

HMS Unicorn, Victoria Dock, Dundee

Dundee City Council Area



HMS Unicorn View of stern at Gun Deck level (DP 416409, HES, 2023)

Historic Environment Scotland Heritage Research Service

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Introduction

HMS Unicorn is the most original and authentic of all the world's large ships.¹ Built as a British Royal Navy frigate in the early 19th century, it encapsulates centuries of naval heritage and technological advancements in the age of sail. Now anchored in Dundee, Unicorn is the 3rd oldest ship afloat in the world², the 4th oldest British built warship in existence³ and the oldest ship afloat in Scotland.

The Unicorn has been managed by the Unicorn Preservation Trust since 1968.⁴ The careful conservation of the Unicorn allows an interpretation of life on a naval vessel under sail from the late- 18th century to the mid-19th century.

A photographic survey was carried out by the Heritage Recording section of Historic Environment Scotland to document the details of this warship. The aim of this photographic survey was to create a record for the National Record of the Historic Environment (NRHE) of Scotland, to fill a gap in NRHE holdings and to capture the Upper Deck prior to work being carried out on the weather deck roof.

HMS Unicorn: Background

Launched on the 30th March 1824 at Chatham Dockyard, Kent, England⁵, HMS Unicorn was constructed as part of the process of building up the Royal Navy after the Napoleonic War.⁶ Designed by the famous naval architect Robert Seppings⁷, the ship incorporated industrial technology such as the use of iron into Royal Navy ship construction. The Unicorn was conceived as a 46 gun, 'fifth rate' ship for scouting and defending trade. This Leda class frigate is representative of the controversial naval designs of Seppings⁸ because of its rounded stern (to maximise gunners field of view at the rear), the use of the diagonal iron bracing to strengthen the wooden hull⁹ and the use of cast-iron 'knees' to support the decks which, taken together, represent the beginning of what came to be known as a composite-build ship. This construction method allowed the building of larger ships and reached maturity in the mid-19th century.¹⁰

¹ W. Roderick Stewart, HMS Unicorn Statement of Significance and Foreword for National Historic Ships, 2019, https://www.academia.edu/41042267/HMS_Unicorn_Statement_of_Significance_Foreword_for_NHS [retrieved: 04/09/2023]

² After USS Constitution (1797 now in Boston, USA) and HMS Triconmalee (1817 now in Hartlepool, England).

³ After Mary Rose (1509, Carrack), HMS Victory (1765, Ship of the Line), HMS Triconmalee (1817, Frigate)

⁴ See [History - HMS Unicorn](#) [retrieved: 30/08/2023] for a timeline.

⁵ W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 11 (Unicorn Preservation Trust). https://www.academia.edu/40928420/HMS_UNICORNS_Extraordinary_Roof [retrieved: 30/08/2023]

⁶ W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 6 (Unicorn Preservation Trust). https://www.academia.edu/40928420/HMS_UNICORNS_Extraordinary_Roof [retrieved: 30/08/2023]

⁷ Robert Seppings (1767-1840), Surveyor of the Royal Navy (1813-1832)

⁸ Robert Seppings, Letter addressed to the Right Honourable Viscount Melville, Baron Dunira, First Lord Commissioner of the Admiralty, on the circular sterns of ships of war, London: 1 January 1822

Robert Seppings, 'On a New Principle of Constructing His Majesty's Ships of War' in [Philosophical Transactions of the Royal Society of London](#), Vol. 104 (1814), pp. 285-302

⁹ Seppings, 1814, 289-93; [History - HMS Unicorn](#) [retrieved: 30/08/2023]

¹⁰ Composite ships reached maturity with the building of the steam ship SS Great Britain (1843). A surviving example of this kind of ship is the Cutty Sark (masted ship, tea clipper) at Greenwich, London.

