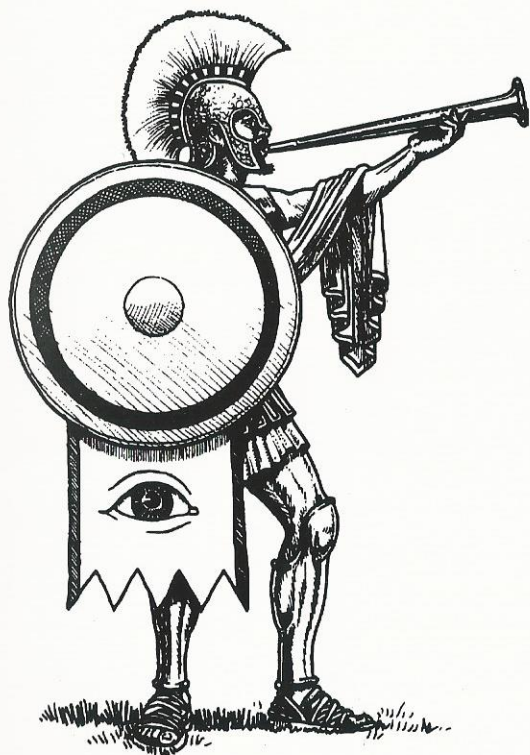




NAUMACHIAE

SUPPLEMENT BY MARTIN JOHNCOCK

including

FLEET LIST 1-16

DEVELOPMENT OF THE ANCIENT
OARED WARSHIP 17-20

NAVAL TACTICS 21-23

TACTICS FOR LATE BRONZE
AGE WARSHIPS 24

Introduction

These Fleet Lists are intended to provide a guide for players wishing to organise fleets under these rules. They are not meant to be comprehensive or compulsory or to supersede an individual's own research. They should, however, allow a player new to the period to construct a fleet that will behave in a similar manner to its historical original.

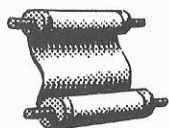
Lists such as these are no substitute for personal research. Players who wish to investigate a particular nation or era within the period should be able to find more than one ancient or modern source which will allow them to produce a fleet that is both interesting and likely to perform well on the wargames table. There is a short bibliography below, to further any such enquiries.

Ideally, games should be played using fleets that fought historically. A battle between a Sea People's fleet and that of a Later Successor, is likely to have only one outcome even though the former will have superior numbers in its favour.

The Fleet Lists

The lists give the maximum and minimum percentages for Ship Types and Captain, Crew and Vessel qualities for each fleet described. The likely abilities of Admirals/Vice-Admirals are also indicated, as well as permissible shipboard weapons

The percentages should be taken as a guide and applied logically, fractions being rounded up or down to whole ships as necessary. Be sensible in your choice of fleets. If you favour the larger polyremes then choose a Later Successor fleet rather than picking an Early Successor or Republican Roman fleet and then trying to cram a disproportionate number of the larger vessels into it.



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W.L. Rodgers, United States Naval Institute Press 1940

Oared Fighting Ships

R.C. Anderson, Argus Book 1976

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John Morrison, HMSO 1980

Warfare in the Classical World

T. Warry, Salamander Books 1980

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In addition, the Loeb and Penguin editions of the classical historians will be of great value to anyone wishing to expand their knowledge of the period. Possibly the most useful from a naval point of view are: Diodorus, Livy, Plutarch, Polybius and Thucydides.

FLEET LISTS

EGYPTIAN

C. 2000 - 1000BC

Ship Types

Egyptian War Galleys 100%

Qualities Of Captains

Good 0 - 50%

Average 50 - 100%

Poor 0 - 25%

Qualities Of Crews

Good 0 - 50%

Average 50 - 100%

Poor 0 - 10%

Qualities Of Vessels

Fast 0 - 25%

Normal 50 - 100%

Slow 0 - 25%

Qualities Of Marines

Good 0 - 10%

Average 50 - 100%

Poor 0 - 50%

Equipment

None.

No rams may be used.

Admirals And Vice-Admirals

Good, Average and Poor.



Notes on Fleet List

Egyptian C.2000-1000BC:

This list is largely conjectural, there being relatively little surviving evidence of the capabilities of ancient Egyptian naval forces, C.2000 - 1000BC.

Notes on Fleet List Sea Peoples →

This list is also largely conjectural. The proportion of Good Captains is less than that for the Egyptian fleet due to a personal belief that an ongoing state naval tradition amongst the Egyptians would have given more scope to the development of an officer class. Minoan fleets, however, may have up to 50% Good Captains.

The relief at Medinet Habu appears to show the Sea Peoples using sailing ships rather than galleys. The Sea Peoples however, incorporated a number of races and are thus likely to have been aware of a variety of ship types.

