sheds.

Hickson's investigations revealed that the ten remaining bays are not all the same width, although there is a pattern to the distribution of widths: 30ft, 30ft, 25ft, 10ft, 25ft, 30ft, 30ft, 30ft, 30ft, 30ft, 30ft.[94] This may have been to accommodate particular boats or purposes. It is possible that the 10ft bay (which essentially takes 5ft from the bays on each side) housed a mechanism for hauling up the boats. The entire length of the remaining shed row is approximately 91.5m (300ft) in length and 38m (125ft) deep.

Exterior

The exterior of the eastern wall has seven recessed panels and closers on the northern-face. Changes in fabric (from Flemish to stretcher bond) indicate phasing in this wall. It is possible this may relate to a now absent structure. Four blocked openings (two windows and two doors) are also visible in the southern-most panel is a blocked archway (Figure 28).

The southern-most door appears to be original. The northern door and windows appear to be later insertions. The southern wall comprises sections of brickwork with different bonds and a number of straight joints are also visible. This indicates that the wall was not constructed in one phase, but has been altered and added to since originally constructed. It is likely that a significant proportion does date from the 1850s however. Originally it

Figure 28. Gunboat sheds from the east (EHA DP161542)

may have represented a boundary wall, dividing the gunboat sheds from the engine-house complex. Subsequent alterations appear to have extended the wall westwards and up into the gable ends of the sheds. The wall has a workshop abutting it at the western end. East of this building, approximately half way along the wall, tiles and a raised floor level indicate that a further structure was once present. The south wall does not extend across the entire length of the sheds, but ends at the workshop at the seventh bay from the east. Where the south wall is present, the brick work continues up into the gable to form the roof-line. Where this occurs, there is an additional brick edging at the roof-line.

The top section of this part of the wall has been added as indicated by a change in the bond. This may date to a re-roofing of the sheds (Figure 29). Where the rear wall is absent, timber gables are present. These are probably later replacements.

The western wall is unbroken by doors or windows and has the same recessed panel pattern as the east wall. The north face of each bay has a timber gable with a slight camber to the lower edges (Figure 30).

Interior

The interior of the eastern wall has a bricked up doorway and two bricked up windows corresponding to those seen externally. The stone casings for these are still visible along with the three steps up to the northern door (Figure 31).

The southern and western walls have recessed panels at regular intervals. The southern

Figure 29. Brick gable on south wall of sheds (© English Heritage)

Figure 30. North face of gunboat sheds (EHA DP161536)

Figure 31. Gunboat sheds interior from south west (EHA DP161548)

wall has a blocked arch opening at the rear of the sixth bay from the east. Along this rear wall is a large pipe, possibly a steam pipe used for softening wood (Figure 32).

Running across the top of the panels is a pipe that runs the length of the southern and eastern walls. Its purpose is unknown, although it may be part of a secondary system for sourcing power that relates to the piping that leads from the boiler room into the sheds.

The inserted brick building in the seventh bay from the east has a double-width door at the front entrance and a stair to the upper level at the rear (Figure 33). The southern section of the inserted modern brick structure is of pale brick. The north section is in a darker red brick indicating a later extension to the structure. The windows of the lower level each have a large concrete lintel. These are absent in the upper level (Figure 34).

The floor of each bay, except for the narrow bay, has six rails laid in the concrete, originally for the cradles to haul the ships in and out of the sheds (Figure 35). The central space of the sheds is interrupted by the structural columns (Figure 36). The lack of rails in the narrow central bay, appears to confirm Hickson's suggestion that this bay served a different purpose and was not used for boat storage.

Each bay has seven original columns spread at regular intervals from the front to the rear of the shed. There are three cast iron column variations present in the extant structure.[95] The central colonnade, which flanks the narrowest, central bay, is lined by cast iron Tuscan columns which appear to taper as they rise (Figure 37).

