DOWNLOAD PDF SHIPS AND FLEETS OF THE ANCIENT MEDITERRANEAN

Chapter 1 : Merchant vessels and maritime commerce in Roman times

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An excellent book on the. Since Phoenician sea traders left so little by way of written record about themselves, we are left with the voluminous writings of Romans, Greeks, Persians, Egyptians, Hebrews and others who dutifully recorded their many interactions with those early people. All of these societies faced difficult situations during which Phoenician trade enabled them to get through to the glory days that lay ahead. Even in good times, great wealth arrived aboard those cedar ships, and scribes were moved to pour forth the fascinating events of these times. During these revelatory moments when scribes were not talking in self-conscious manner about themselves and their own society, they revealed things about other societies that would not normally have come to light. This is the path followed by the book Phoenician Secrets: Exploring the Ancient Mediterranean , which is therefore not exclusively about one society but -- of necessity -- is about all the societies of the ancient Mediterranean. For example, consider the interaction between societies that occurred when young Greece emerged from its Dark Age and reached out to establish colonies in places such as Sicily. Here the Greek historian Thucydides wrote about the deeds of his own people, but since no Greek foot had yet stepped upon Sicily during the time he described, he shared a view of the Phoenicians and local Sicels as well. The great city of Syracuse traced its origin to these days. There were also Phoenicians living all round Sicily, who had occupied promontories upon the sea coasts and the islets adjacent for the purpose of trading with the Sicels. But when the Hellenes [Greeks] began to arrive in considerable numbers by sea, the Phoenicians abandoned most of their stations, and took up their abode in Motye, Soloeis, and Panormus, near the Elymi [local people], with whom they united, confiding in their alliance, and also because this is the nearest point for the voyage between Carthage and Sicily. These were the barbarians in Sicily, settled as I have said. Of the Hellenes, the first to arrive were Chalcidians from Euboea with Thucles, their founder. They founded Naxos and built the altar to Apollo Archegetes, which now stands outside the town, and upon which the deputies for the games sacrifice before sailing from Sicily. Syracuse was founded the year afterwards by Archias, one of the Heraclids from Corinth, who began by driving out the Sicels from the island upon which the inner city now stands. No matter how much you know about individual societies in the ancient Mediterranean, you will almost certainly discover fascinating events and people from these interactions between societies that stimulate new thoughts useful to your own area of interest. Thoroughly researched and clearly written. Throughout the book Holst makes insightful use of the latest archaeological evidence from land and beneath the sea, as well as the testimony of ancient writers. I learned a great deal from it and know that others will, too. It contains photographs, maps and images in pages. This is an idyllic walk through the ancient Mediterranean you will always remember. There are few history books so compelling as to leave you wanting to read more. I thoroughly enjoyed every moment of it.

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Chapter 2 : Hellenic Navy - Wikipedia

Ships and Fleets of the specialists for this kind of work on the ship, to protect goods from destroying, Ancient Mediterranean to keep the balance of the ship and also because they were arranging JEAN ROUGÃˆ everything including the importance of pp., 22 b&w figures it on the ship.

Hellenistic-era warships Prior to the Punic Wars the Roman classis or fleet was limited to minor coastal operations and support for trade. The Romans concentrated on land based operations until this period in order to conquer and consolidate the Italian peninsula. The wars with Carthage forced the Romans to adapt to naval operations in order to compete and defend themselves. The Romans lacked the skill of other maritime powers such as the Greeks and Carthaginians and had to resort to technology for advantages. This movable boarding bridge enabled the Romans to transform naval combat from ramming and sinking to boarding with marines through capturing and plundering the vessels. In its initial stages this new combat style enabled the Romans to win some overwhelming successes against the Carthaginian fleet, but the added weight of the corvus made their vessels less maneuverable and seaworthy resulting in heavy losses with violent weather conditions. The combustibles were thrown on board the enemy ships to damage the ship and its personnel. This was caused by a victory that bred confidence and led to the eventual invasion of North Africa. Their newly founded sea prowess enabled the Roman legions to land on the coast of North Africa and bring the war out of Italy and into the laps of the Carthaginians. In both the Second and Third Punic Wars, Roman sea power was predominant, though not vigorously exercised. This caused restrictions for the Carthaginian communication forces and forced them to keep strong defensive garrisons in Spain and their home territory. As a result, the navy slipped into the logistical role of support to the legions and providing escort for trade vessels and grain shipments, with the adverse effect of drastically increasing piracy. Rome maintained two large fleets, the Classis Praetoria Misenensis and Classis Praetoria Ravennatis based in the Mediterranean with smaller squadrons operating on the North Sea, Black Sea and along the major rivers running throughout the provinces. Misenum, built by Agrippa in 31 BC, was the main naval base of the Mediterranean, joined by Ravenna, Aleria on Corsica and other temporary ports. The military situations on the Rhine and the Danube necessitated the construction of several dedicated fleet installations for the provincial fleets, classis Germanica, Pannonia and Moesica, but most were attached to the existing forts of Provincial Legions. As Roman power waned in the 4th and 5th centuries AD, so went the Roman navy. In AD, the Vandals embarked on ships from southern Gaul and landed in North Africa, where they established their own kingdom. Within a couple of decades, the Roman Empire consisted of little more than the city of Rome itself and its original territories in Latium and Central Italy. The Vandals powerful navy would aid the ushering in of the western empires fall when their pirate King Gaiseric not only eliminated Roman shipping on the Mediterranean, but also invaded Rome itself. By the mid 5th century, the Vandals were the masters of the sea, and by AD, Rome had fallen completely from power in Western Europe.