After its launch, Unicorn was placed 'in ordinary', one of a number of warships kept in reserve until needed.¹¹ The result of this was that she was never rigged and was roofed over ('fore and aft', covering the whole weather or upper deck) during construction to protect the hull – the most expensive part of a ship.¹² Over the years Unicorn had various roles. It was used as a powder hulk¹³ at Woolwich Arsenal from 1857-1862 (the boxed-in metal bracing in the hull to prevent sparks dates from this period) and in November 1873, Unicorn was towed from Woolwich to Dundee. It was used as a drill ship by the Royal Naval Reserve from 1874 until 1906 and then by the Royal Naval Volunteer Reserve (RNVR). During the First and Second World Wars, Unicorn acted as a recruitment base and naval headquarters. The ship's name was changed from HMS Unicorn to HMS Cressy, to avoid the confusion with the aircraft carrier of the same name. In 1959, the name reverted to that of HMS Unicorn.¹⁴

In the early 1960s, it was proposed that Unicorn be broken up due to the construction of Tay Road Bridge and the consequent infilling of the dock in which she sat.¹⁵ However, the last captain of the frigate argued that its preservation was important to the naval history of Britain and so was saved from destruction. Unicorn was moved from Camperdown Dock to Victoria Dock in 1963 and the Unicorn Preservation Society (UPS) was formed in 1968 to conserve, maintain and protect the ship. HMS Unicorn has been open to the public since 1975. Currently, UPS is working on moving the ship out of the water and into Dundee's East Graving Dock to enable long term preservation.¹⁶

Description

HMS Unicorn measures 58.55m in length by 12.192m is maximum beam (width), the total displacement when fully stored would be 1,465 tons.¹⁷ The ship consists of an Upper Deck, Gun Deck, Lower Deck, Orlop and Hold.

The Upper Deck (also known as Weather Deck)

The Upper Deck or was the centre of command for any warship. Structurally, its main purpose is to act as a 'lid' to the hull of the ship. Open to the elements (and so also known as the weather deck), it was from here that the captain and his officers would direct the ship and crew, where the masts and rigging and main capstan were located and from where the ship was steered. The 'waist' of the Upper Deck was used to store small boats and the forecastle (pronounced foc'sle) is where the ship's bell would have been kept, to indicate hours of the day.

¹¹ W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 3, 6, 10, 12 (Unicorn Preservation Trust) https://www.academia.edu/40928420/HMS_UNICORNS_Extraordinary_Roof [retrieved: 30/08/2023]

¹² W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 12-13 (Unicorn Preservation Trust) https://www.academia.edu/40928420/HMS_UNICORNS_Extraordinary_Roof [retrieved: 30/08/2023]

¹³ A hulk in naval terms is a ship stripped of fittings, permanently moored and used for storage.

¹⁴ Unicorn website: [History - HMS Unicorn](#)

¹⁵ Unicorn website: [History - HMS Unicorn](#)

¹⁶ Unicorn website: [History - HMS Unicorn](#)

¹⁷ Unicorn website: [History - HMS Unicorn](#)

Due to Unicorn's status, the Upper Deck has been roofed since the ship's launch.¹⁸ The design of the roof may have been inspired by covered slips in Chatham Dockyard in Kent where it was built, as similarities can be seen between the ship's roof and the surviving early 19th century covered slip at Chatham.¹⁹ The original roof covering may have been a so called 'paper roof' which was also used on buildings such as textile mills for easy and cheap replacement in the case of fire. The timber roof members seen today were raised in two sections when Unicorn became a drill ship in the 1870s to give more head room.²⁰



Upper Deck, astern. View of 1820s timber roof reminiscent of Chatham Dockyard slipway roofs (DP 416376, HES, 2023)



Upper Deck. General view looking towards Fo'c'sle, ship's wheel to left (DP 416345, HES, 2023)

The original wooden ship's wheel survives on the Upper Deck and is connected to the tiller in the Gun Room (on the Gun Deck) by rope.



Upper Deck. View of later door on port side (DP 416359, HES, 2023)



Gun Deck. General view looking towards bow and later bowsprit insertion on the mid-1970s (DP 416511, HES, -----)

¹⁸ W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 16-22, 33 (Unicorn Preservation Trust) https://www.academia.edu/40928420/HMS_UNICORNs_Extraordinary_Roof [retrieved: 30/08/2023]

¹⁹ W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 14-15, 33 (Unicorn Preservation Trust) https://www.academia.edu/40928420/HMS_UNICORNs_Extraordinary_Roof [retrieved: 30/08/2023]

²⁰ The roof line has been modified since 1824, but the timbers are probably original. See W. Roderick Stewart, HMS Unicorn's Extraordinary Roof, 2011, 16-18, 33 (Unicorn Preservation Trust). https://www.academia.edu/40928420/HMS_UNICORNs_Extraordinary_Roof [retrieved: 30/08/2023]

A model of HMS Unicorn, as it would look if in service, is on display showing the full extent of functions on the Upper Deck. When the Unicorn was used by RNVR (RNR) various changes such as new doors on the upper deck for access as the addition of the roof has affected the strength of the hull.