Figure 32. Steampipe for softening wood (EHA DP161555)

Figure 33. Interior of gunboat sheds from south, showing the stair to the upper storey of the inserted brick building (EHA DP161552)

Figure 34. Interior of gunboat sheds showing the west elevation of the inserted brick building (EHA DP161558)

Figure 35. Gunboat shed interior from north west, showing the three sets of rails present in the standard bays (EHA DP161544)

Figure 36. Gunboat shed interior from south showing the regular column spacing throughout the interior (EHA DP161553)

Figure 37. Interior narrow bay with flanking Tuscan columns (EHA DP161545)

The columns along the north of the shed are cast in two pieces and joined approximately two-thirds of the way up the column (Figure 38). Both these types of columns appear to be hollow. The remaining columns are all of the cross-beam variety and are cast in two sections.

The roof trusses, probably of wrought iron, are bolted to the supporting columns. There is some evidence to support the idea that many of the components were prefabricated. Decorative spandrels are also present in the roof structure (Figure 39). This spandrel detail in the roof is also present in the chain and cable store at Portsmouth (1847) and at Chatham Dockyard in the No. 1 Smithery Complex.[96] The ironwork for both these buildings was also completed by Grissell.

Later supporting iron cabling and cross braces have been added to lend support to the

Figure 38. Columns at front of gunboat shed cast in two pieces and joined together. Ordinary cross-sectioned columns are visible behind these. (EHA DP161538)

structure. These have been added since 1993. Circular tensioners are used along the length of each bay and circular cross bracing is present in the narrowest bay, which is now inaccessible and filled with bracing (see Figure 37). Additionally, each interior cross-beam column has a fixing with six iron spars that join to the roof trusses.

Traverser and rails

The rails of the traverser system are no longer visible, although the flat expanse of land in front of the sheds where they were situated is still intact and evidence may survive below ground, including the re-used ships' timbers used as sleepers. The slip rails and berthing rails in the sheds are still visible (Figure 40).

The traverser and steam locomotive that powered it are no longer extant. Changes in

Figure 39. Decorative spandrel detail (EHA DP161556)

Figure 40. Rails visible in shed interior (EHA DP161551)

Figure 41. Slipways to the north of the sheds (EHA DP161540)

topography to the eastern and western ends of the original traverser system suggest that the traverser rails at either end have been removed. Slip rails, inlaid in concrete, are still visible leading from the water line up to where the edge of the traverser system would have been (Figure 41).

Engine House, Boiler House, Chimney and former Well Houses

Materials

The buildings in this complex are all constructed of red brick, laid mostly in Flemish bond with corrugated iron roofing. The engine house has a wrought iron roof structure with skylights on the northern side of the pitched roof. Other roof structures were not examined in detail. The courtyard between these buildings is concreted and, where inspected, internal floors were also of concrete.

Plan

As is typical of steam powered systems, Haslar had an engine house, boiler house and chimney.[97] A plan of 1856 shows the internal division of spaces (Figure 42).

In addition to these structures, still extant, an additional well house now abuts the eastern end of the engine house. This still contains a well with a pumping mechanism. The engine house, boiler house and storage rooms all form a single building. As is characteristic of such complexes, the chimney rises next to the boiler house. The 1854