Chapter 3 : Ancient navies and vessels - Wikipedia

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Sanford Holst documented this remarkable experience in Lebanon: It was an absolutely beautiful vessel, and he took the time to tell me about many of the details that went into it. The maiden voyage was to be two days later. On the second day, I was having lunch at the harbor in Byblos -- about 70 miles km north of Tyre -- and quite incredibly the Phoenician boat sailed directly into the harbor and docked right in front of my table! The crew was as surprised as I was. We happily celebrated their successful voyage. In fact, it is more a matter of ups and downs, with the present hopefully being higher than the past. This was dramatically illustrated by the Dark Ages which followed the fall of the Roman Empire. Before that time, ancient ships were quite spectacular. Exploring the Ancient Mediteranean. Ancient Boatbuilding An unfortunate hazard of sea trade is shipwrecks, but several of them turned out to be blessings in disguise -- at least for us -- because they preserved excellent examples of early ships and cargoes. And what a remarkable story they tell. Consider the wreck at Uluburun, just off the coast of what is today called Turkey but back then was on the Byblos - Cyprus - Greece trade route. It showed us how these ships were laboriously and painstakingly built by carving each piece of wood in the hull to create a row of "pockets" along the edge. On the piece of wood beside it, a similar row of pockets was carved, with each one being lined up exactly opposite a pocket in the neighboring board. A small piece of wood tenon was then put in each pocket mortise of one of the boards, which ended up looking like it had a long row of wooden teeth. Then the second board was placed beside it and -- with any luck at all -- its own pockets fit perfectly onto the teeth of the other. Finally a round hole was drilled through each pocket-and-tooth, and a wooden peg was placed in the hole. When all the pegs were in place, the two boards could not be separated by any amount of force by wave or cargo. And this was done for virtually every board in the hull. Their craftsmanship was not only beautiful, it was incredibly strong. Art of Boatbuilding in Phoenician Secrets. The galley fighting ships, with their rows of galley oars, could have a crew of over a hundred people. That is a pretty good size. But even those were small compared to the Phoenician cargo ships with their vast, rounded hulls. These ocean-going ships were built for huge loads and long hauls. They made the extended trips from Mediterranean ports out to Cadiz, Lixis and other destinations on the Atlantic Ocean coasts of Spain and Morocco, and had to make each trip count. People have remarked that those cargo ships which sailed the seas for many hundreds of years B. Thor Heyerdahl, the modern-day explorer, noted that the Phoenicians could have sailed to Central America themselves. That is quite a compliment to these early people of the sea and what they were able to accomplish.

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Chapter 4 : Merchant Ships of the Ancient Mediterranean | J.M. Ney-Grimm

Warships of the Ancient Mediterranean Posted on by J. Ney-Grimm The ancient Phoenicians were seafarers, and they created the first real maritime civilization in the Mediterranean Sea around BC. The ancient Egyptians had mounted various sea expeditions earlier, but the Phoenicians established regular trade routes between their numerous city-states, from Tyre in the east to Tingis in the west on the Strait of Gibraltar, and everywhere in between. Thus the Phoenicians were the first to develop truly sturdy, seaworthy ships and all the arts that go with shipbuilding and sailing. The later Mediterranean civilizations learned from the Phoenicians, and individual sea captains recognized the Phoenicians â€" even after their dominance faded â€" as masters of the sea. The first warships â€" needed to protect the sea routes â€" were slim craft with a shallow draft and propelled by oarsmen, but possessing a sail to take advantage of favorable winds when possible. The ancient Greeks named these warcraft for the number of oars propelling the vessel. The early warships served more as fighting platforms for the warriors, who would seek to board an enemy ship and subdue its warriors in man-to-man combat. Later warships had catapults aboard for assaulting the enemy with missiles. Even more important, their prows possessed bronze-clad rams for ramming enemy ships and sinking them. This meant that swift maneuvering was essential, as well as increased power and speed. The only way to get that was by adding more oars to the ship. And the best way to add oars was to add another bank of oars, one bank of rowers on a lower level and another bank of rowers on an upper level. These double-banked warships were soon made obsolete by triple-banked warships. The ancient Romans called them triremes, and that is the name we modern folk use as well. As history unfolded, the desire for ever more powerful ships grew. Adding a fourth bank of oars was impractical, but adding another man to each oar was not. Most fleets had but one, and it was the flagship of the fleet. The diagram above shows the rowing arrangement for a trieres. One thranites sat on the top bench with his oar passing through a lock in the side of the projecting outrigger of the ship. One zygites sat on a middle bench, recessed into the deck, with his oar passing through a lock in the floor of the outrigger. And one thalamites sat on the lowest bench with his oar passing through a lock in the side of the ship. In , the reconstruction of an ancient trireme was started by a shipbuilder in Piraeus, using drawings by naval architect John F. Coates developed his drawings through long consultation with historian J. In , the Olympias was launched and put to sea trials. It was able to execute degree turns in less than 60 seconds and within an arc of two and a half ship-lengths. Given that this maneuverability was achieved with an inexperienced crew of volunteers, there was reason for the enthusiasm of the ancients for the trireme.