The Gun Deck

The traditional design of the frigates indicate that it has only one deck of gun ports, as on the Unicorn. On this level the ship could have accommodated 28 guns in total if required, fourteen along each broadside. Others would have been found throughout the ship. Each would have had wooden wheels for easy accessibility to avoid any damage on the timber deck. The Unicorn was also designed to carry nine pounders (known as 'Long Nines') which were known for their accuracy and long range. There are two replicas of 24 pounders from HMS Victory on display.



*Gun Deck, astern. Captain's cabin.
General view (DP 416446, HES, 2023)*



*Gun Deck. View Gun deck with iron knees and
timber bracing of the ship's side (DP 416506,
HES,2023)*

The captain's cabin was on the stern and would have been divided into a study and sleeping quarters by canvas partitions which could be stowed away. There was also a washing area and lavatory. All others would have used the communal bow 'heads' and washed on the Upper Deck apart from the duty officers who had their own living area.

One of the unique design features of the Unicorn was the shape of its stern. Most warships had square sterns, whereas the Unicorn's is curved. This design detail was introduced by Seppings to enable uninterrupted aft views for the gunners, thus protecting a traditionally vulnerable part of the ship.

An interesting feature on the Gun Deck is the 'navel pipes'. These metal pipes guided anchor ropes from the main capstan on the Upper Deck to the anchor locker below.



Gun Deck, astern. View of rounded stern and Captain's cabin with roofed Upper/Weather Deck above (DP 416408, HES, 2023)



Gun Deck. Detail view of one of two navel/hawse pipes. These fed the capstan chain into the chain locker housed in the Orlop deck (between the Hold and the Lower Deck (DP 416462, HES, 2023)

The Lower Deck

The lower deck was used as sleeping and eating quarters by the sailors and the officers. On the stern end of the ship, the officers had their own cabins (**image**) whereas the sailors lived on the other end of the ship with hammocks on one side and dining tables on the other.



Lower Deck, astern. General view of dining area and sleeping cabins for officers on duty. During engagement, such spaces doubled as operating theatres. The Tiller is behind the camera (DP 416477, HES, 2023)



Lower Deck, port side, midships. View of iron knees which transfer the load from the deck beams to the ship's oak frame (DP 416412, HES, 2023)

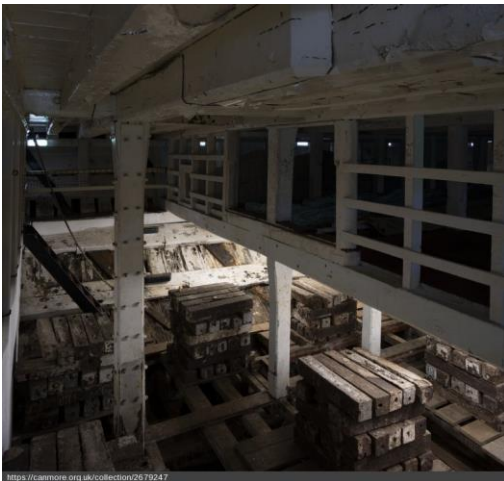
On this level, the tiller was located near the wardrooms. Iron 'knees' used for clamping the deck to the side of the hull and the intricate design of the diagonal bracings on both the ends of the ship can be clearly seen.



Lower Deck, astern. View of diagonal bracings, internal stern post and tiller rope system (DP 416385, HES, 2023)

The Orlop and Hold

Located below the waterline, the Orlop are a series of storage platforms around the edge of the hull and overlapping the Hold. The Hold is the lowest part of the ship used as a storage space for food, water and firewood. All the heavy items were stored here to keep the ship stable. The two magazines with copper flooring located on the stern and aft side of the Orlop would have been constructed to hold gunpowder. The carpenter's walkways at the Orlop level are numbered and are moveable to enable stores to be lifted and lowered into the hold.



Hold from Orlop deck. View of ballast and hull (DP 416499, HES, 2023)



Orlop deck. General view (DP 416498, HES, 2023)

On this level, various carpenter's marks, also known as rase marks, made with chisel and rase knife as well as stamps can be observed. These rase marks are fascinating insights on the how Unicorn was constructed and organised.