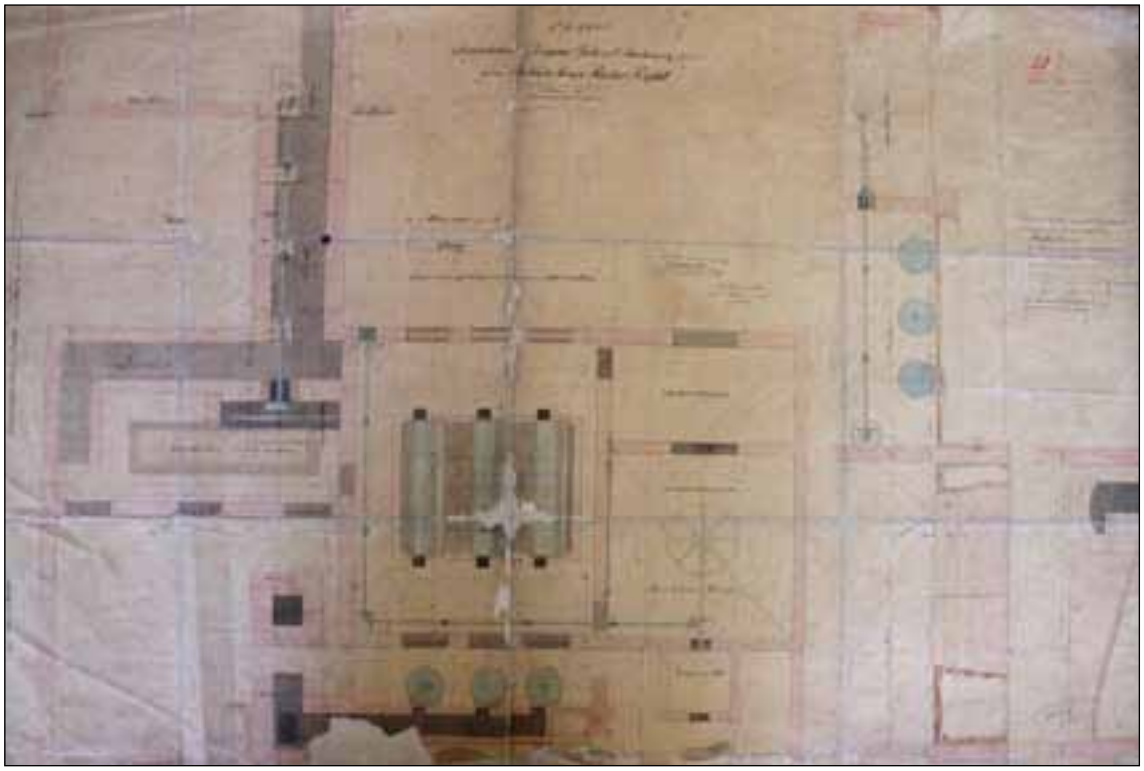


Figure 42. Plan of 1856 showing the layout of the enigne house, boiler house, chimney and well house (EHA MD 95/2796)

plan evidence suggests that the western part of this building may have pre-dated the development of the engine-complex (see history section above). However, the interior of this part of the building was not inspected.

At the western end of the complex, a wall runs from the end of the engine house range to the back of the gunboat sheds. A similar wall, the extension of the eastern wall of the sheds, extends all the way to the wall alongside Haslar Road. These two divisions separate this section of the yard from the rest of the Gunboat Yard. This reflects its separate function as an engine house complex for the Haslar Hospital. There is a large double wooden gate leading from this section of yard out onto Haslar Road next to the eastern wall.

Exterior

This part of the yard is reached through a large wooden double gateway that opens onto Haslar Road.

To the west of this entrance is the engine house range. The engine house is a tall single-storey range with a brick parapet. A well house, accessed from inside the engine house, has been added to its eastern end. The main entrance to the engine house, a large arch-topped door, is on the northern face. To the west of the door are three full height arch-topped windows. They have brick arches and lintels similar to the door. A brick string course runs the length of the building above the height of these windows, indicating the

Figure 43. Blocked opening in the east wall of the boiler house, with the large inserted iron pipe running across the elevation at the height of the window arches (© English Heritage)

beginning of the parapet. The more decorative treatment of the windows and door is not unusual of post-1825 engine houses.

At the western end of the engine house is a small concrete platform reached by two steps which borders the engine range. At the western end of the platform is the eastern wall of the boiler house with evidence of a now blocked door (Figure 43). To the north of this platform is the chimney stack. The chimney is a feature of the skyline. It is a square stack with brick detailing towards the top. This type of detail and shape was typical of industrial stacks in the mid-19th century.

In the gap between the boiler house and the chimney is a large iron pipe at window height. It runs from the back of the boiler house, around the front of the building and

Figure 44. North elevation of the boiler house, showing the two window openings

then turns north, running through the back of the gunboat shed range. It is possible that this joins with the piping on the inside of the shed and was used to work the small steam powered machinery inside the shed. Its date is unknown, but it is clearly not a primary feature.