Chapter 5 : Ancient maritime history - Wikipedia

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On September 2 his fleet of more than ships carrying 20, marines and 2, archers put to sea to challenge the blockade. They faced a fleet of some ships carrying 16, marines and 3, archers under the command of Marcus Vipsanius Agrippa. But they were lighter and faster than those of his opponent. Antony intended to fight a typical Roman sea battle: Close with the enemy ship, board it with marines and slaughter the enemy. He had a different plan. For four hours the fleets skirmished and maneuvered in light winds without result. But Agrippa had anticipated this move, and his biremes raced toward the heavier and slower quinqueremes, passing them closely to break their oars and rudders. Agrippa then brought his numerical advantage to bear by having several biremes attack a single quinquereme. Whenever a bireme successfully rammed a quinquereme, it would disengage and maneuver away. The attack never came. Then they smothered the fires with their mantles and even with corpses. They hacked off burning parts of the ships and tried to grapple hostile ships to escape into them. Many were burned alive or jumped overboard or killed each other to avoid the flames. Yet there was no permanent navy. Until Actium, the empire had simply created one whenever the need arose. At the outset of the 3rd century bc, Carthage, with its fleet of ships, was the preeminent naval power in the western Mediterranean. At that time, Rome had no naval force or experience in naval warfare. But when the First Punic War broke out between the two powers in bc, Rome quickly realized that victory could only be achieved at sea. Italy had large forests of fir from which to build boats but no ship designers, crews or captains to take them to sea. The Romans hit upon the idea of copying a quinquereme that had fallen into their hands. Although commonly believed to have come from the Carthaginians, it was actually a vessel from the navy of Hannibal of Rhodes. Using the captured boat as a template, the Romans constructed a fleet of quinqueremes and 20 triremes in just two months. As historian Polybius described, production required woodcutters, carpenters and metalworkers working full-time on each of the ships, or a labor force of 20, men. Galley crews were not slaves but expensive skilled freemen. So, as it constructed a fleet, Rome instead turned to its army conscripts, teaching them rudimentary rowing and maneuvers on wooden ship mock-ups onshore. This was the navy that put to sea to fight the largest and most experienced naval force in the western Mediterranean. Naval tactics of the day relied on skilled captains and rowers to maneuver their vessel past an opposing ship and break its oars, leaving it crippled and vulnerable. The attacker could then pierce the hull of the helpless boat with a metal prow ram and leave it to sink. Lacking skilled captains and trained crews, the Romans played to their strongest military tactic: A Roman captain would use catapults to launch grappling irons at the enemy ship, holding it fast while marines boarded and engaged in close combat. To facilitate boarding, the Romans introduced the corvus, a wooden boarding ramp 36 feet long and 4 feet wide with railings on either side and a long metal spike extending from its bottom. The spike would drive into the deck, holding both ships together and steadying the ramp as Roman marines poured across. The new tactics caught the Carthaginians by surprise at the Battle of Mylae in bc, when the Romans boarded and destroyed their ships one by one. In bc the Romans launched an amphibious invasion of North Africa, sending a fleet of warships and 80 transports carrying 60, men. Two hundred Carthaginian warships met the Roman fleet off Mount Economus. This time, seamanship rather than manpower decided the outcome, as Roman commanders acted on their own initiative to thwart multiple attacks against the troop transports. While the Romans lost 24 ships, the Carthaginians suffered 30 sunk and 50 others captured. The Roman invasion force got through and landed in North Africa, only to be defeated in a land battle and forced to withdraw. Roman naval losses during the First Punic War were extremely high, due mostly to the Roman practice of sailing in rough weather, as the weight of the corvus and its position on the bow made ships especially unstable in rough seas. Rome lost as many as Roman warships, 1, transports and more than , men, a number approaching the total American dead in World War II.

Probably no war in naval history has recorded as many casualties from drowning, losses representing some 15 percent of the able-bodied men of military age in Italy. Polybius called it the bloodiest war in history. Despite the casualties, the Romans pressed on, replacing lost ships and training fresh crews. In bc the Carthaginians sought to lift the Roman siege of Lilybaeum in Sicily by sending a naval force to break the Roman blockade. Certain of victory, the Carthaginians sent no marines with their ships, planning to acquire them in Lilybaeum following the battle. Despite foul weather, the Roman captains put to sea to intercept the Carthaginian fleet. In a clash near the Aegates Islands off Sicily, the Romans sank 50 ships and captured 70 of the Carthaginian combatants that took part. Its last fleet gone and lacking enough money and raw materials to build another, Carthage surrendered. Rome now commanded the western Mediterranean. Two decades later Rome and Carthage were again at war. Probably for financial reasons, Carthage had not rebuilt its combat fleet. When the Second Punic War â€" bc broke out, it had no more than 50 warships to counter the Roman fleet of Hannibal was forced to take his army overland through Spain rather than landing directly on the Italian mainland. Without a navy, Hannibal could not shift his forces from theater to theater as could the Romans, and his supply lines to Carthage were always under threat. As a result, there were no major sea engagements during that long war. In bc a Roman invasion force of transports carrying 26, troops and 1, horses and protected by 40 warships crossed from Sicily and invaded North Africa. Two years later Scipio defeated Hannibal at Zama, and Carthage surrendered. Rome had learned that the proper role of a navy was to support ground operations and that naval combatants could not bring about a strategic decision by themselves. Thus it placed equal emphasis on its transport ships and combatants. War broke out with the Seleucid Empire in the eastern Mediterranean in bc. As Antiochus maintained a large fleet, transporting the Roman army across the Aegean from Greece was a risky proposition. Lucius Scipio, the brother of Scipio Africanus, marched his army overland to cross the Hellespont and take the war to the Asian mainland present-day western Turkey. Transports ferried his troops across the strait while other naval units blockaded the Syrian fleet at Ephesus. For weeks both sides skirmished off the coast. In December bc, as the Roman army marched down the coast to bring the fight to Antiochus, the Seleucid fleet tried to break the Roman blockade. In a battle off Myonnesus, the Romans carried the day. Rome now controlled the entire Mediterranean. Only Rhodes, a Roman ally, and Egypt, a broken reed, were left with significant naval assets. By bc more than 1, pirate ships preyed on Mediterranean shipping, and more than coastal settlements had been sacked, their populations sold at Roman slave markets. Rome finally reacted when the pirates threatened its grain imports. In 67 bc the Senate sent Pompey the Great to eradicate the outlaw scourge. The experience convinced Rome to rebuild its navy. Until then, Roman naval experience had been restricted to the tideless Mediterranean. It fell to Julius Caesar to fight the first Roman naval battle on the ocean. In 56 bc he launched a campaign against the Veneti in Gaul, who lived along the Bay of Biscay and were excellent sailors. While Caesar moved his armies overland, Decimus Brutus commanded the fleet that engaged the Veneti navy. The Gallic ships were superior to Roman quinqeremes in every respect. Constructed of oak, they were almost impervious to ramming, with flat bottoms better suited to the coastal shallows. They were higher at the deck line with high sterns and prows from which to fight off Roman marines. The Gallic ships also flew large leather sails that withstood high winds better than canvas and enabled them to run faster before the wind, easily eluding their foes. But their great strength also revealed a weakness, as the Gallic ships had no oars and relied on the mainsail for propulsion. Supportive halyards were tethered to the deck on either side of the mast. The Romans devised a new weapon to cripple the ship. When these contrivances had caught the halyards supporting the yards, the Roman ship was driven away by the oars, and the halyards were cut in consequence, so the yards fell to the deck. The Romans could now close with their grappling irons and deploy marines to deal with the crew. He started with two major fleet commands: Classis Praetoria Misenensis, at Misenum on the Gulf of Naples, to protect Italy itself and its grain imports in the south; and Classis Praetoria Ravennatis, at Ravenna at the head of the Adriatic, to deal with trouble in Dalmatia and Illyria. The invasion and eventual conquest of Britain AD 43â€"60 also required strong naval logistical support. The main Roman naval base was at Gesoraicum present-day Boulogne and

served as the headquarters for Classis Britannica. After the Armenian wars, Nero reign: The river splits at the Kazan Gorge, which prompted the Romans to create two fleets: Classis Pannonica in the west and Classis Moesica in the east. Later, smaller fleets such as the Classis Nova Libyca were created to patrol the western littoral, while a larger fleet, Classis Syriaca, supported Roman forces on the border with Parthia. Fleets were usually collocated with legion camps and provided logistical support to the army, transported troops and patrolled the rivers and coast with complements of marines. The navy remained subordinate to the army throughout the imperial period. Naval personnel did not think of themselves as sailors but as soldiers, even choosing to memorialize themselves as legionnaires on their tombstones. Naval crews were organized into centuries just like the army, and each ship had a centurion aboard with an assistant who fulfilled the role of first sergeant. The centurion was responsible for teaching infantry tactics, training his men to repel boarders or act as an assault party.

