

How important was rope to antiquity?

The importance of hemp rope to ancient ships

Rope and cordage are essential to almost every aspect of ancient seafaring. The fundamental uses of rope on board a vessel are; anchorage, docking, rigging, cargo transit and hauling the boat out of water when not in use. The biggest difference between ancient and modern ships is the hypozoma, a bracing rope which enables warships to withstand the forces of the turbulent sea. All of these uses of rope on board will be studied in this chapter to show how essential rope was to seafaring in antiquity.

Lionel Casson puts it beautifully that ‘men of the ancient world... were loth to stray far from the sea. It was woven into the fabric of their lives, and among their great contributions to later ages was their mastering of this superbly useful but tricky and dangerous way of communication’.¹ The ancients’ use of water transport can be traced back 10,000 years,² and seafaring was probably being used before this, with deep sea fish bones such as tunny being found in Greek Neolithic sites.³ The use of sea travel was important to the ancients because it facilitated provision of adequate food supplies for cities such as Rome enabling them to grow beyond the surrounding capabilities of their land ‘its chief item, outstripping all others by a wide margin, was grain’.⁴ It enabled conquests and expansions around the Mediterranean without having to walk or ride for thousands of miles allowing empires to be built and broken. It encouraged the trade of luxury goods and metals to distant shores, allowed new skills and industry to spread and develop across countries, whilst enabling faster communication between different cultures and civilisations; amongst other

¹ Casson (1971), p. vii.

² Stieglitz (1984), p. 134.

³ Vinson (1990), p. 13.

⁴ Casson (1965), p. 31.

things. The epics of the time *The Odyssey* and *The Iliad* revolve around warfare and sea journeys, demonstrating how important to these people their ships and nautical skill was so that it became impregnated within their cultural identity.

The Egyptians like the Greeks used rope as an integral part of the build in their ships, but unlike the Greeks they used this rope to ‘ships the mortice and tenon joints were reinforced by cord lashings’.⁵This demonstrates that rope was used all over the Mediterranean as a vastly integral point of the ships structures, and without it the kinds of vessel that the ancients used for voyaging would have been undoubtedly impossible to make. It also demonstrates the variants in ways that rope use at sea had developed within different communities.

The first boats or rafts were made from bundles of logs or ‘rafts of reed bundles came into use’⁶ before structured hulls came into play, tied together using primitive rope made from hemp or leather pieces showing that rope has been important from the first aspect of travel over water. Hemp was the most common type of rope used on these early ships throughout antiquity and well into the following millennia, although flax is also frequently seen. Hemp rope was even found on the wreck of the Tudor ship the Mary Rose who sank around five hundred years ago,⁷ and is still being made commercially today. It is however now far more common to use a hemp blend or steel ropes because hemp can break because of its ability to hold water. This is due to the capillary effect of the fibre, keeping it wet on the inside when dry on the outside and causing the rope to rot resulting in breakages.⁸ This would mean that the ancients had to keep replacing their rope on board and require them to keep spare lines on deck. In antiquity the standing rope (rope that does not move i.e. hypozoma)

⁵ De Souza (1999), p. 165.

⁶ Casson (1971), p. 4.

⁷ www.maryrose.org [last accessed 17/04/2013]

⁸ Schubert (2009).

would be coated in tar or pitch to help protect from water damage, as would the hull of many ships.⁹

The hypozoma is a bracing rope structurally important to ancient warships and galleys ‘hypozoma that was standard on both galleys and sailing ships’¹⁰ but until the experimental archaeology that was the trireme *The Olympias*, conducted in 1987,¹¹ was its role fully realized. Frank Brewster postulates that the now known use of the hypozoma was ‘such use of a rope would be of no practical value... a conversation with a sailor, who expressed an equally positive opinion of the uselessness on such a contrivance’¹² this demonstrates that the research on ships and seafaring has hugely developed in the past century, Casson explains that ‘no scholar came close to doing it (ancient marine research) justice until the end of the last century’¹³ like rope seafaring was massively under searched until very recently. The hypozomas’ role on the ship now shown by the reconstruction was to ‘put a tension on each extremity, so that the planks should fit well together with the dowels and withstand the opposing force of the sea’. The role of this rope simply put is to ensure that the ships’ hull won’t crack when offshore due to adverse weather. Casson explains another reason for the hypozoma ‘another argument for this style of structure is that it would better enable so light a hull to take the strains of combat’¹⁴ so the hull would also be strong enough to withstand the characteristic ramming that happened in ancient naval battles. The hypozoma’s length is described as ‘twice the length of a trires, with a good deal to spare’¹⁵ (this can be anything from 85-108m) and so is a huge single amount of rope to be made using ancient techniques. The reason the hypozoma needed to be so long because it ran ‘from stern to stem and back

