S.O.S.

News from the
Friends of the Newport Ship

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Free to FoNS Members

CHAIRMAN'S INTRODUCTION

Having now completed my first year as Chair of the Friends of the Newport Ship I feel an overwhelming pride in our Ship and everyone who works to support it in so many ways, and respect for such a large and impressive project. When I took over as Chair, I thought I knew the Newport Ship and everything that went on, but I now realise how little I understood.

It is sometimes easy for us to forget just how remarkable our Ship is as an historical artefact and how impressive past and current activities have been in terms of archaeological research.

We received two more shipments of dried timbers this year; we now have over 70% of the timbers conserved and freeze dried and ready for reassembly. We have recently negotiated new arrangements with colleagues at the Mary Rose to use their freeze-drying capacity to accelerate the programme with the aim of having all the timbers returned by the end of next year.

I am proud too of how much we have achieved in the past year. Thanks to Huw Gulliver, we have a refreshed website to which we are adding new features every week. We have a new Newsletter editor in Alison Smith and we expect to publish more frequently and with more content over the coming year. Sian King has assembled and catalogued an impressive reference library on maritime and local history themes, containing some of the key nautical archaeological books and publications. Dr Eric Nordgren has been working with us to conserve the iron artefacts and we are seeing the benefits of his ground-breaking work in iron conservation. I hope the next newsletter will include an article on his activities.

Our hosting of the Nautical Archaeological Society conference last November was a huge success, thanks to Phil Cox and others and a wonderful opportunity to showcase the project to an international audience. Toby Jones, our curator, has presented at conferences in Turkey and Croatia. We have since hosted training courses for Turkish, Chinese and Ukrainian students, and a couple of very popular and successful courses on intertidal archaeology with Prof Martin Bell and our colleagues on the Living Levels project.

In this edition:

- Nautical terms and facts
- Fons Project Report
- Library update
- Putting Humpty together again
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- Pilotage and the Newport Ship

Refreshing the Ship Centre layout has given us a more open and uncluttered environment thanks to a second storey added to the sales Cabin. Our initiative to promote visits by Gwent Scouts and Guide packs has proved remarkably popular and boosted visitor numbers significantly. Our programme of talks to outside bodies is also becoming increasingly popular and we are always on the lookout for volunteers to go out and talk about our project. We have attended a wide range of outside events across the UK, thanks to Rob Kenny and others.

Finally a plug for what I refer to as “the other Newport Ships”. We should not forget that in addition to the only large 15th century trading vessel yet found, Newport is also home to several other world class maritime archaeology finds. These include the Bronze age Goldcliff boat, a plank from which is on display at the Ship Centre; the Barlands Farm boat, a nearly complete 4th century Romano-Celtic vessel which is stored at the Ship Centre and will be the subject of displays and a new diorama late this year; and the Magor Pill boat, a 14m long 13th Century trading vessel. In our campaign to get the Newport Ship reassembled and displayed, we should not forget these smaller vessels and make sure that they too, have a place in our new premises. Expect them to feature more prominently in our programme over the coming year.

Finally, thanks to you all, Committee members, volunteers, members, speakers and others, for freely giving your time and talents to man the Ship Centre and offer visitors an interesting, exciting and uplifting experience. We couldn’t do it without you!

Bob Evans

Chairman, FoNS

NAUTICAL TERMS

Above board
On or above the deck, in plain view, not hiding anything. Pirates would hide their crews below decks, thereby creating the false impression that an encounter with another ship was a casual matter of chance.

Ahoy
A cry to draw attention and a term used to hail a boat or a ship, as "boat ahoy". It is the custom in the Royal Navy for a boat to avoid crossing close ahead of any boat which is carrying an important personage or a senior officer, even if the former boat has the right of way by the more general 'Rules of the Road'. The reply to such hails to boats depends upon who is in the boat:

A Royal personage or Head of State: **'Standard'**

An officer of Flag rank or Commodore: **'Flag'**

A Chief of Staff: **'Staff' and the name of the flagship to which attached**

Commanding Officer of a Ship: **name of the Ship he commands**

Other officers: **'Aye Aye'**

The duty officer of the Guard (on patrol): **'Guard'**

All other persons: **'No no'**

FONS PROJECT REPORT

Dr. Toby Jones, Curator, Newport Medieval Ship Project

Dear FoNS Members,

Over the past year our efforts have largely been focussed on the continued freeze-drying of the ship timbers, along with research into innovative cradle designs and the treatment of the iron artefacts. In March 2019 we collected a large load of dried timbers from York Archaeological Trust and we are expecting to travel up north again in the not too distant future to bring home another load.

The iron artefact conservation project is progressing well, with all of the iron artefacts now nearing the end of their chemical treatment. A higher than expected level of chlorides is being removed, highlighting the need for this remedial conservation treatment. Once this is completed, the iron artefacts will be more stable and we can make plans for their eventual display.

Our external Expert Panel met again in April 2019 and this was (according to my records) at least the fifteenth time they have met in order to review progress and comment on future plans. These meetings are important in that they allow us to communicate progress and challenges directly to key people across government and academia.

As you may remember, the ship project was involved in a successful application to the British Academy for a grant to facilitate the training of Turkish nautical archaeologists in the digital documentation of ship timbers. We have been involved in providing training in the use of the FaroArm, Laser Scanner and Rhinoceros CAD software as well as sharing our digital modelling methods and 3D printing procedures. The first training session occurred in Newport in September 2018, followed by a trip to Istanbul in March. The Turkish researchers are headed back to the ship centre for a week in September, followed by a final trip for myself and Nigel Nayling down to Istanbul in March 2020.

In other 'foreign' news, I am headed to Croatia in late October to give a presentation about the ship project at the CRUA (Conservation and restoration in underwater archaeology: experiences, methods and new discoveries) meeting. You can find more information here: http://crua2019.icua.hr/

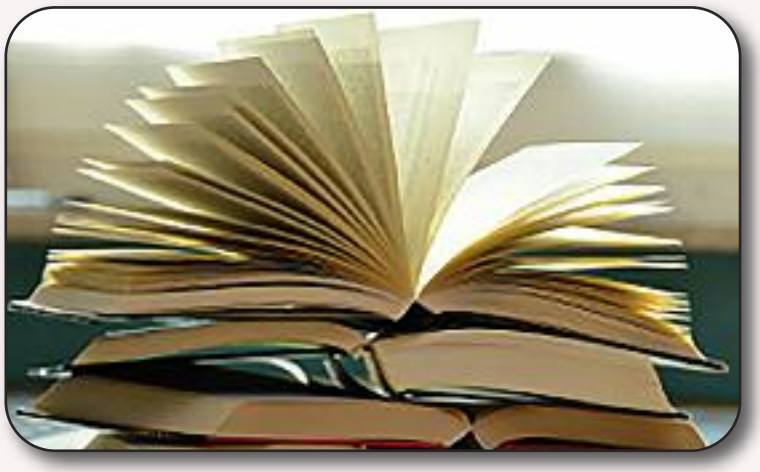
On a practical note, some of you will be pleased to know that the roller shutter door at the ship centre, near the FoNS cabin, will shortly be replaced with a new electrically powered one!

We are also set to receive another donation of maritime books from the Brunel Institute/SS Great Britain Trust in Bristol. Our library continues to grow and special thanks are due to Sian King for all her work in cataloguing the collections and making them accessible and organised!

Thank you all for your continued support of the project!

THE SHIP CENTRE LIBRARY

Sian King



The library at the Ship Centre is growing and developing and we are now pleased to be able to house the books and journals on smart metal shelving units which are both flexible and mobile. The number of items in the collection has recently been augmented by the acquisition of books and journals donated to us from the library of the Brunel Institute/SS Great Britain Trust in Bristol. We are also delighted that FoNS is allocating a small annual budget in order for us to buy new relevant material.