As is typical in other industrial buildings, the boiler house was not the subject of any architectural emphasis.[98] At its eastern end, on the northern face, there are two small arch-topped windows (Figure 44). Next to the two small windows is a tall square double door which has been inserted in place of an original third window (Figure 45). The arch top of this window survives, slightly truncated, above doorway. Running along its top and extending to the west is an inserted heavy concrete lintel that interrupts the base of the brick arch detail above. The brickwork in this section has been altered as the eastern side of the brick arch has been sliced away and replaced with brickwork.

A modern well house, probably in place of an earlier well house shown on the 1854 plan, abuts the north-west end of the coal store and has a mono-pitch roof (Figure 46).

On the western side of the added well house are two blocked openings: a bulls-eye window and below it a smaller opening with an arched top. These once looked into the horse wheel house/coal storage room. The western wall of the complex extends north to the rear of the gunboat sheds, segregating this section of yard.

Figure 45. North elevation of the boiler house showing the inserted doorway (© English Heritage)

The section of the yard opposite the engine house and against the south wall of the sheds was tiled and enclosed. Although the structure is no longer present, there remains tiling on the ground that designates its footprint. This may relate to the accumulator room that appears on the 1906 plan.

At the eastern end of this section of yard is the boundary wall to the rest of the yard. The wall is of red brick and has an upper rail and pilasters. There are two wooden doors set into the wall and above these a series of joist holes indicating the position of a former lean-to building which ran along this side of the yard.

Figure 46. Modern well house, built on the site of an earlier well house which probably pre-dates the 1854 construction of the engine house complex (© English Heritage)

Interior

The interior of the engine house is now empty. It has an iron framed ceiling and northern skylights (Figure 47). Along the northern wall are three large iron framed windows. In the north-western corner is a blocked doorway leading to the boiler room. It has a concrete floor which is a later replacement.

The small well house east of the engine house has the remnants of a well with pulley system (Figure 48). This room is reached through a door in the engine house with a blocked fanlight and brick arch. The door has closers on either side.

The engine house has an opening on the southern side of the floor with a stair leading

Figure 47. Interior of the engine house looking west, showing the blocked doorway to the boiler house (© English Heritage)

down to the tunnel that runs below Haslar road and connects the engine house with the Haslar laundry (Figure 49). This reflects a later change to the original arrangement, which had a longer incline running to the tunnel. The footprint of the building and lack of engine infrastructure in the structural components of the buildings suggests that it housed a horizontal rather than vertical engine.

The boiler room retains a set of four Lancashire boilers along its eastern wall, characterised by their large barrels and feeding chutes for coal (Figure 50). These are late 19th/early 20th century replacements for the original boilers that sat at 90 degrees to the current arrangement. The boilers have a secondary hopper system inserted against their principal faces. This has a plate indicating that they were built by James Hodgkinson

Figure 48. Interior of well house to the east of the engine house showing winch mechanism (© English Heritage)

(Salford) Ltd. The patent number is 628031. Although this patent has not been traced, James Hodgkinson was a firm well known for producing automatic stoker systems from the late 19th century and well into the 20th century. The exact date of this system is not known.

Along the western wall are the remnants of the electrical system, including fuse boxes and gauges (Figure 51). Iron roofing in the boiler house was probably intended to prevent warping with the heat and was also a fireproofing measure.

The newer well house has the original iron infrastructure for drawing water, although any well has been in filled (Figure 52). There is also an arch-topped setback in the southern wall.

Figure 49. Stair access from engine house to the tunnel under Haslar Road (© English Heritage)

Maintenance Sheds

Three original maintenance sheds survive, along with a later office and the concrete bed of another maintenance related structure along the south wall of the yard. The interiors of the buildings were not inspected.

Abutting the south-eastern corner of the boiler room complex is a single-storey building with porch. It is constructed of red brick in Flemish bond with closers around the windows and doors. The mono-pitch roof of the structure is corrugated iron. There is one window in the north eastern corner with a door directly next to it to the south. An awning in corrugated iron has been erected over the door to form a porch.