⁹ Casson (1971), p. 211.

¹⁰ Ibid. p. 250.

¹¹ www.triremetrust.org.uk [last accessed 17/04/2013]

¹² Brewster (1923), p. 63

¹³ Casson (1971), p. vii.

¹⁴ Ibid. p. 91.

¹⁵ Morrison & Coates (1986), p. 170.

again within the hull'¹⁶ to ensure the adequate amount of bracing support needed by the ship was supplied. The hypozoma's importance to warships is not only shown by its role on board but by inscriptions written about shipbuilding. The hypozoma rope is always 'the first named and hence the most important and considerable of the ship's ropes'¹⁷ showing its significance as the first rope needed when equipping a vessel of this kind. Not only this but 'a decree lays down the minimum number of men to be employed in fitting it to a ship (but unfortunately this number is not preserved)'¹⁸ this decree demonstrates not only how important this rope is to a ship, but that its proper installation must be done with maximum care also showing how complex this rope is.

The ropes concerning anchorage and mooring were vital to boats in antiquity. They are used to secure the ship when it is not moving or moored, and can be useful in times of heavy fog where the crew cannot navigate so are forced to drop anchor, amongst other reasons. Anchors are even mentioned in the bible, showing the magnitude of influence they have had over society for thousands of years (*Acts 27.29-30*). Cecil Torr writes in concern to the rope holding anchors that 'cables of each sort were carried by each ship, one set to serve the two anchors at the bows, and the other for making the ship fast to the shore by her stern'.¹⁹ Casson embellishes on this point concerning galleys saying 'each galley carried two anchors with arms and a shank of iron that weighed less than 50lb'²⁰ along with ropes ladders and fending poles for mooring. Torr goes on to describe that 'the cables were sometimes made of chain, but usually of rope: and a thicker rope was needed for large merchant-ships than for the war ships'²¹ and later that 'cables of two sizes were used in the Athenian navy, one described as six-inch the other as four-inch and a half but unfortunately there is nothing

¹⁶ Morrison & Coates, (1896), p. 170.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Torr (1964), p. 75.

²⁰ Casson (1971), p. 251.

²¹ Torr (1964), p. 73.

to show whether these measurements refer to the circumference or diameter'²² so we know the ropes they were using would be very thick and like the chain heavy to haul from the water. Casson however explains that 'its use (chain) was strictly exceptional'²³ demonstrating how rope is more useful to ancient ships and seafaring. He also goes on to say that sailing ships with larger and numerous anchors would be 'equipped with winches and capstans'²⁴ to help draw them up from the seabed.

Ships and seafaring were heavily involved in trade and exploration, so secure moorings for ships are essential so the crew can go and do this. The moorings are used to tie the ship somewhere secure near land so the crew can disembark. In *The Odyssey* the crew moor their ships in a natural harbour when visiting the Laestrygonians showing that this was common practice. The ships would also be moored when arriving at ports where the later Greeks would go to trade, although there are many instances when if a harbour is unavailable the boats would be dragged up onto the shore 'ships were small and drawn easily up on shore'²⁵ as we also see in the *Odyssey* and *Iliad*, but this practice appears less as communities developed fortified harbours and it is also only possible for shallow light boats such as galleys or warships. Regardless rope would be needed to help drag the ships up the shore and back to the sea. Casson explains that these lighter ships 'warships needed lighter mooring lines and ground tackle than merchantmen since they were much less heavy in construction and most often hauled up on the beach or put into slips instead of lying at anchor. In the Athenian navy each trireme and quadreme had two sets of lines... the other (set) of four lines of c.3.65cm in diameter; one set, probably the heavier, were the mooring lines the other the anchor cables'²⁶ this comment shows us the multitude of ropes used on a ship for mooring

²² Torr (1964), p. 73.