Thanks to our website manager, we have a page on the FONS website which gives full information regarding subjects covered, availability etc., so do have a look at https://www.newportship.org/archaeology-conservation/our-library from where you can also search the online catalogue, currently comprising 740 titles. At the present time, the library is 'reference only', so you can consult anything of interest when you visit the Ship Centre.

PUTTING HUMPTY TOGETHER AGAIN

Bob Evans

We have had many discussions about reassembling and displaying the Newport Ship but to date most of these have been focused on finding a suitable location. In this article I have addressed some of the additional challenges we face, including a host of technical and other issues.

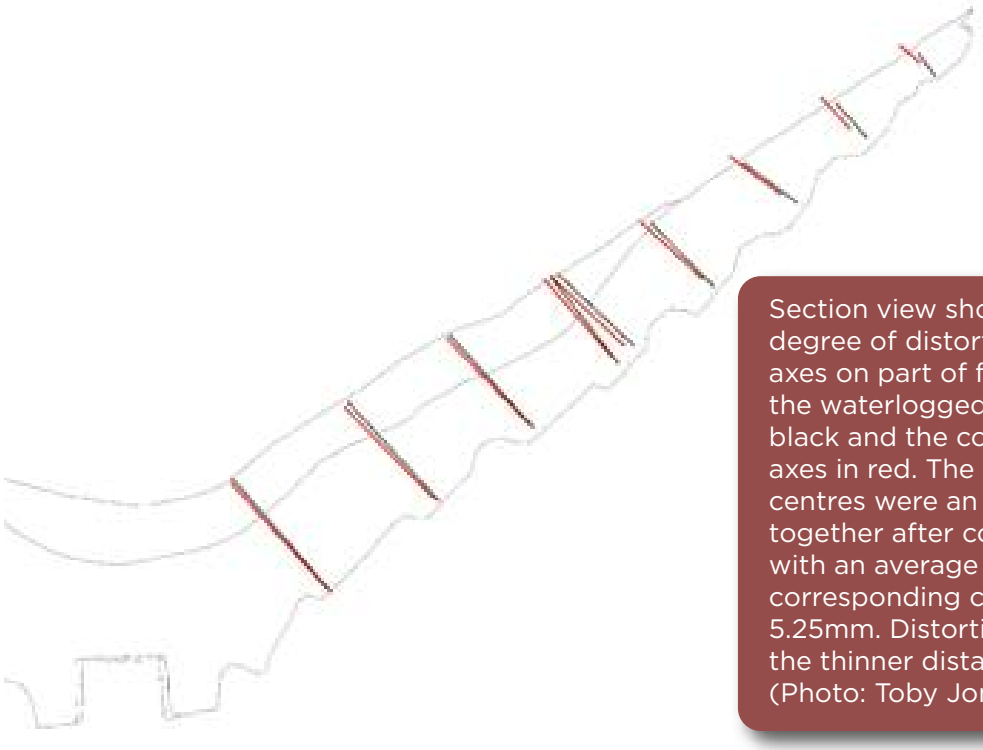
The Timbers themselves

We have 1,700 timbers which are part of the Ship structure itself, plus several hundred which were not found in an installed position but probably formed part of the complete hull. We have 373 distinct planks, not all in one piece, and 63 frames, each of which comprise a floor timber and up to four surviving futtocks. There are also 25 stringers (in 124 pieces) and four stem riders, not to mention the larger single timbers forming the keel, keelson, and knees. In their waterlogged state the timber weighed around 25 tons. In a dried state we estimate this has reduced to around 18 tons but this is still a very large mass to be assembled and supported.

As we know from the original salvage operation, the timbers fitted together to the very small tolerances required to produce a watertight hull. Some of the deck beams, for example, have dovetails which were cut to a tolerance of 1/16 inch. The design of the ship transfers loads and stresses very efficiently across the whole structure. But some 60% of the hull is missing and the remaining timbers are no longer capable of supporting their own weight out of water.

The timbers have experienced some damage during their 600 years in the Usk. Other damage was inflicted as a result of the construction work which uncovered them and a small amount through sampling, dendrochronological analysis and handling. Furthermore, these timbers have been through an exhaustive cleaning and conservation process, including up to eight years immersed in polyethylene glycol (PEG) solution, up to six months in a freeze-drying chamber and several years' storage in the timber stores. A major concern therefore is the extent to which conservation has caused shrinkage or warping in the timbers and whether they can be put together again in their original position.

The good news is that we have sampled some of the timber which has completed the conservation process and this has revealed that the distortion is very small indeed. A comparison of hull plank dimensions before and after conservation shows a relatively consistent shrinkage of less than 0.1% in length and an average of 3% radially and 8% tangentially. This is a better result than might be achieved with newly cut oak, which typically shrinks by between 5% and 11%.



Section view showing the location and degree of distortion of selected treenail axes on part of floor timber F50_0, with the waterlogged timber treenail axes in black and the conserved timber treenail axes in red. The corresponding treenail centres were an average of 5.85% closer together after conservation treatment, with an average distance between corresponding centres being decreased by 5.25mm. Distortion was greater towards the thinner distal ends of the timbers. (Photo: Toby Jones).

Our trial assembly of the first nine hull strakes above the keel has shown that nail hole alignment is remarkably consistent and the planks can be reassembled using inert fibre reinforced polymer (FRP) threaded fittings using the original holes. This is very encouraging, but we have yet to test assembly of the framing timbers where more distortion is to be expected. And shrinkage of just 3% will mean that the height of the starboard sheerstrake will be 10″ to 12″ lower than it was on the original vessel.

Although distortion of the timbers is minimal and the shrinkage is less than we feared, it is likely that we will need to reassemble the Ship in separate layers: an outer layer of strakes and hull fittings; and inner layer of framing and structural timbers, and between them a supporting frame or cradle.

Our timbers are in a remarkable state of preservation, but we do not know just how strong they are and how much load they can take before they distort and break. Destructive testing of a few sample planks may be necessary, but one of our new volunteers has suggested an alternative approach based on chemical analysis of the wood itself. We are exploring this avenue which may provide a better and less wasteful means of determining structural integrity.

A Building Plan

The excavation and conservation of the Newport Ship has become, even 17 years later, a model in terms of its data recording and documentation, setting new standards for future archaeology projects. We have a vast amount of data, not just about virtually every timber and artefact but of the context in which they were found and their function in the structure of the vessel. Now we have to bring together not just the timbers themselves, but all the information as well. For each plank, we need to know its history, changes in size and shape as a result of conservation, pictures of how it looked before and after it was excavated, its position in the vessel, its fastenings, if any, any markings on both surfaces, any finds associated with it and our research on its function and design.

A single plank could have up to 50 pages of A4 information associated with it. That is a mammoth task. Our total data set is of the order of 154 gigabytes, which is something like ten times the size of your local lending library! How do we organise it and make it available to the person who is fitting that piece into the reassembled hull?

Restoration of an historical building presents similar problems and architects today will create a Building Information Model (BIM) to pull all the relevant data together. We intend to create a similar piece of software for the Ship. We are currently talking to several Universities and shipbuilding schools to see whether there are any existing applications which might be suitable. But like so much we do, this is likely to be a world first and we will need specialist expertise (and funding) to help us.