The three original maintenance sheds are in red brick with Flemish bond and all abut the

Figure 50. Lancashire boilers, with a later automated hopper system (EHA DP161559)

Figure 51. Fuseboxes on the west wall of the boiler house (EHA DP161563)

Figure 52. Interior of rebuilt well house showing part of winch mechanism (© English Heritage)

rear of the gunboat sheds. They date from the original 1850s phase of construction. The easternmost building has a brick parapet on its southern end with roundel detail picked out in brick (Figure 53). The roof is of slate tile with a skylight in the north-eastern corner of the roof. There is a small exhaust pipe protruding from the roof below the skylight.

The other buildings lie parallel to the gunboat sheds. They are both in red brick of Flemish bond. Their roofs are corrugated iron with timber ventilation structures on the roof. There is a skylight on the south-eastern end of the eastern most shed.

The plan of 1904 gives one footprint to the three buildings and labels them as 'fitting

shop' (see Figure 11). It seems likely that they relate to separate skilled processes required

Figure 53. South elevation of the eastern maintenace shed (© English Heritage)

Figure 54. Southeast corner of the boundary wall, with sentry house (EHA DP161575)

Figure 55. Main entrance to the Gunboat Yard (EHA DP161568)

in the maintenance and refitting of the gunboats.

Boundary Walls

The site is bounded by a red brick wall of Flemish bond with guard houses and small sentry walks at intervals around the perimeter (Figure 54). The sentry houses have iron roofs covered in slate and small windows on the ground and upper floors. It was not possible to examine the interiors of these structures.

The main boundary wall is broken along its eastern front by the main entrance way, a large double gate. The main gate has two pedimented posts on either side of the entrance way with details in stone. There is one small slit window with stone lintel and sill on the eastern face of each post (Figure 55).

Guard House and Police Barracks

On either side of the main gate, inside the yard, are two single storey red brick structures dating from 1857. The south building was a police barracks and the north building a guard house (Figure 56 and 57). They appear from the outside view to be mirror images of each other. Their most striking feature is their colonnaded exterior picked out with white stone detailing. The top of their hipped, corrugated-iron roofs

Figure 56. Former police barracks to the south of the main entrance (EHA DP161569)

Figure 57. Former guard house to the north of the main entrance (EHA DP161570)

are visible behind a brick parapet. Chimney stacks are also visible along the roof line, indicating that the buildings were heated and in keeping with their function as places of residence. Windows around both structures have segmental-arch brick heads and stone sills

Six of the colonnade archways on the northern block have been infilled with brick and small windows as part of a later modification.

Both structures are currently in a poor condition and have been fenced off from access, preventing any investigation of their interiors. Their original internal plans are both based on a courtyard plan with a central open space surrounded by individual rooms for various purposes from accommodation to lavatories. However, they are likely to have been subject to alterations.

Jetties

Two wooden jetties leading out from the slipway are still in situ, although these are modern replacements of the original structures. In addition to these two principal jetties, a third wooden jetty to the east has also partly survived as an isolated section of timber sitting in the creek (Figure 73). This jetty does not appear to have extended as far out into the Creek as the other two. The original crane for the repair and maintenance of boats is still present at what was once the end of the platform of this jetty.

Sheds

The two modern corrugated iron sheds constructed in the middle of the site in the mid-20th-century are still present on site and are used for the storage and repair of modern sailing vessels. The structures have a single internal space and are double height with two rows of windows. It was not possible to investigate the interior of the building but external indications suggest it has a concrete floor. These light-weight structures appear to have been built for the storage of small boats.