Chapter 6 : Warships of the Ancient Mediterranean | J.M. Ney-Grimm

But the ancient Greeks called them triereis or, in the singular, a trieres, literally meaning "three-rower." These were peerless warships, and the ancient Greek city-states built fleets of them, cementing the Hellene domination of the Mediterranean Sea. As history unfolded, the desire for ever more powerful ships grew.

Edit Phoenician warship [8] with two rows of oars, relief from Nineveh, ca. Depictions of two-tiered ships biremes , with or without the parexeiresia the outriggers , see below , are common in 8th century BC vases and pottery fragments, and it is at the end of that century that the first references to three-tiered ships are found. According to Thucydides , the trireme was introduced to Greece by the Corinthians in the late 8th century BC, and the Corinthian Ameinocles built four such ships for the Samians. Fragments from an 8th-century relief at the Assyrian capital of Nineveh depicting the fleets of Tyre and Sidon have been interpreted as depicting two-decked warships, fitted with rams. The 2nd-century Christian scholar Clement of Alexandria , drawing on earlier works, explicitly attributes the invention of the trireme trikrotos naus, "three-tiered ship" to the Sidonians. Found in , it is one of the main pictorial testaments to the layout of the trireme. The first large-scale naval battle where triremes participated was the Battle of Lade during the Ionian Revolt , where the combined fleets of the Greek Ionian cities were defeated by the Persian fleet, composed of squadrons from their Phoenician, Carian, Cypriot and Egyptian subjects. The Persian Wars Edit Athens was at that time embroiled in a conflict with the neighbouring island of Aegina , which possessed a formidable navy. The first clash with the Persian navy was at the Battle of Artemisium , where both sides suffered great casualties. Where are you from? From where the good triremes come i. Gradually, the predominance of Athens turned the League effectively into an Athenian Empire. Athenian maritime power is the first example of thalassocracy in world history. Aside from Athens, other major naval powers of the era included Syracuse, Corfu and Corinth. In the subsequent Peloponnesian War , naval battles fought by triremes were crucial in the power balance between Athens and Sparta. Despite numerous land engagements, Athens was finally defeated through the destruction of her fleet during the Sicilian Expedition , and finally, at the Battle of Aegospotami , at the hands of Sparta and her allies. Design Model of a Greek trireme Olympias , a reconstruction of an ancient Athenian trireme. Based on all archeological evidence, the design of trireme surely pushed the technological limits of the ancient world. After gathering the proper timbers and materials it was time to consider the fundamentals of the trireme design. These fundamentals included accommodations, propulsion, weight and waterline, center of gravity and stability, strength, and feasibility. All of these variables are dependent on one another; however a certain area may be more important than another depending on the purpose of the ship. For a ship to travel at high speeds would require a high oar-gearing, which is the ratio between the outboard length of an oar and the inboard length; it is this arrangement of the oars which is unique and highly effective for the trireme. The ports would house the oarsmen with a minimal waste of space. There would be three files of oarsmen on each side tightly but workably packed by placing each man outboard of, and in height overlapping, the one below, provided that thalamian tholes were set inboard and their ports enlarged to allow oar movement. Thalamian is the English term for the Greek word, thalamios, which was the name of the oarsmen in the lowest file of the triereis; zygian is the English term for the Greek word, zygios, which were the oarsmen in the middle file of the triereis, and thranite is the English term for the Greek word, thranites, which were the oarsmen in the uppermost file of the triereis. Tholes were pins that acted as fulcrums to the oars that allowed them to move. The center of gravity of the ship is low because of the overlapping formation of the files that allow the ports to remain closer to the ships walls. A lower center of gravity would provide adequate stability. If the center of gravity were placed any higher, the additional beams needed to restore stability would have resulted in the exclusion of the Thalamian tholes due to the reduced hull space. The calculations of forces that could have been absorbed by the ship are arguable because there is not enough evidence to confirm the exact process of jointing used in ancient times. In a modern reconstruction of the ship, a polysulphide sealant was used to