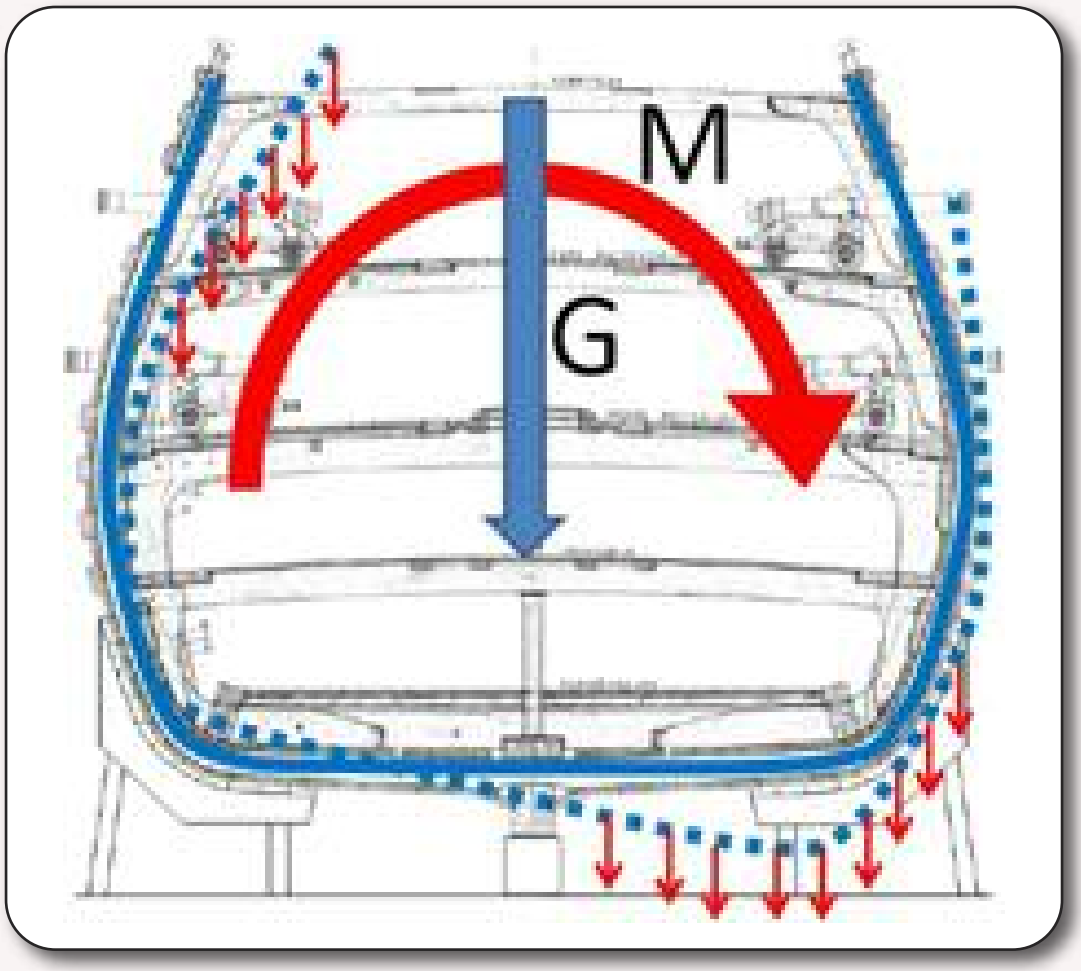
A Cradle

Our surviving timbers weigh 18 tons and although the wood is remarkably strong it cannot support its own weight and would not have done so when it was new. The Ship's weight is borne by the sea: take it out of water and it will start to deform and sag.

Look at the scaffolding support required just to support our own reconstruction of just nine planks (right) and multiply that by the size of the whole hull and you will get some idea of the scale involved.

The illustration of the Vasa, below right, is a compelling illustration of the problem which is faced by all the large ship exhibits around the globe. The Vasa is a complete hull and is supported by a carefully designed cradle, but even here the whole hull is rotating and sagging.

The Mary Rose, in its original lifting frame still needs additional scaffolding and baulks of timber to support it. For some vessels, such as our friends at the Bremen Cog, it has become a major threat which has led to the ship being encased in steel and concrete to prevent further deformation.



Designing a cradle to support our Ship is a challenging technical project. The shape of a ship hull has a complex geometry with few straight lines and demands an elaborate structure to support the hull at all points. Loading must be transferred from the wooden timbers to a hidden cradle so that it does not distort or collapse under the weight. The Ship is huge and a cradle required to support it would be equally massive - say 30-40 tonnes of steel and timber. That in turn will need structural support. Small wonder that several ancient vessels can only be viewed through a forest of steel stanchions!

Several years ago, Toby Jones started a project to review the technology used in other ship projects. At the same time Swansea University launched a research programme to estimate the support required and to design a suitable cradle for our own Ship. Some of you will remember the very impressive presentation

given in 2017 by Elena Stein based on her post graduate research project which calculated the loadings required for a cradle design. Some of the loadings tax the limits of conventional steel or composite materials.

Given the weight of a steel cradle, research is focusing on the use of fibre reinforced plastics, though this presents different challenges. FRP has only been around for fifty years and how it will perform a hundred years in the future is uncertain.

An important lesson from other Ship exhibits is that the supporting cradle is not just a matter of engineering; the aesthetics, that is the appearance, is equally important. We want visitors to see the Ship in as realistic a setting as possible and to understand the concept of a large 15th century vessel. Swansea University are therefore designing a cradle which can fit between the framing timbers so that to all intents and purposes it will be invisible to an outside observer.

Which Ship are we reassembling?

The sheer size of the remains and the astonishing state of preservation of the Newport Ship sometimes leads us to forget that we have only about 40% of the hull and nothing of the superstructure or rigging of our vessel. We have several representations of how it might have looked, thanks to Pat Tanner, David Jordan, Peter Power and others. All of them are slightly different. When we come to reassemble the Ship, which one are we building?

We could reassemble the Ship as she was found and surveyed before being recovered. The hull was splayed out from its true lines by the weight of overburden and there was a 6.8 - 8.4 degree twist to starboard which can be seen in the 1/10 scale model. This would not give visitors an impression of how the ship looked in its heyday, but this is in some ways the most honest option as there is no judgement involved.

A more straightforward approach would be simply to reassemble the conserved and dried timbers we have and allow them to determine the shape of the hull. But given they have altered in the conservation process, judgement will be needed to bring them together into a coherent hull form which will be guided, but not determined, by how they were found. We do not yet know how the dried timbers will go together and we have plans to produce a second scale model so that we can practice reassembling the Ship before we start fixing the actual timbers.

In practice, the timbers themselves are not going to determine the hull form and it is the design of the cradle supporting the timbers which will determine how they go together. The final shape is not completely independent of the timber shape and the need to align the nail holes will be a major guide to how they go together. But there remains wide latitude in exactly how they are fitted together. We will have to reassemble the Ship according to a preset plan, which will be determined by our view of how the Ship would have looked. And that will require judgement and difficult decisions on the most likely layout to follow. We face the ever present danger of allowing our own views and opinions to determine the end result, just like the diplodocus skeleton in the National History Museum which was initially put together incorrectly because of imperfect understanding of how dinosaurs lived and moved. It is worth us spending time thinking this through beforehand because once we have put our Ship together it would be a tremendous amount of work to take it apart again!

Conclusion

I hope this brief article will give members a sense of just how big a project we are embarked upon and how much work is required before we can begin reassembly. Add to this all the issues of building design, its layout, display of the artefacts and everything else involved in launching a new attraction and you get some feel for the scale of our challenge.

No one has done anything quite like this before, though there are several large ship displays around the world that have some experience and we are eager to learn from them. We will need expertise from across the world to accomplish it successfully. When we succeed, it will be yet another first for Newport!

GUNS AT SEA:
WHY ARTILLERY DID NOT DOMINATE NAVAL WARFARE

Jonathan Davies

'The cannons have their bowels full of wrath,
And ready mounted are they to spit forth
Their iron indignation 'gainst your [wooden]walls'.
King John Act II, scene 1

I was chatting with one of the Friends at the Newport Ship display at the Tewkesbury Medieval Fair a few weeks ago and the question arose as to why, since gunpowder was responsible for a military revolution, artillery did not come to dominate naval warfare? But this may be a questionable premise. Artillery made war on land more expensive and added to the logistical difficulties faced by commanders. It certainly added to the horrors of war but fundamentally did not really alter it. The same I think is true of the part it played at sea.