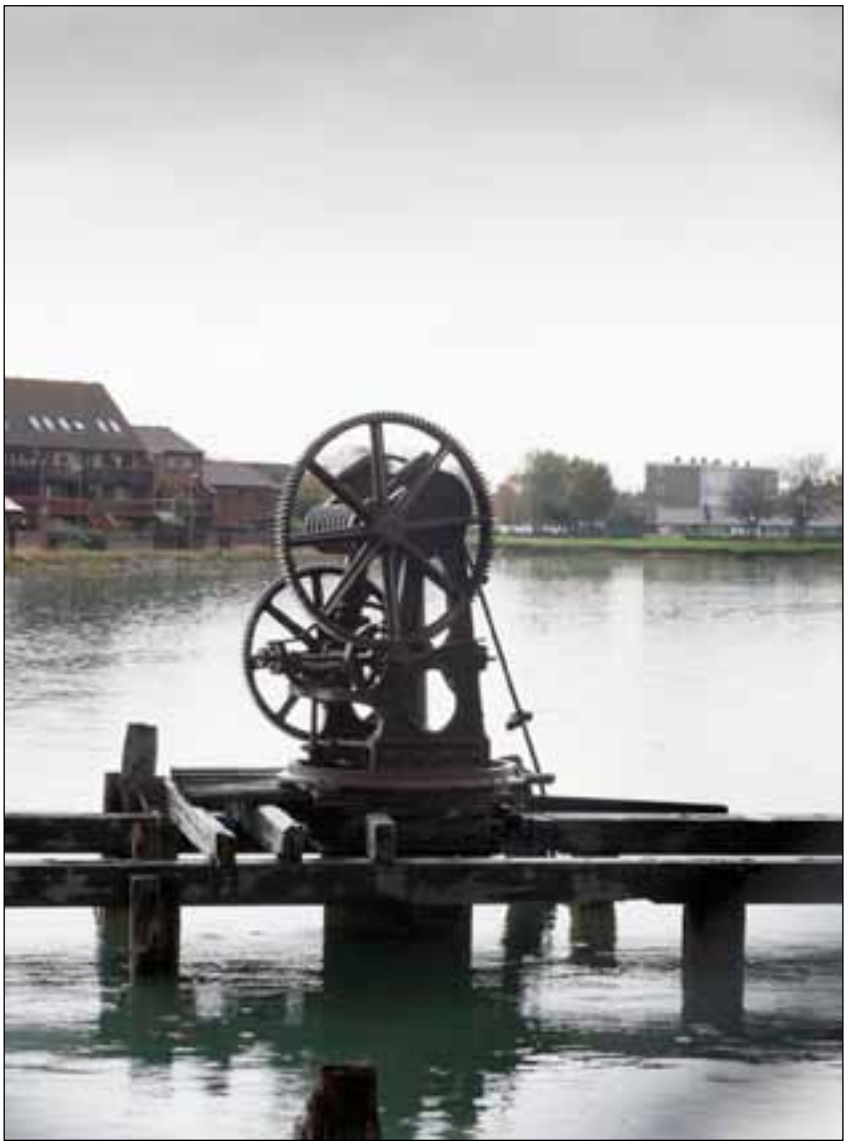


Figure 58.
Section of timber jetty with crane (EHA DP161577)

CONCLUSION

A high proportion of the buildings and other features from the original phase of construction remain. The engine house and boiler complex, dating from circa 1854 retains much of its original plan form and detailing, and contains some early machinery, probably dating to late 19th and early 20th-century changes to the site. The remaining gunboat sheds date from the original phase of construction in 1856; although they now have replacement roof coverings the original frames remain in place. Some areas of associated walling also appear to relate to this 1850s phase. The slipways and three of the maintenance sheds appear to be contemporary with the first phase of the gunboat sheds. The guardhouse, police barracks, and boundary walls date from *circa*.1857. The eastern jetty of 1861 is original and retains its crane. The two westerly jetties are both later replacements of original structures.

In addition to the surviving buildings it is likely that below-ground evidence of further structures and features may survive, this includes the Master Shipwright's House demolished in 1974 and the traverser system, including ships' timbers used for the sleepers.

The Haslar Gunboat Yard is a unique site in the history of naval development. Its construction was timed alongside developments in iron framing and prefabricated iron technology and its traverser system using steam power from the outset was a revolutionary approach to solving a unique problem that utilised the foremost technologies of the day.

The site was developed as a response to a specific naval technology and as such, fell into disuse when this use was no longer required. Nevertheless, it was able to be modified with little trouble and thus serve the Navy and private users until the present day.

SIGNIFICANCE

The Haslar gunboat yard is situated within the wider naval settlement of the area and is an important site within the naval presence at Gosport and Portsmouth. There is no parallel example in any other Royal Navy base.[99] Gunboat sheds were built in Copenhagen in the early 19th-century. These, however, do not employ a slip and traverser system, and were for an earlier, different form of gunboat.