Orlop. Rase (carpenters') marks carved into deck beam prior to the construction of the ship, to help with assembly in the dockyard (DP 416433, HES, 2023)



Hold. Hull showing copper fixings reducing effects of salt water corrosion (M.McDonald, 2023)

The structure of Unicorn's hull is clearly visible in the Hold. Copper nails were used on the salt treated oak timber to attach the copper hull cover to the underside of the ship. Copper nails reduced the chance of corrosion, sparks (not wanted near gunpowder magazines), and minimised dampness in the timbers.

Frigates

HMS Unicorn is a class of ship known as a frigate. They were smaller and faster warships than ships of the line. Until frigates were introduced, the Royal Navy used two ships namely sloops-of-war (also known as corvettes) and the cruiser two-decker. The sloops-of-war were fast, rigged with two or three masts, could carry up to 22 guns and were large enough to capture a merchantman. However, they were not suitable for convoy escorts and due to its small size had limited use as scouts. They were also vulnerable to the weather.

Subsequently, ships known as cruiser two-deckers were introduced to replace sloops -of-war. These ships could carry up to 44 guns and had two gun decks plus some additional space where more guns could be carried. However, these ships had shortcomings - the length to height proportion was not suitable making them vulnerable to swamping and the lower gun ports were too close to the water line making them vulnerable during high tides.

Realising these disadvantages, the frigate was designed to overcome all these limitations. The lower gun ports were removed and the upper gun deck was moved down resulting in moving the lower gun deck closer to the waterline. This strengthened ship and the battery was now on an upper deck from where the sea level did not matter when firing. They had three masts and carried up to 56 guns mounted on one main gun deck, the forecastle/foc'sle and the poop. Generally, these ships were used for scouting and for commerce protection. As this design carried less guns compared to the two-decker, the crew required to 'man the guns' also reduced. Crew members were accommodated in a damp free and healthier environment than the Lower Deck. The overall hull of the frigate

sat lower in the water and the battery was higher, increasing the speed and reduced the chances of the ship being pushed sideways due to a crosswind. As sail was superseded by steam in the 19th century, frigates became known as cruisers and frigates such as Unicorn became redundant.

Visited by Heritage Recording, Historic Environment Scotland (Nimisha Misal), 25-6 July 2023.

Glossary of terms

Astern: at the rear of a ship

Aft: towards the back

Battery: group of weapons on board a warship

Broadside: the entire side of a ship above the waterline

Bow: front of vessel (direction of travel)

Bowsprit: spar extending from the bow or prow of a sailing ship and integral to the rigging system

Capstan: vertical axled turning device which multiplies the pulling power for ropes, hawsers etc.

Cruising warships: this term was referred to independent scouting, raiding or certain missions during the age of sail which were carried out by frigates.

Fifth rate: a smaller and lighter type of Napoleonic era Royal Navy warship with one or two decks and carrying less personnel and guns than rates 1-4

Foc'sle: forward upper deck

Fore and aft: along the length of a ship (from bow to stern)

Frigate: as a term used since 17th century

Hulk: stripped and moored vessel used for storage

Hull: shell and framework of floating section

In ordinary: Royal Navy ship not in service

LEDA class: 47 Royal Navy class warships with a maximum of 38 guns built between 1805-1832 and based on a French design – used for scouting and reconnaissance and not 'ships of the line' or battleships which were rated 1-3 and had up to 3 decks and 90 guns in the case of a 1st rate

Main battery: the primary weapon or group of weapons around which a war ship is designed

Masts: a tall upright post, spar, or other structure on a ship or boat, in sailing vessels generally carrying a sail or sails. It is also another name for flagpole

Merchantman: A ship carrying Merchandise

Navel Pipes: cast iron tubes guiding ropes/hawsers in and out of the chain or rope locker

Paper Roof: light, low profile roof covering of paper and bituminous covering

Poop: high deck at aft (rear) of ship

Rase: carpenter's mark on a ship's timbers

Ship of the Line: a warship which was part of the naval tactic of the age of sail known as Line of Battle.

Stern: it is the back or aft-most part of a ship or boat. Technically defined as the area built up over the sternpost, extending upwards from the counter rail to the taffrail.

Swamping: flood with water

Tiller: A horizontal bar fitter to the head of a boats rudder post and used for steering

Weather Deck: on Unicorn, another name for the Upper Deck (open to the elements when at sea)