²³ Casson (1971), p. 252.

²⁴ Ibid.

²⁵ Ludlow (1883), p. 193.

²⁶ Casson (1971), p. 250.

and anchorage two sets of four ropes so at least eight lines, demonstrating the magnitude of use that rope presented just to mooring and anchorage, a key aspect of seamanship.

Rigging is the term used for the equipment on a ship used to propel it forwards. That is anything to do with the sail, mast, and cordage used in conjunction with these items on a ship. Here the role of rope is to manipulate the sail so as to move the vessel in the right direction, an essential role. Torr tells us that ‘in every age and every district of the ancient world the method of rigging ships was substantially the same: and this method is first depicted by the Egyptians’.²⁷ Casson explains this in further detail that ‘its rig consisted of a retractable mast steeped amidships on which hung a single broad square sail. We see rigging in numerous representations, and it is described in Homer’s verses’.²⁸ He also describes in detail the rig of a sixth century ship ‘a broad type bent by lacings ... the yard was held to the mast by a parrall, a collar of twisted cords ... Apparently they were made of lightweight cloth, for they had to be reinforced with ropes running at fixed distances horizontally from the edge over the front surface; these together with the brails, which they crossed at right angles marked off the face of the sail like a checkerboard’.²⁹ In this passage alone we can see several ways that rope helped to keep the mast in place and fulfil its role of propelling the ship forwards. Rigging on ancient vessels tended to consist of one mast carried by two supporting ropes or lines to keep it steady, this is a very basic but effective kind of rigging. As most ancient triremes and galleys were rowed by a team of oarsmen in conjunction with the rigging its importance to the structure of these ships is not as significant as later vessels and the merchants’ ships that graced the Mediterranean Sea. The mast would not be sufficiently supported without the ropes and this shows us another reason as to how important rope was on board.

²⁷ Torr (1964), p. 78.

²⁸ Casson (1967), p. 43.

²⁹ Casson (1971), pp. 68-69.

Casson describes the emergency rigging that was used in the fourth century BC in the Athenian Navy. It was used to flee when the ship was crippled as it was common practice at this time to pack away the usual rigging or leave it onshore if possible as it got in the way. These kits consisted of ‘not a smaller scale version to replace the working mast and the sail but rather what we see on certain Roman galleys, a bow-sail’³⁰ but in the next century (third century BC) the emergency rig was abandoned and ships ‘returned to the old practice of using two rigs’.³¹ This demonstrates to us that the Greeks were experimenting on what was most useful to their ships showing that they had a hugely well thought out criteria and considered many possibilities when constructing ships. It also shows one of the trends that rope plays a part of the emergency rig was for a time useful, but fell out of fashion being replaced with a spare standard rig that also heavily relied on rope.

As we can see rope plays a vital role in many aspects of ships and seafaring. It is essential to all kinds of ship from the first boats being tied together to the triremes and merchant ships that graced the Aegean Sea in later centuries. Casson’s book *Ships and Seamanship* is one of the most in depth studies of this topic, drawing huge amounts of research from the marine archaeology that occurred after the Second World War. His work demonstrates the importance of cordage in every aspect of; rigging, anchorage, docking, mooring, and structural importance to ships and hugely embellishes on the previous authority to his book, the publication of *Ancient Ships* by Torr. Both of these studies have been incredibly important to my brief exploration of the importance of rope to ships warships and seamanship. It is obvious that rope is a key element in all of these topics, perhaps the reason as to why it has been so overlooked in research and why some scholars such as Brewster have speculated about its usefulness as it is so obvious it can be overlooked.

³⁰ Casson (1971), p. 264.

³¹ Ibid.

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