The gun boat sheds are a rare example of an establishment constructed as a direct consequence of the Crimean War. One of the few other buildings erected in response to the war were the innovative steam-powered gunpowder mills at the Royal Gunpowder Factory, Waltham Abbey, Essex.[100] Both sites mark the beginning of a massive defence building campaign that characterised the end of the 19th century.

Sheerness also has a storehouse for small boats designed by Scamp and Greene. This construction, although also employing wrought and corrugated iron, was of a different plan to Haslar, since it had three levels on which small boats could be placed. There was also no traverser system in place in Sheerness.

BIBLIOGRAPHY

Cattell, J and Falconer, K 1995 *Swindon: The legacy of a railway town.* Swindon: English Heritage

Coad, J 1983 *Historic Architecture of the Royal Navy.* London: Gollancz

Coad, J 1989 *The Royal Dockyards 1690-1850.* Scholar Press

Coad, J 2007 *Haslar Gunboat Yard.* Oxford Archaeology

Coad, J 2013 *Support for the Fleet: Architecture and Engineering of the Royal Navy's Bases 1700-1914.* Swindon: English Heritage

Cocroft, WD 2000 *Dangerous Energy; The archaeology of gunpowder and military explosives manufacture.* Swindon: English Heritage

Evans, D 1994 *Building the steam navy: dockyard technology and the creation of the Victorian battle fleet, 1830-1906.* Swindon: English Heritage

'Fort Gilkicker: Haslar Gunboat Yard' <http://www.fortgilkicker.co.uk/gunboat.htm>

Giles, C and Goodall IH 1992*Yorkshire Textile Mills: The Buildings of the Yorkshire Textile Industry 1770-1930.* London: HMSO

Hickson, O 2012 *A Study of Haslar Gun Boat Yard with New Insights into Its History, Construction, Manufacture and Use.* Unpublished MSc Building Conservation: Weald and Downland Open Air Museum with Bournemouth University

MacDougall, P 2007 'William Scamp and His Early Naval Works in the Mediterranean' *The Mariner's Mirror* 93, 28–42

Peck, AS 1983 *The Great Western at Swindon Works.* Oxford: Blackwell

Preston, A and Major, J 1967 *Send a Gunboat! A study of the gunboat and its role in British policy, 1854-1904.* London: Longmans

Tait, W 1906 *History of Haslar Hospital.*

Watson-Smyth, M 1993 'Haslar Gunboat Yard', in *Deserted Bastions: Historic Naval & Military Architecture.* London: SAVE Britain's Heritage, 93