The first reference to gunpowder weapons fitted to a ship is surprisingly early in their history, some eleven years after their first pictorial appearance in the Milemete manuscript (1326). The All Hallow's Cog was refitted in 1337/8 with 'a certain iron instrument for firing quarrels (gun arrows) and lead pellets, with powder, for the defence of the ship'. However, the first occasion when a ship was actually sunk by gunfire was at Zonchio in 1499; the vessel was Venetian but notably three other Turkish vessels sank themselves when their gunpowder magazines exploded!

It might appear surprising that the first 'success' of guns at sea was so late in their history, over a century and a half after their introduction but there is a reasonably straightforward explanation that relates to both the tactics and technology of the time.

Sea battles were rare events; more commonly ships were used for the transport of men and equipment, to relieve a blockade or take part in commerce raiding.

A merchant ship could become a pirate or a privateering vessel more or less at the whim of its captain. This could have happened to the Newport ship which probably mounted cannon for the five gunstones that were found aboard. Warships were merchant vessels fitted out for war, although there were royal ships built as much for display as conflict.

Sea battles might begin with a barrage of missiles, using cannons, bows and darts thrown from the crow's nest, but the vessels were then set alongside each other, anchors dropped and a melee would ensue. Ships were valuable items - one of the most complex and expensive machines produced in the medieval period. The purpose of naval warfare was to capture an opponent's ships, and this could only be achieved by boarding their vessels or by out-manoeuvring them to such an extent as to force them to surrender.
Sluys 1340 is perhaps the best known of medieval sea battles. The French had more than 200 ships which were chained together with the largest vessels in the centre. The ships on both sides were well fortified and Froissart records 'that they looked like a row of castles'. The English fleet was smaller but chose to manoeuvre, picking off French ships by combining the firepower of archers who would clear enemy decks with the offensive power of their men-at-arms who boarded them. Although the battle is well recorded there is no reference to artillery playing a role. Aggressive leadership, competent seamanship and the power of the longbow seem to have won the day.

Susan Rose in *Medieval Naval Warfare* considers that "Although cannon were undoubtedly carried on ships it is hard to find any action where their presence made a definite contribution to the outcome". In the major engagement outside Harfleur in 1416, when the French blockade was broken, cannon appear to have played no part worth mentioning, although Henry V's the Holy Ghost (provided as she was with seven guns) was present. In this action she lost her boarding grapnel and chain, buoy ropes and anchor, indicating that during the action she was moored and alongside an enemy vessel.

Susan Rose has found only one reference to the use of guns at sea and that is in 1449 when a small English squadron led by Robert Wenyngton came across a hundred strong Hanseatic convoy carrying salt from the

Bay of Biscay. The English ships were fired upon with guns and crossbows and suffered serious casualties, but by aggressive manoeuvring the English ships forced their numerically superior enemy to surrender.

By the end of the fifteenth century there was certainly a significant increase in the number, if not size, of guns mounted aboard ship. The *Grace Dieu* built in the 1430s had, by 1485, an armament of twenty one guns.

The *Edward Howard* of 1479, a three-master and probably a carrack, was equipped with fifteen guns. Perhaps more significantly and indicative of the tactics to be employed at the time, the old *Grace Dieu* was also armed with a hundred and forty bows, eight hundred and ten sheaves of arrows, one hundred and forty bills and numerous axes, crossbows etc. As in the previous century, the battle she was designed to fight was aimed at capturing an opponent, not smashing and sinking it.

If greater numbers of larger guns were to be mounted without adversely affecting stability they would have to be placed below the weather deck. To do this, gunports would need to be cut in the hull and fitted with tight fitting lids. In Northern European and Northern Iberian waters, ships were clinker built. The strength of the clinker-built ship was found in its overlapping planking, not in the ribs or framing found inside the hull (known as carvel construction). If ports were cut into the clinker planking they would seriously affect the structural integrity of the whole vessel. Without gunports in lower decks there could be no increase in the number of heavy guns.

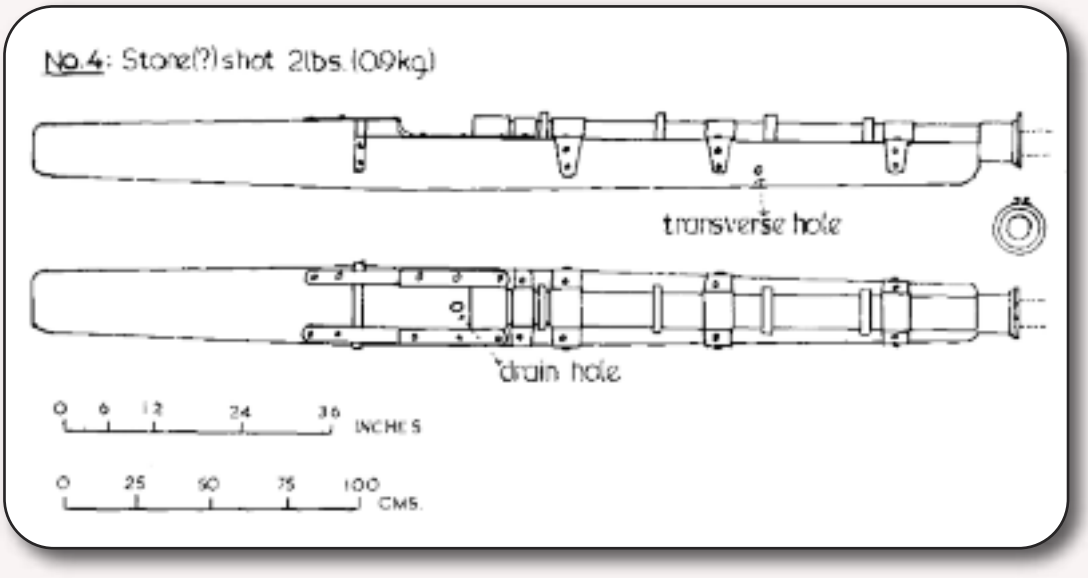
At this time carvel construction was beyond the capacity of contemporary English shipwrights. Henry V initially captured carracks of carvel construction, and had to spend £2500 in the maintenance of two of these vessels, employing Venetian and Catalan craftsmen “for in this country we shall find few people who know how to renew and amend the same carracks”.

There are at least three additional reasons for not wishing to use guns at sea. Firstly large guns had to be mounted on heavy elm beds which would take up valuable space. A medieval Danish example of a gun which would have shot a 6inch gunstone would have required a bed or mount of over twelve feet long. Secondly the carriage of gunpowder posed a terrible risk in the limited space aboard a ship: sailors feared fire above all else, for obvious reasons. Thirdly the hygroscopic nature of gunpowder made it difficult to keep it on board in good condition, since ships can be very wet places!

An attraction of the commonly used separate breech system was that it could be kept loaded and ‘sealed’ ready for use.