compare to the caulking that evidence suggests was used; however this is also argued because there is simply not enough evidence to authentically reproduce the triereis seams. In order to prevent this from happening, ships would have to be pulled from the water during the night. The use of lightwoods meant that the ship could be carried ashore by as few as men. While well-maintained triremes would last up to 25 years, during the Peloponnesian War , Athens had to build nearly 20 triremes a year to maintain their fleet of They were possibly rigged fore and aft from end to end along the middle line of the hull just under the main beams and tensioned to The hypozomata were considered important and secret: Additionally, hull plank butts would remain in compression in all but the most severe sea conditions, reducing working of joints and consequent leakage. The sheds were ca. These dimensions are corroborated by the evidence of Vitruvius , whereby the individual space allotted to each rower was 2 cubits. Construction of the trireme differed from modern practice. The construction of a trireme was expensive and required around man-days of labor to complete. Hence the triremes were often called "girded" when in commission. The three principal timbers included fir, pine, and cedar. Primarily the choice in timber depended on where the construction took place. For example, in Syria and Phoenicia, triereis were made of cedar because pine was not readily available. Pine is stronger and more resistant to decay, but it is heavy unlike fir which was used because it was lightweight. The frame and internal structure would consist of pine and fir for a compromise between durability and weight. Other ships would usually have their hulls made of pine because they would usually come ashore via a port or with the use of an anchor. It was necessary to ride the triereis onto the shores because there simply was no time to anchor a ship during war and gaining control of enemy shores was crucial in the advancement of an invading army. Petersen The joints of the ship required finding wood that was capable of absorbing water but was not completely dried out to the point where no water absorption could occur. There would be gaps between the planks of the hull when the ship was new, but once submerged the planks would absorb the water and expand thus forming a watertight hull. The sailyards and masts were preferably made from fir because fir trees were naturally tall and provided these parts in usually a single piece. Making durable rope consisted of using both papyrus and white flax; the idea to use such materials is suggested by evidence to have originated in Egypt. In addition, ropes began being made from a variety of esparto grass in the later third century BC. Once the triremes were seaworthy, it is argued that they were highly decorated with, "eyes, nameplates, painted figureheads, and various ornaments". These decorations were used both to show the wealth of the patrician and to make the ship frightening to the enemy. The home port of each trireme was signaled by the wooden statue of a deity located above the bronze ram on the front of the ship. Evidence for this is provided by Thucydides, who records that the Corinthian oarsmen carried "each his oar, cushion hypersion and oarloop". Classical sources indicate that the trireme was capable of sustained speeds of ca. The distance a trireme could cover in a given day depended much on the weather. On a good day, the oarsmen, rowing for 6â€”8 hours, could propel the ship between fifty and sixty miles. There were rare instances however when experienced crews and new ships were able to cover nearly twice that distance Thucydides mentions a trireme traveling miles in one day. They had to keep their crews comfortably paced so as not to exhaust them before battle. Perhaps the most interesting aspect pertaining to the men who composed the crew of the Athenian triremes was the fact that the ships were an extension of their democratic beliefs. The rich and poor rowed alongside each other and, as Victor Davis Hanson points out, "Served the larger civic interest of acculturating thousands as they worked together in cramped conditions and under dire circumstances. One variation used a drastically reduced number of oarsmen so as to use the ship as a troop transport. The thranites would row from the top benches, while the rest of the space below would be filled up with hoplites. Another variation, which the Athenians used for transporting horses the Athenian fleet had about 10 or so of these ships , [36] had 60 oarsmen, leaving the rest of the ship open for horses. By design the trireme was meant for day-long journeys, with no capacity to stay at sea overnight or carry the necessary provisions to sustain the men it carried. There were, however, storage facilities on board large enough to provide each crewman with the 2 gallons of fresh drinking water he would need to stay hydrated each day. Sometimes this would entail traveling up to fifty

miles in order to procure the necessary provisions. In the Peloponnesian War , the beached Athenian fleet was caught unawares on more than one occasion, while out looking for food Battle of Syracuse and Battle of Aegospotami. He was a wealthy Athenian citizen usually from the class of the pentakosiomedimoi , responsible for manning, fitting out and maintaining the ship for his liturgical year at least; the ship itself belonged to Athens. These experienced sailors were to be found on the upper levels of the triremes. The sailors were likely in their thirties and forties. The rowers were divided according to their positions in the ship into thranitai, zygitai, and thalamitai. They rowed through the parexeiresia, an outrigger which enabled the inclusion of the third row of oars without significant increase to the height and loss of stability of the ship. Greater demands were placed upon their strength and synchronization than on those of the other two rows. It is not known exactly how this was done, but there are literary and visual references to the use of gestures and pipe playing to convey orders to rowers. In the sea trials of the reconstruction Olympias , it was evident that this was a difficult problem to solve, given the amount of noise that a full rowing crew generated. In Aristophanes play The Frogs two different rowing chants can be found: At the Battle of Salamis , each Athenian ship was recorded to have 14 hoplites and 4 archers usually Scythian mercenaries on board, [50] but Herodotus narrates that the Chiots had 40 hoplites on board at Lade [51] and that the Persian ships carried a similar number. Whereas the Athenians relied on speed and maneuverability, where their highly trained crews had the advantage, other states favored boarding, in a situation that closely mirrored the one that developed during the First Punic War. Grappling hooks would be used both as a weapon and for towing damaged ships ally or enemy back to shore. When the triremes were alongside each other, marines would either spear the enemy or hop across and cut the enemy down with their swords. Tactics Edit In the ancient world, naval combat relied on two methods: Artillery in the form of ballistas and catapults was widespread, especially in later centuries, but its inherent technical limitations meant that it could not play a decisive role in combat. Rams embolon were fitted to the prows of warships, and were used to rupture the hull of the enemy ship. The preferred method of attack was to come in from astern, with the aim not of creating a single hole, but of rupturing as big a length of the enemy vessel as possible. The speed necessary for a successful impact depended on the angle of attack; the greater the angle, the lesser the speed required. At 60 degrees, 4 knots was enough to penetrate the hull, while it increased to 8 knots at 30 degrees. If the target for some reason was in motion in the direction of the attacker, even less speed was required, and especially if the hit came amidships. In any case, prior to engagement, the masts and railings of the ship were taken down, hindering any attempt at using grappling hooks. The Athenians especially became masters in the art of ramming, using light, un-decked aphraktai triremes. On-board forces Edit Unlike the naval warfare of other eras, boarding an enemy ship was not the primary offensive action of triremes. That said, fleets less confident in their ability to ram were prone to load more marines onto their ships. On the deck of a typical trireme in the Peloponnesian War there were 4 or 5 archers and 10 or so marines. Should the crew of another trireme board, the marines were all that stood between the enemy troops and the slaughter of the men below. Squadrons of triremes employed a variety of tactics.

Chapter 7 : The Roman Navy: Masters of the Mediterranean | HistoryNet

The Mediterranean was the source of the vessel, galley, developed before BC, and development of nautical technology supported the expansion of Mediterranean culture. The Greek trireme was the most common ship of the ancient Mediterranean world, employing the propulsion power of oarsmen.