ENDNOTES

1 Coad 1989, 90

2 Coad 2013, ix

3 Coad 1989, 13

4 Coad 1989, 13; ADM 7/659, 5/6/1771

5 Coad 1989, 19

6 Coad 2013, 72

7 Coad 2013, 79

8 Coad 1989, 229

9 Coad 1989, 237

10 Coad 1989, 20

11 Coad 2013, 27

12 Coad 2013, 28

13 Coad 2013, 199

14 Coad 1989, 239

15 Evans 1994, 153

16 Fort Gilkicker

17 Coad 2013, 200

18 Coad 2007, 1

19 Coad 2007, 1

20 Coad 2007, 1

21 Hampshire Telegraph and Sussex Chronicle, October 25 1856

22 Mechanics' Magazine, January 3 1857, 5

23 Mechanics' Magazine, January 3 1857, 4-5

24 Coad 2007, 1

25 Coad 2013, 200

26 Coad 2007, 1

27 Peck 1983, 22

28 Peck 1983, 21-2; Cattell and Falconer 1995, 17

29 Bourne 1846, 47-8 in Cattell and Falconer 1995, 17

30 Colvin 1995, 853; TNA ADM 1/6015

31 Mechanics' Magazine, January 3 1857. v.66

32 Fort Gilkicker citing The Times

33 Fort Gilkicker

34 Hampshire Telegraph and Sussex Chronicle, February 5 1859

35 Mechanics' Magazine January 3 1857. v.66

36 Coad 1983, 15

37 Coad 2013, 82

38 Coad 1983, 46

39 Coad 2013, 78

40 Coad 2013, 78

41 Coad 1989, 234

42 Coad 2013, 82

43 Coad 1983, 46

44 Coad 2013, 81

45 Hickson 2012, 14

46 Coad 1983, 48

47 Coad 1983, 39

48 Coad 1983, 40

49 Hampshire Telegraph and Sussex Chronicle, October 25 1856

50 Hampshire Telegraph and Sussex Chronicle, October 25 1856

51 Coad 2013, 188

52 Cattell and Falconer 1995, 33

53 Coad 2013, 188

54 Coad 2013, 190

55 The Times, April 21 1860

56 Coad 2007, 2

57 This was common in the 1850s as steam technology had advanced far enough to be useful in this context. Coad 1983, 39

58 Tait 1906, 17

59 MacDougall 2007, 32

60 Coad 2007, 2

61 The Times, February 25 1861

62 Coad 1983, 94-5

63 Coad 2007, 2

64 Fort Gilkicker

65 The Times, January 5 1861

66 Hampshire Telegraph and Sussex Chronicle April 28 1860

67 The Times, May 14 1863

68 The Times, January 1 1862

69 The Times, September 1 1863

70 The Times, November 24 1863

71 Coad 2007, 2

72 The Times, August 28 1867

73 Fort Gilkicker

74 The Times, September 24 1868

75 The Times, January 20 1869

76 The Times, March 11 1869

77 Fort Gilkicker

78 The Times, November 21 1871

79 The Times, September 9 1872

80 Coad 2013, 202

81 The Times, December 30 1884

82 The Times, August 18 1885

83 The Times, August 14 1888

84 Admiral Fisher in Preston and Major 1967, 170

85 Fisher Papers vol.1 117-20 'Cawdor memorandum' Feb-Dec 1905 in Preston and Major 1967, 170

86 The Times, May 3 1905

87 Coad 2007, 2

88 Coad 2007, 2; SAVE

89 MSS/75/022

90 Coad 2007, 2

91 The Times, June 23 1980

92 Fort Gilkicker

93 Coad 2007, 2

94 Hickson 2012, 25-26

95 Hickson 2012, 27

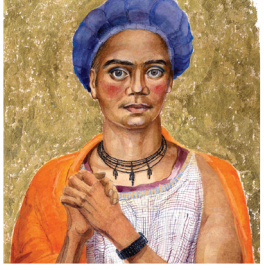
96 Hickson 2012, 54

97 Giles and Goodall 1992, 136

98 Giles and Goodall 1992, 145

99 Coad 2007, 3

100 Cocroft 2000, 70



ENGLISH HERITAGE RESEARCH DEPARTMENT

English Heritage undertakes and commissions research into the historic environment, and the issues that affect its condition and survival, in order to provide the understanding necessary for informed policy and decision making, for sustainable management, and to promote the widest access, appreciation and enjoyment of our heritage.

The Research Department provides English Heritage with this capacity in the fields of buildings history, archaeology, and landscape history. It brings together seven teams with complementary investigative and analytical skills to provide integrated research expertise across the range of the historic environment. These are:

* *Aerial Survey and Investigation*
* *Archaeological Projects (excavation)*
* *Archaeological Science*
* *Archaeological Survey and Investigation (landscape analysis)*
* *Architectural Investigation*
* *Imaging, Graphics and Survey (including measured and metric survey, and photography)*
* *Survey of London*

The Research Department undertakes a wide range of investigative and analytical projects, and provides quality assurance and management support for externally-commissioned research. We aim for innovative work of the highest quality which will set agendas and standards for the historic environment sector. In support of this, and to build capacity and promote best practice in the sector, we also publish guidance and provide advice and training. We support outreach and education activities and build these in to our projects and programmes wherever possible.

We make the results of our work available through the Research Department Report Series, and through journal publications and monographs. Our publication Research News, which appears three times a year, aims to keep our partners within and outside English Heritage up-to-date with our projects and activities. A full list of Research Department Reports, with abstracts and information on how to obtain copies, may be found on www.english-heritage.org.uk/researchreports

For further information visit www.english-heritage.org.uk

ENGLISH HERITAGE