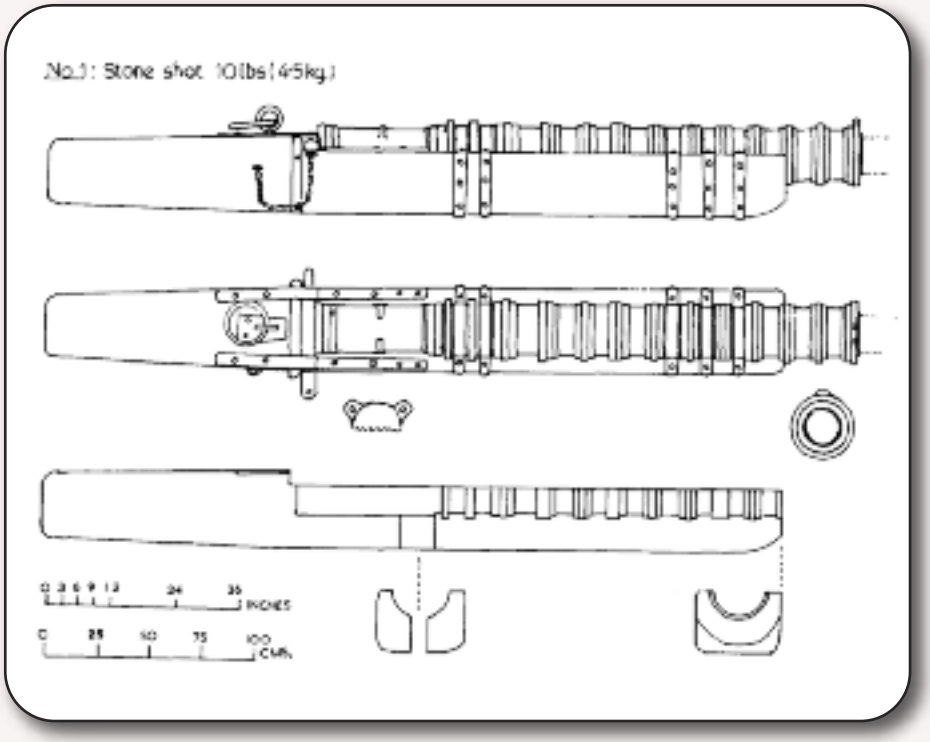
Guns were certainly successfully used at sea and would, in the sixteenth century, become the principal weapon of a ship: the Mary Rose is a fine example of such a vessel. Even then the purpose was to capture an enemy not sink him, which would have been a difficult and unpopular ‘achievement’. As on land gunpowder weapons did not fundamentally alter sea warfare but rather were integrated into existing patterns of engagement.

A number of early guns were found in a wreck off the North-west coast of Anholt (Denmark)in 1847. The wreck was dated to the mid or late fifteenth century. The gun (pictured) is approximately 3.9m (12’10”) in length overall, with a muzzle bore diameter of 15-17cms (6-7”) and occupying a maximum width across the deck of 42cm (16.5 inches).



The gun is made in hoop and stave form from wrought iron, with a separate chamber weighing over 136 kgs (300lbs). The size of the gun and the weight of the chamber would have made it a difficult gun to aim and re-load and an inconvenience to anyone working on the weather deck. The Danish word to describe such a gun was Skaermbraekker or Bulwark-smasher, which would describe its effect on the hull but it was still not a ship-killer. The chamber was found to be still loaded when discovered. This supports the contention that the chambers were kept loaded in readiness for action. The powder would be kept dry in the chamber, sealed with a wooden tompion (wooden plug) at one end (also found) and possibly with wax or tallow plugging the touch hole.

The much smaller gun, shown here, was also found on the Anholt wreck. Probably mounted on a swivel fitted to the gunwale, the barrel was made of a single sheet of iron worked around a mandrel and then reinforced with iron rings shrunk over it. In Denmark such a gun was referred to as a slange or snake. In England this probably corresponded to the term serpentine, which was applied to such swivel pieces.



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FIRING CURIOSITY: BJORN LANDSTROM

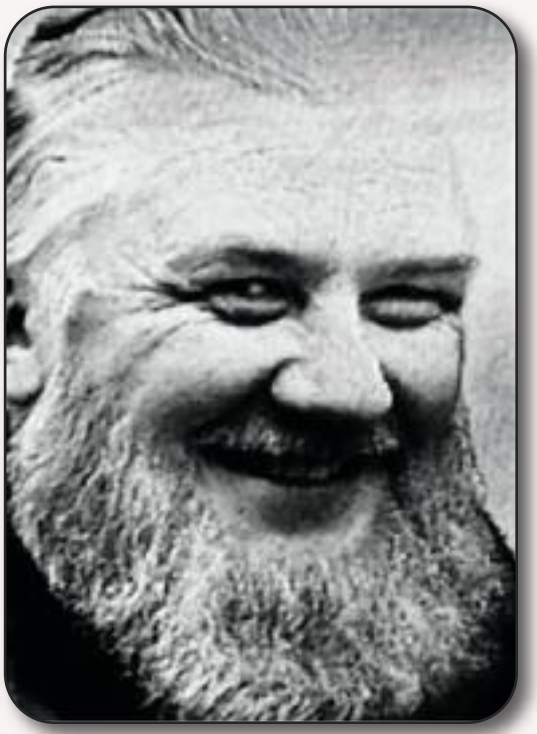
Theatre director, writer, playwright, boat builder, artist, yachtsman and marine historian

Jeff Brooks

Over the last sixty years there has been an increasing interest in accurately recreating the appearance of ancient vessels. Sometimes this can be relatively easy if it involves resources such as the famous collection of pre-construction 'Admiralty models' held in London. In the absence of such a fortuitous resource technical illustrators have to consider the probabilities of specific details very carefully.

One approach was that taken by Bjorn Landstrom who, in mid-career elsewhere, became involved from the mid-1950s in maritime history and the visualisation of such craft.

Born In 1917 in Kuopio during Finland's War of Independence, Landstrom's family moved to Helsinki after the war ended in 1918 and it was here that he lived until 1937 when he moved to Stockholm. There he enrolled as a student in the city's commercial art school to train as a commercial and technical artist.



Bjorn Landstrom, undated, but probably from the early 1970s.

Landstrom had already acquired considerable experience as a sailor along the southern coasts of Finland and into the archipelago of Aland. Although there seems to be no surviving records of the event, while studying in Stockholm he won his first sailing race.

The outbreak of The Winter War (November 1939 – March 1940) against the Soviet Union saw Bjorn Landstrom return home and enrol in the Finnish Army. Peace was agreed in March 1940, but Landstrom remained in Finland and made his first set design for the Swedish Theatre in Turku. When The Continuation War (June 1941 – October 1944) broke out, he abandoned set design and became a war correspondent and military artist with the Finnish forces fighting in Karelia. In 1943 he was wounded and, while recovering, began to paint - well enough to have an exhibition in the Salon Strindberg in Helsinki in 1944.

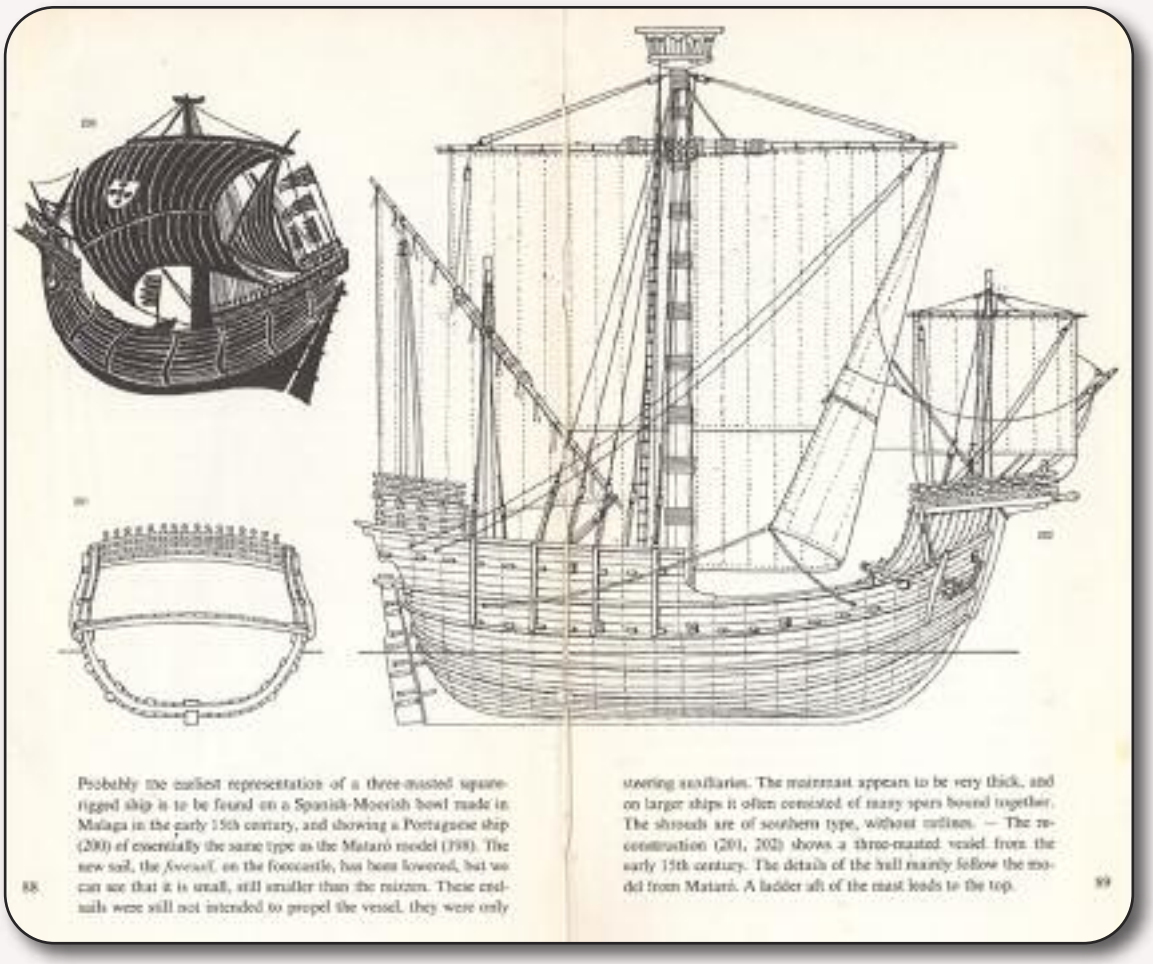
Over the next decade Bjorn Landstrom was involved in various enterprises, one of which was a novel, published in 1953, based on the accounts of the voyage around the world of Ferdinand Magellan's fleet of five ships in the early sixteenth century. He also planned to write a book about St. Brendan's supposed voyage across the Atlantic in the 6th Century, but this was not accomplished.