Merchant vessels and maritime commerce in Roman times See this text in During the Imperial period Rome was an enormous city inhabited by about one million people. It constituted an extraordinary market, such as would not be found again on western Mediterranean shores until the nineteenth century. The organisation of a constant traffic of heavy products across long distances led to the construction of extremely specialised vessels featuring exceptional nautical characteristics, in order to ensure the regular provisioning of food supplies for Rome. Roman commercial ships Merchant ships reached their apogee during the Imperial period. The numerous representations and shipwrecks brought to light thanks to underwater excavations have revealed an extraordinary typological variety: One example of this range can be admired in the remarkable ensemble of vessels conserved at the Museum of the Roman Ships of Fiumicino where the Fiumicino 1 , 2 , 3 , 4 and 5 vessels are exhibited, and at Aquileia where the Monfalcone shipwreck is on display. The diverse commercial vessels often bore different names, such as corbita, gaulus, ponto, cladivata, etc. From a technical point of view, however, there must have been a certain typological homogeneity amongst these vessels as a consequence of the numerous exchanges across the Mediterranean Sea, which by this time was considered by the Romans to be mare nostrum -- that is, "our sea". Thanks to ship iconography we can reconstruct a significant portion of the characteristics of this class of vessels. The hull shape, for instance, could be symmetrical or asymmetrical. In the first case the stern and bow were identical, while in the second case the bow was located at a lower height. The bow was sometimes concave, due to the presence of a cutwater, which was not a ram but rather a structural feature which improved the nautical qualities of the vessel. The hull sides were protected by wales and featured winglike projections, the housing, which protected the side rudder system. The cabin was usually situated at the stern and the steersman stood on its rooftop. The steering system was constituted by side rudders or steering oars, located at the stern quarters. They could be regulated by a system of cables and functioned simply by rotating them along their axis. The manoeuvre was controlled by a tiller, a bar set perpendicularly to the oar, known as the clavus. Finally, although commercial galleys with mixed propulsion the actuariae must have been frequent, the majority of merchant ships were sailing vessels with one, two or three masts. The sails were square and were regulated by a complex rigging system. In addition, some ships featured a small triangular sail, the supparum, located above the yard. The tonnage of Roman merchant ships In order to satisfy the various requirements of commerce, ship tonnages were quite variable. These were the smallest among the medium-tonnage ships. They must have constituted the majority of vessels utilised in commerce, with a capacity which could easily exceed tons, such as the 3,amphora tonne vessels mentioned in written sources, and as also confirmed by numerous underwater discoveries. However, there were also ships with higher tonnage capacity. The hull of the Madrague de Giens shipwreck in France 1st century B. We must wait until the sixteenth century before we see vessels of similar tonnages plying the waters of the Mediterranean again. And yet there were even larger ships! Due to its enormous dimensions, it could not be admitted at any port except Alexandria in Egypt , where it was sent as a gift to Ptolemy III. The importance of transport by sea During the entire ancient period transport by sea facilitated the movement of bulky and heavy products across long distances, without a prohibitive rise in costs. Nonetheless, whatever the inconveniences of navigation, voyages by sea offered advantages with respect to land transport which was slow, uncomfortable and dangerous. Not to speak of the cargo capacity: In the case of particularly swift trips, vessels could reach 6 knots. Pliny furnishes several examples: But voyages could be much longer: Strabo tells us of a crossing from Spain to Italy which took three months! Rome at the centre of Mediterranean trade Grain was the basic source of food for the population. According to an anonymous source of the fourth century A.

Each year 60,, modii of grain had to reach Rome by sea -- in other words, , tonnes or ,, litres. The merchant ships were escorted by warships and preceded by tabellariae ships, which announced the arrival of the fleet which would release the populace from hunger. Seneca has left us a dramatic description of the excitement that would overcome the crowds in the port of Pozzuoli, in the Campania region. In addition to grain, wine constituted another widely consumed product, as did oil, which was not only used for food but also for lighting and for massage in the public baths. Furthermore, a type of fish sauce, garum, was much used in the Roman kitchen. In addition to these food products, metal products were transported by sea, including iron bars and ingots of copper or lead. The latter, for example, were transported by the Augustan ship of Comacchio. Finally, all sorts of luxury products flowed to the capital: Unfortunately all of these products of primary necessity, being perishable, have not reached us. Nonetheless, they were transported in containers which were indestructible because they were made of terracotta baked clay: Thanks to their recoveries, often in fragmentary condition, both in shipwrecks and land excavations, it has been possible to reconstruct several maritime routes. Routes of maritime commerce Provincial amphorae begin to appear at Ostia during the early Imperial period. Around the first century, wine came from Catalonia while garum arrived from southern Spain. The amphorae which contained oil from Baetica, after being transported to Rome, were emptied and discarded. The amplitude of this trade is represented by the Monte Testaccio, which is located near the right bank of the Tiber river. Thirty-five metres high, it is made up of fragments of oil amphorae, for a total of about 50,, examples! Gaul supplied Rome with wine starting at the end of the first century and especially during the second century. Then Africa became a great source of oil, fish products and wine, up to the end of the Roman period and later. During the whole period of the empire, furthermore, the eastern Mediterranean region maintained commercial exchanges with Rome, not only for the grain from Alexandria, but also for wine which arrived from Crete, Rhodes, Chios and the coasts of Asia Minor. The ports of Rome: Ostia and Pozzuoli Each year 60,, modii of grain reached Rome -- that is, 1, large vessels containing 50, modii, or about tonnes. If we consider that navigation was suspended during the four winter months the famous mare clausum ,"closed sea", of the Romans , we reach an average of five large grain vessels per navigable day. The amphorae from Baetica, which constitute the majority of the 50,, examples of Monte Testaccio, are very large vessels which, when full, weighed about 90 kg. Each ship must have transported over three thousand of these. Spread over two and a half centuries, the period during which the mountain was formed, we attain about seven ships per navigable month, to which must be added those which transported wine, fish products, the naves lapidariae specialised in the transport of marble and stone blocks , and those which carried wild animals for the circus, in addition to those involved in local commerce. All this merchandise was directed to Rome, where, however, the port destined to receive it was only constructed in the first century. Merchant ships which exceeded a amphora capacity about tonnes could not travel upstream. They were obliged to anchor at sea and be unloaded onto smaller vessels, which shuttled between the ships and the river port of Ostia. These operations were very lengthy and dangerous: At the end of the Republic, when Rome began its incredible demographic growth, the situation became untenable. The grain reserves became dangerously low and they were obliged to resort to winter navigations to replenish the storage reserves. Up until that point Pozzuoli, situated west of the bay of Naples, had functioned as the port of Rome for large merchant ships. Here arrived the large fleets bearing grain from Sardinia and Sicily, during the Republican period, and later from Alexandria. Smaller vessels journeyed back and forth to Ostia. They constituted a large fleet, numbering about 90 vessels only for grain transport. The bridge of boats which the emperor Caligula had built in A. Thus immobilised, they could not restock the capital, which was struck by terrible famines that winter and during the following two winters as well. The Pozzuoli-Ostia voyage took two days. The remaining time was taken up by the loading and unloading operations, to which were added three days to travel up the Tiber. Towing, from the right bank of the river, was undertaken by animals or slaves. In this regard there was a specific category of vessels, the naves caudicariae, employed for the river transport of merchandise transshipped from merchant ships. The Fiumicino 1 and 2 shipwrecks represent the archaeological evidence of these boats. The hulls of these vessels

were abandoned in a marginal area of the port of Rome, constructed by the emperor Claudius in A. Presses Universitaires de France, Paris. Oxford University Press, Oxford,