His publishing breakthrough came in 1961 with the appearance of The Ship, an illustrated History. It was translated into thirteen languages. In 1967 a condensed version, Sailing Ships, was published to equal acclaim and it was this book that sparked my interest in the detail of sail driven ships through the ages.

Commenting on The Ship, Landstrom remarked that he drew his illustrations as if the ships were not real but were models; perfect in detail but with no intention of conveying the reality of the sea. What the drawings do show clearly is the slow but steady development of vessels to cope with the physical environment of rivers, coastlines and climate in which they operated.

The drawing reproduced here is typical of Landstrom's technique.

He uses two sources; a ship painted on a Spanish - Moorish bowl (shown here) and further details taken from the famous Mataro model displayed at the Maritime Museum in Rotterdam. Landstrom carefully noted the key features on each source and then extrapolated them onto a realistically proportioned and detailed side elevation to produce an image of a Portuguese ship from the early 15th Century. It is worth noting that a model of the Mataro Votive Ship is on display at the Ship Centre and that the ship painted on the bowl is depicted on pendants sold at the Centre, cut from Portuguese escudo coins.



Probably the earliest representation of a three-masted square-rigged ship is to be found on a Spanish-Moorish bowl made in Malaga in the early 15th century, and showing a Portuguese ship (200) of essentially the same type as the Mataró model (198). The new sail, the *foresail*, on the forecastle, has been lowered, but we can see that it is small, still smaller than the mizzen. These sail-sails were still not intended to propel the vessel, they were only steering auxiliaries. The mainmast appears to be very thick, and on larger ships it often consisted of many spars bound together. The shrouds are of southern type, without outlines. — The reconstruction (201, 202) shows a three-masted vessel from the early 15th century. The details of the hull mainly follow the model from Mataró. A ladder aft of the mast leads to the top.

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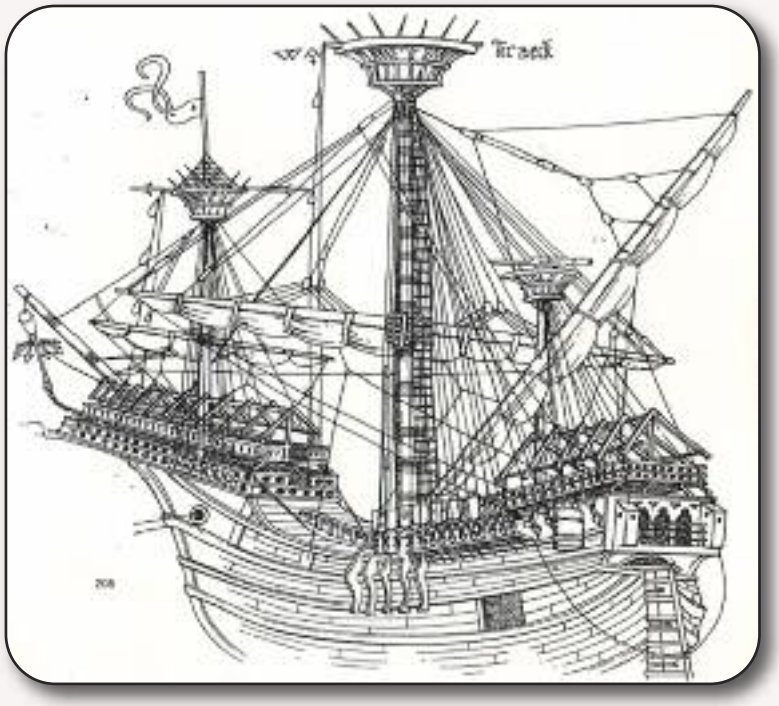


The vessel appears very similar to the Medieval Newport Ship but, as with the Mataro model, has a rounded stern onto which is fitted a centre-line rudder.

The ship also appears to have a carvel hull (plank strakes butted edge-to-edge and nailed to the frames) rather than the clinker hull (plank strakes overlapped and nailed together with frames then attached) as in our ship.

Landstrom's drawing depicts a vessel without any ports cut into the hull; although this would have been possible on a carvel hull. Similarly there is no sign of armament, but small rail mounted guns might not have been included on the bowl illustration and are definitely absent on the Mataro ship model.

Another useful technique used by Bjorn Landstrom was the re-drawing of originals so as to emphasise their basic lines, thus making them easier to initially understand.

The drawing above shows how this approach was used to highlight important points of a 'Kraek'; the Flemish form of 'Carrack'.

This ship has an enhanced sailing rig, is armed with guns on the stern deck and even has two 'heads' (toilets) mounted alongside the stern walk above the rudder and a swivel gun mounted on the top of the mizzen mast. The original drawing was done possibly as a generic illustration of what a large carrack from the 1470s actually looked like.

We are on firmer ground with Landstrom's superb drawing of the *Henri Grace a Dieu* (below).

This image is both stylised and detailed and shows the ship as she is described arriving in France for Henry VIII's meeting with Francis Ist in 1529.

In later life Bjorn Landstrom became involved with the imaging of the Vasa at the Vasavarvet in Stockholm; the predecessor of the Vasamuseet that houses the great Swedish warship today. He also gave Thor Heyerdahl advice in the late 1960's on the possible design of the papyrus boat Ra1.

During the 1980's Landstrom returned to illustrating books of Nordic literature. His last book was Kalevala; his rendering of the great national epic of Finland. There are now many writers on the subject of ancient ships and boats, but I always return to Landstrom's ideas and drawings. Although neither The Ship nor Sailing Ships are currently in print, good quality used copies can be found quite easily on the Internet.

I was quite sure that when the Medieval Newport Ship was discovered Bjorn Landstrom would want to know so I wrote to him via the Finnish Embassy in London. Months went by until, in February 2003, I received an email from his son, a children's author living in Norway. Bjorn Landstrom had died on January 7th. 2002 – barely six months before our ship was discovered.

Copyright note. We have been unable to identify the current copyright holder of these drawings, (from 'Sailing Ships' published by George Allen and Unwin in 1969), but would welcome contact from such a person or institution.