Chapter 8 : Ship - History of ships | calendrierdelascience.com

Drawing of Ancient Egyptian ship with a sail. Ships and boats were an important part of the ancient Egyptian's life. [1] The earliest boats in Egypt were made during the time of the Old Kingdom where they were used along the Nile River.

The Ancient Egyptians had knowledge of sail construction. Carport and equipped outside rook over the waters, for many paddlers, having covered rowers deck not only from the side, but and top. And twelve rowers aft worked on three steering oars. And blocked Our Majesty ship inside three partitions bulkheads so as not to drown it by ramming the wicked, and the sailors had time to repair the hole. And Our Majesty arranged four towers for archers â€" two behind, and two on the nose and one above the other small â€" on the mast with narrow loopholes. When Thutmose III achieved warships displacement up to tons and carried up to ten new heavy and light to seventeen catapults based bronze springs, called "siege crossbow" â€" more precisely, siege bows. Still appeared giant catamarans that are heavy warships and times of Ramesses III used even when the Ptolemaic dynasty. Some Egyptologists dispute that an Egyptian Pharaoh would authorize such an expedition, [18] except for the reason of trade in the ancient maritime routes. Lloyd suggests that the Greeks at this time understood that anyone going south far enough and then turning west would have the Sun on their right but found it unbelievable that Africa reached so far south. In ancient times the Kingdom of Punt , which is believed by several Egyptologists to have been situated in the area of modern-day Somalia , had a steady trade link with the Ancient Egyptians and exported the precious natural resources such as myrrh , frankincense and gum. This trade network continued all the way into the classical era. Somali sailors used the ancient Somali maritime vessel known as the beden to transport their cargo. The Phoenicians were an ancient civilization centered in the north of ancient Canaan , with its heartland along the coast of modern-day Lebanon , Syria and northern Israel. Though ancient boundaries of such city-centered cultures fluctuated, the city of Tyre seems to have been the southernmost. Sarepta between Sidon and Tyre, is the most thoroughly excavated city of the Phoenician homeland. The Phoenicians often traded by means of a galley , a man-powered sailing vessel. They were the first civilization to create the bireme. There is still debate on the subject of whether the Canaanites and Phoenicians were different peoples or not. The Greek trireme was the most common ship of the ancient Mediterranean world, employing the propulsion power of oarsmen. Many in ancient western societies, such as Ancient Greece , were in awe of the seas and deified them, believing that man no longer belonged to himself when once he embarked on a sea voyage. They believed that he was liable to be sacrificed at any time to the anger of the great Sea God. Before the Greeks, the Carians were an early Mediterranean seagoing people that travelled far. One of the early stories of seafaring was that of Odysseus. In Greek mythology , the Argonauts were a band of heroes who, in the years before the Trojan War , accompanied Jason to Colchis in his quest to find the Golden Fleece. Their name comes from their ship, the Argo which in turn was named after its builder Argus. Thus, "Argonauts" literally means "Argo sailors". The voyage of the Greek navigator Pytheas of Massalia is an example of a very early voyage. Several examples of periploi have survived. Piracy , which is a robbery committed at sea or sometimes on the shore, dates back to Classical Antiquity and, in all likelihood, much further. The Tyrrhenians , Illyrians [31] and Thracians [citation needed] were known as pirates in ancient times. The island of Lemnos long resisted Greek influence and remained a haven for Thracian pirates. By the 1st century BC, there were pirate states along the Anatolian coast, threatening the commerce of the Roman Empire. The earliest seagoing culture in the Mediterranean is associated with Cardium pottery. Their earliest impressed ware sites, dating to â€" BC, are in Epirus and Corfu. Settlements then appear in Albania and Dalmatia on the eastern Adriatic coast dating to between and BC. Also during Su Carroppu culture in Sardinia, already in its early stages low strata into Su Coloru cave, c. This suggests a seafaring expansion by planting colonies along the coast. The burial mound of the Athenian dead can still be seen at Marathon. But the Athenians had evacuated the city by sea, and under Themistocles they defeated the Persian fleet at the Battle of Salamis. In the course of doing so Athens enrolled all the island

states and some mainland allies into an alliance, called the Delian League because its treasury was kept on the sacred island of Delos. The Spartans , although they had taken part in the war, withdrew into isolation after it, allowing Athens to establish unchallenged naval and commercial power.

Chapter 9 : Trireme | Military Wiki | FANDOM powered by Wikia

*of the Greek fleet at Salamis): each trireme fitted with oars, and extras) **two different classes of oarsmen (from several textual sources): thalamioi (thalamos =the hold of the ship), thranites (position not clear, but.*