PILOTAGE AND THE NEWPORT SHIP

Robert T Parfitt

Archival and documentary evidence suggests that before the end of 1469 the Newport Ship had been settled on timber supports in a pill near Newport's medieval bridge. It is unclear whether the merchantman was making a run for safe haven, perhaps to undertake repairs, or whether Newport was the destination for its cargo.

At that time there was no formal organised system of pilotage in place along the Severn and it was not until 1671 that John Seller published 'The English Pilot' which included the first navigation map of the Bristol Channel. So how did the master of the Newport ship find safe passage, perhaps in poor weather conditions, from the English Channel into the Severn and from there through treacherous waters to the comparative safety of the River Usk?

In Roman times Bristol did not exist; a traveller could walk from the Roman port of Sea Mills, where the River Trym enters the Avon, directly to the recreational centre of Bath without interruption. Bricgstowe first appears in the Anglo Saxon Chronicles of 1063 as a small trading settlement growing on a mound between the Rivers Avon and Frome. However by the 12th century Bristol had grown considerably, prompting Henry II to give Dublin, as a satellite trading port, to that thriving merchant centre.

By the 15th century, through a series of Royal Charters, Bristol effectively controlled 'international' trade on the Severn and in 1467 a 'Fellowship of Merchants', which evolved into 'The Society of Merchant Venturers', was created in Bristol. Bristol's rise to ascendancy over what had become known as 'the Bristol Channel' culminated in a 1572 Act of Elizabeth I in which she granted to the Bristol Corporation a monopoly of trade in the Severn thus endorsing the 15th century charters and disenfranchising other Severn ports. In 1611 the Bristol Corporation delegated responsibility for Severn pilotage to the Merchant Venturers of Bristol.

It was not until 1861, that several Severn ports, including Newport, Cardiff and Gloucester, petitioned Parliament and received Acts which permitted them to appoint pilots. So for 400 years, the only 'official' Severn pilots were Bristol pilots sailing out of Crockerne Pill in Somerset. However, there were numerous unofficial pilots based at other Severn ports who took business from the official pilots resulting in friction and conflict.

According to a plaque mounted at Crockerne Pill, the first pilot to be appointed by the Bristol's Mayor and Corporation was bargemaster James George Ray. In 1497, Ray's task was to lead John Cabot's small fleet from Bristol into open water on his way to the North West Passage.

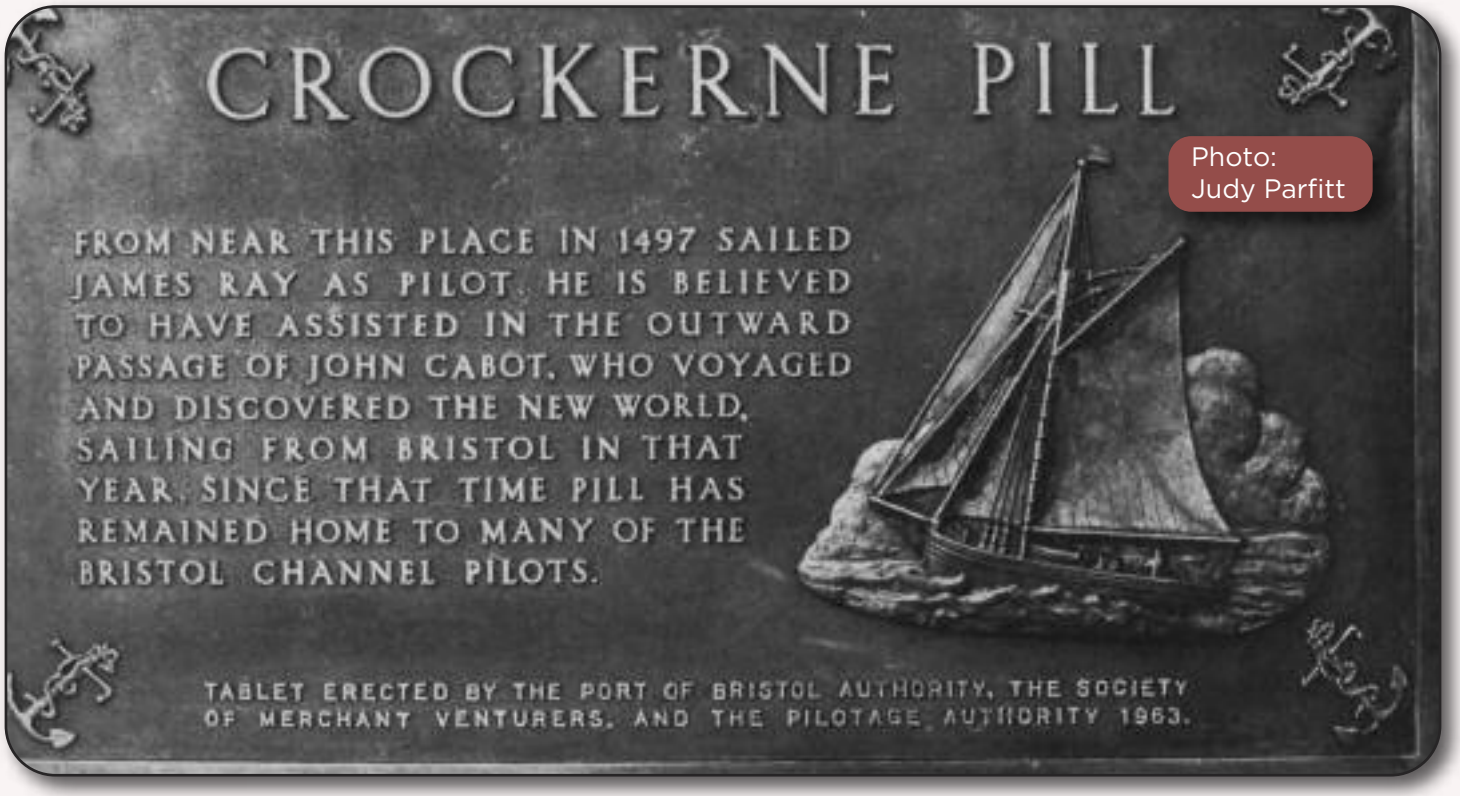
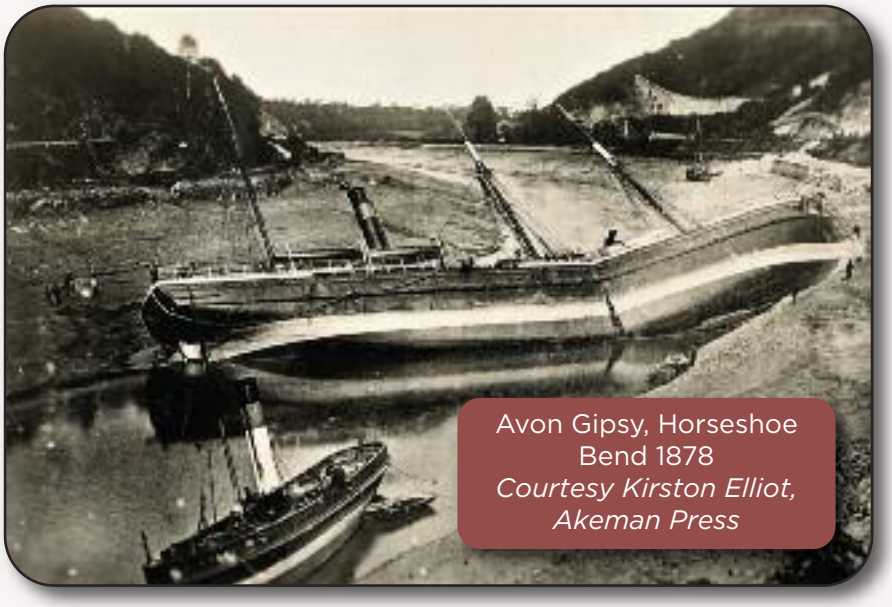


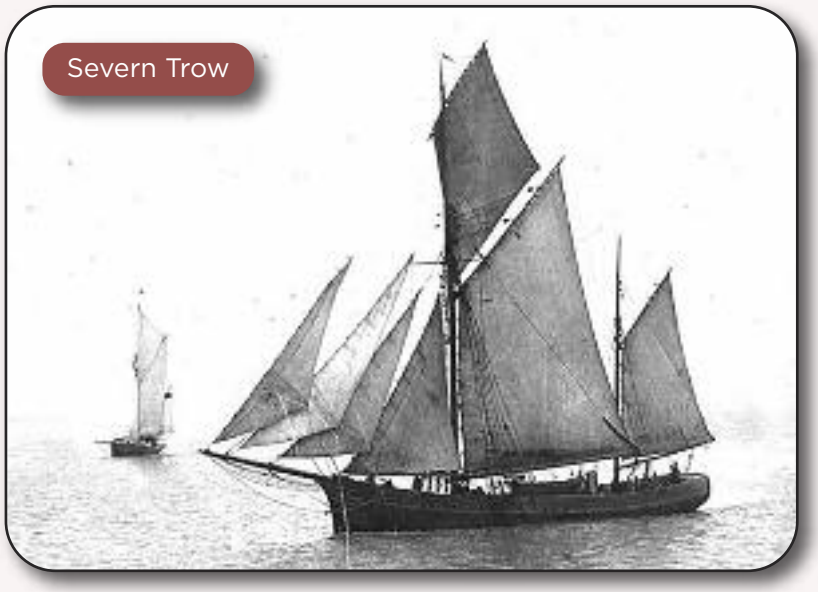
Photo: Judy Parfitt

Cabot would have sailed (or, more likely, was towed) past the mouth of the Usk just when the Newport Ship was sinking beneath river mud and rubbish in its pill graveyard. A Crockerne Pill anecdote also names bargemaster James Shepherd as the second 'official' Pill pilot to be appointed. Documentary evidence for these appointments has yet to be found. However, in Newfoundland there is a Cape Ray perhaps named by Cabot in remembrance of his pilot.



Avon Gipsy, Horseshoe Bend 1878
Courtesy Kirston Elliot, Akeman Press

For centuries before Cabot, traders arriving at the mouth of the River Severn soon realised that from Lundy Island to Bristol was a difficult stretch of water to negotiate. Although Lundy offered safe shelter to a ship's master, from there on he needed help. The tidal range in the Severn is one of the largest in the world (maximum 14.5 metres) with corresponding swift flowing currents and shifting sandbanks. Then, when a master reached the River Avon, he had to face the Shirehampton Horseshoe Bend.



Severn Trow

From before the Bronze Age extensive trade routes existed[1,2] across Europe; the major rivers were the 'motorways' of the day. Along the Severn and its tributaries a trading barge, the Severn Trow[3] had evolved from Bronze Age dug-out canoes (Anglo Saxon, trog) into two bowed vessels influenced by Viking construction; later a D-shaped stern was adopted. Trow bargemasters knew the secret of the Severn and had all the skills necessary to guide foreign ships into port safely. No doubt, over time, the guiding work proved more lucrative than transporting and trading goods. In this way, I suggest, bargemasters evolved to become pilots (Lodesmen, Lodesboatmen) and, because of the iterative 'design' process between 'pilot' and boat builder, the Trow evolved into speedy pilot cutters (skiffs/yawls).

Pilot skiffs, sailed on the Severn by my forebears for over 400 years, were highly specialised single-mast cutter rigged vessels which were among the fastest, most manoeuvrable, sailing boats around the coast of Britain. They had evolved to be fit-for-purpose. The skiff had to be sturdy enough to take the battering of violent Atlantic and Channel storms and fast enough to race other pilots (even those manned by their relatives) to prospective clients, sometimes well out into the Atlantic. However, that was not always the case; often a pilot would have a pre-arrangement to meet a client ship, usually off Lundy.

Skiff

[1] Cunliffe, B., Britain Begins, Oxford University Press, 2013
[2] Cunliffe, B, Facing the Ocean, Oxford University Press, 2004
[3] Farr, G., Mariner's Mirror, 1946, 32, 66-95. Severn Navigation & the Trow

Early pilots looked upon smuggling as a fringe benefit and their skiff had to be able to outrun any customs' vessel. For economy and comfort a skiff was capable of being sailed by a crew of two. The pilot did not usually sail the skiff himself, that task was left to a Westerman who could be another pilot or a professional skiff handler. Pilot numbers were strictly limited by the Merchant's society.

The second crew member was 'the boy' or apprentice who, as well as assisting in the sailing of the skiff had the additional task of rowing the pilot in a 'punt,' (carried on the stern of the skiff) to a point alongside the client vessel which enabled the pilot to jump for side-rigging and then board.

By their bond sailing pilots were also required to own other vessels e.g. hobbler boats (rowing boats), several of which could be used to tow large client vessels along the River Avon or Severn both outwards and inwards. Those boats were also used to tow a client vessel into (and out of) its berth where it was tied/untied by men still called 'hobblers'.

The technical manner in which sailing pilots on the Severn conducted their duties appears to hark back to the days when bargemasters and their Trows fulfilled the same functions e.g using the barge as a rowed tow boat whilst leading or towing a client to a safe berth and then hobbling it. If a tow path was available, the people of Pill, some with horses and summoned by the firing of a carronade, would rush to hand-tow the vessel along the Avon.

Merchantman towed by Hobblers, Pocock *Bristol Museum & Art Gallery*

Some items in an account rendered by my Pilot ancestor John Parfitt to the Master of the ship Camilla on November 18th, 1791 illustrates the level of hobbling required to take Camilla from Bristol along the Avon into the Severn:

To 7 Boats & 70 Men from Brist. To the Hole (Shirehampton)	**£4**	**0**	**6d**
To each Man in pints of ale		**8**	**9**
To 3 Boats & 30 Men Morang (sic) at the Hole	**1**	**14**	**6**
To 8 Boats & 78 Men from the Hole to Pill	**4**	**10**	**-**
To each Man a pint of ale		**9**	**9**
			etc.

At this distance and without evidence, how the Newport Ship arrived at its final birth has to be a matter of speculation. On entering the Severn Sea the vessel may have taken the shelter of Lundy Island. But any ship's master would have known that Lundy was also the place where bargemasters, during slack times, sought pilotage business. More than one Trow would have been needed to lead and tow, under oar power, a vessel of the Newport ship's size loaded with cargo, into port. In which case, one bargemaster would have boarded the ship in order to shout guidance instructions, from the prow, to the oarsmen. Once in the Usk and close to the entrance of the 'bridge pill' the ship would have been manoeuvred into a berth by local men and horses, a procedure well illustrated by the paintings of Anne Leaver and David Jordan[4].

[4]The Newport Medieval Ship, The Friends of the Newport, Newport, South Wales, 2017, pp9 & 33.

NAUTICAL FACTS

Sailors don't Swim

Not many sailors in the 15th century knew how to swim. It was believed if someone fell in to the water and survived, the sea gods would be deprived of a body and may punish the crew. If you learnt how to swim you were defying fate.

Many sailors chose not to learn to swim. Life boats as would be recognised today are a 19th century innovation. Most ships would carry a boat for unloading cargo, fetching water and so forth, but this was not really meant for emergencies and was not always stored in an easily accessible place. Sailing vessels in the 15th century don't turn quickly. In addition many captains, especially American ones, would not turn back for a man overboard!

Taking all of that into account, swimming would be regarded as a way of prolonging the agony. Why drag it out when you know the odds are stacked against you anyway? Sailors also tended to be pragmatic sorts: they knew that their career was dangerous and they accepted the risk when they signed on.

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NOTICE OF AGM

The Annual General Meeting of the Friends of Newport Ship will take place on Saturday 5th October 2019.

The meeting will start at 2.00pm with introductions and a guest speaker, followed by refreshments. Official AGM business will take place at 3.30pm.

Directions will be included with the agenda and associated papers.

Newport City Council
Cyngor Dinas Casnewydd