Painting by Nikiphoros Lytras. At the beginning of the Greek War of Independence , the naval forces of the Greeks consisted primarily of the merchant fleet of the Saronic islanders from Hydra , Spetsai and Poros and also the islanders of Psara and Samos. The fleet was of crucial importance to the success of the revolt. Although Greek crews were experienced seamen, the light Greek ships, mostly armed merchantmen, were unable to stand up to the large Turkish ships of the line in direct combat. So the Greeks conducted the equivalent of modern-day naval special operations, resorting to the use of fireships Greek: It was in the use of such ships that courageous seamen like Constantine Kanaris won international renown. Under the leadership of capable admirals, most prominently Andreas Miaoulis of Hydra, the Greek fleet achieved early victories, guaranteeing the survival of the revolt in the mainland. However, as Greece became embroiled in a civil war, the Sultan called upon his strongest subject, Muhammad Ali of Egypt , for aid. Plagued by internal strife and financial difficulties in keeping the fleet in constant readiness, the Greeks failed to prevent the capture and destruction of Kasos and Psara in , or the landing of the Egyptian army at Modon. Despite victories at Samos and Gerontas, the Revolution was threatened with collapse until the intervention of the Great Powers in the Battle of Navarino in There the Egypto-Ottoman fleet was decisively defeated by the combined fleets of the Britain , France and the Russian Empire , effectively securing the independence of Greece. When Ioannis Capodistrias became governor of newly liberated Greece in , the Greek fleet consisted of few remaining ships, which had participated in the war for independence. The first minister of "Naval affairs" was Constantine Kanaris, and the most powerful ship of the fleet at that time, the frigate Hellas , had been constructed in the United States in The Hellenic Navy established its headquarters at the island of Poros and the building of a new series of ships began at the naval base[citation needed] while old ships were gradually being retired. Furthermore, continuous efforts towards the education of officers were initiated. Young people were initially trained at the military school of Scholi Evelpidon and afterwards they were transferred to the navy, as there was no such thing as a Naval Academy. It was during this revolt that the flagship Hellas , docked at Poros, was set on fire by Admiral Andreas Miaoulis. The first Naval School was founded in on the Corvette Loudovikos and Leonidas Palaskas was assigned as its director. However the inefficient training of the officers, coupled with conflict between those who pursued modernization and those who were stalwarts of the traditions of the veterans of the struggle for independence, resulted in a restricted and inefficient navy, which was limited to policing the sea and the pursuit of pirates. During the s, the more progressive elements of the navy won out and the fleet was augmented with more ships. In , the first iron propeller-driven ships were ordered from England. These were the steamships Panopi, Pliksavra, Afroessa, and Sfendoni. On October 29, , following an enthronement ceremony in his native Copenhagen and a tour of several of the European capitals, Prince Wilhelm of Denmark arrived aboard the Greek flagship Hellas, to take up the throne as King George I of Greece. During the Cretan revolt, the ships of the Royal Hellenic Navy were in no condition to support it. Such failure led to the government awakening to the problem of naval insufficiency and the adoption of a policy stating that: Meanwhile, after , because of the Russo-Turkish War and the need to expand the Greek navy, a new and larger naval base was established in the area of Faneromeni of Salamis and a few years later it was transferred to the area of Arapis where it remains today. A committee from France headed by Admiral Lejeune introduced a new, advanced naval organization and the methodological training of enlisted personnel through the establishment of a training school in the old building of the naval base in Poros. During the government of Charilaos Trikoupis in , the fleet was further increased with the acquisition of new battleships: Hydra , Spetsai , and Psara from France. However, it was unable to change the outcome of the war on land, which was a national humiliation. After the war, in , the Ottoman Empire embarked on a program of naval

expansion for its fleet and as a response to that, in , the cruiser Georgios Averof was bought from Italy. In , an English naval mission arrived, headed by Admiral Tuffnel, in order to recommend improvements in the organization and training of the navy. The mission led to the adoption of the English style of management, organization and training, especially in the area of strategy. Balkan Wars â€"[edit] Admiral Pavlos Kountouriotis and the crew of Averof , The Navy, shortly before the Balkan Wars , was composed of a destroyer and battleship fleet. Its mission was primarily offensive, aiming at capturing the Ottoman-held islands of the Eastern Aegean, and establish naval supremacy in the area. To that end, its commander-in-chief, Rear Admiral Pavlos Kountouriotis , established a forward base at the Moudros bay at Lemnos , directly opposite the Dardanelles straits. The Balkan Wars were followed by a rapid escalation between Greece and the Ottoman Empire over the as yet unclear status of the islands of the Eastern Aegean. Both governments embarked on a naval armaments race, with Greece purchasing the obsolete battleships Lemnos and Kilkis and the light cruiser Elli as well as ordering two dreadnoughts , the Vasilefs Konstantinos and the Salamis and a number of destroyers. However, with the outbreak of the First World War , construction of the dreadnoughts stopped. World War I and after: The Hellenic Navy in Greek battleship Lemnos and torpedo boat Dafni during the occupation of Constantinople , Initially during the war, Greece followed a course of neutrality, with the Prime Minister Eleftherios Venizelos favoring the Entente and pro-German King Constantine I advocating neutrality. This dispute eventually led to a deep political conflict, known as the " National Schism ". In November , in order to apply pressure on the royal government in Athens, the French confiscated the Greek ships. They continued to operate with French crews, primarily in convoy escort and patrol duties in the Aegean, until Greece entered the war on the side of the Allies in June , at which point they were returned to Greece. World War II[edit] Further information: Military history of Greece during World War II In , Greece ordered four modern Greyhound class destroyers in British shipyards, making a serious step towards modernization. The outbreak of war in Europe, however, allowed only two to be delivered. Greece entered World War II with a navy consisting of 2 battleships, 1 armoured cruiser, 14 destroyers, and six submarines. The most important role was given to the submarines, which although obsolete, sank some Italian cargo ships in the Adriatic, losing one submarine in the process. The Greek submarine force six boats was however too small to be able to seriously hinder the supply lines between Italy and Albania between 28 October and 30 April , Italian ships made 3, voyages across the Otranto straits, carrying , military personnel, including 22 field divisions , and , tons of supplies while losing overall only seven merchant ships and one escort ship. It was then decided to shift the remaining fleet one cruiser â€" the famous Georgios Averof â€" three destroyers and five submarines to join up with the British Mediterranean Fleet at Alexandria. As the war progressed, the number of Hellenic Royal Navy vessels increased after the concession of several destroyers and submarines by the British Royal Navy. Post-war era[edit] The destroyer Kanaris D , a few weeks before decommission. The organisation also changed in line with modern naval doctrines of that era after the entrance into NATO in In , the Hellenic Navy placed an order in the Netherlands for two modern Standard class frigates the Elli class. These were the first acquisitions of new main surface vessels, rather than the use of second-hand ships, in almost four decades. Greece also received four Charles F. Adams class destroyers from the US Navy in All four have since been decommissioned since their electronics and armament were obsolete and they required large crews. Chain of Command[edit].