SEA PEOPLES

Aegean, Minoan and Mycenaean Greek

C.1500 - 1000BC

Ship Types

Bronze Age Greek galleys 70 - 100%

20 oared galleys 0 - 30%

Triakonteres 0 - 20%

Early pentekonteres 0 - 10%

Qualities Of Captains

Good 0 - 25%

Average 50 - 100%

Poor 0 - 25%

Qualities Of Crews

Good 0 - 25%

Average 50 - 100%

Poor 0 - 25%

Qualities Of Vessels

Fast 0 - 25%

Normal 50 - 100%

Slow 0 - 25%

Qualities Of Marines

Good 0 - 10%

Average 50 - 100%

Poor 0 - 50%

Equipment

None.

No rams may be used.

Admirals And Vice-Admirals

Good, Average and Poor.

GREEK C. 700 BC

Ship Types

20 oared galleys	0 - 20%
Triakonters	0 - 50%
Early pentekonters	0 - 70%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 10%
Average	80 - 100%
Poor	0 - 10%

Equipment

None.

No rams may be used.

Admirals And Vice-Admirals

Good, Average and Poor.

Notes on Fleet List for →
Phoenician C.700BC

The Phoenicians are often credited with the invention of the bireme.

PHOENICIAN C. 700 BC

Ship Types

20 oared galleys	0 - 20%
Triakonters	0 - 50%
Early pentekonters	0 - 70%
Phoenecian Biremes	0-50%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 10%
Average	80 - 100%
Poor	0 - 10%

Equipment

None.

No rams may be used.

Admirals And Vice-Admirals

Good, Average and Poor.

FLEET LISTS

PERSIAN C. 525 - 330BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes	0 - 10%
Early threes	0 - 20%
Light threes	80 - 100%
Heavy threes	80 - 100%
Fours & fives	0 - 30%

Qualities Of Captains

Good	0 - 10%
Average	80 - 100%
Poor	0 - 10%

Qualities Of Crews

Good	0 - 20%
Average	50 - 100%
Poor	0 - 30%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 20%
Average	60 - 100%
Poor	0 - 20%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size after 350 BC.

Admirals And Vice-Admirals

Good, Average and Poor.

Notes on Fleet List for Persian C.525-330BC

This list covers the Persian Empire from its establishment to the loss of its western provinces in the wake of Alexander's invasion. It may be used for the generation of the vast multi-national naval forces used to support the invasions of Greece in 490 and 480BC or for the generation of provincial fleets such as those of Asia Minor, the Phoenician kingdoms and Egypt.

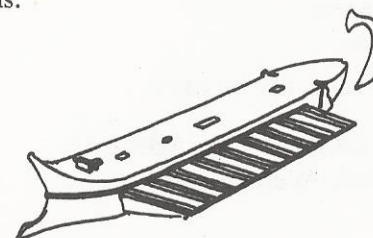
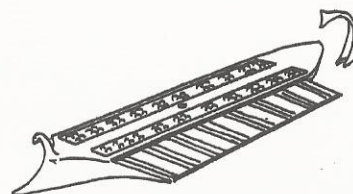
The early three would probably have disappeared from service by 480BC being replaced initially by light threes then heavy threes. Accounts of the Battle of Salamis seem to infer that the Persian triremes involved were all of the cataphract type.

Fours and fives were used by the later Persian Empire. These types may be included in fleets after 340BC.

ANCIENT NAVAL MODELS

SCALE 1:1200

Langton Miniatures produce a range of models which cover different periods in the history of the Ancient Warship - aphract and cataphract vessels. Kits contain hull, stern, mast(s), sail(s) etc - some even have a catapult! There is usually a choice of sail(s) set or furled and packets of miscellaneous items are also available to allow modellers to customise their vessels.



Left: Bireme (aphract) Right, Quadrireme (cataphract)

NOT TO SCALE

ATHENIAN C. 482 - 450BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes	0 - 10%
Light threes	0 - 100%
Heavy threes	0 - 100%

Qualities Of Captains

Good	0 - 50%
Average	50 - 100%
Poor	0 - 10%

Qualities Of Crews

Good	40 - 100%
Average	0 - 50%
Poor	0 - 10%

Qualities Of Vessels

Fast	0 - 50%
Normal	0 - 100%
Slow	0 - 100%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

None.

Admirals And Vice-Admirals

Inspired, Good and Average.

Notes to Fleet List for Athenian C.482-450BC

At the time of the Persian Wars the light three was the standard warship of the Athenian navy. The heavy (cataphract) appears to have been introduced under Cimon in 467 BC.

The Athenians were notoriously conservative in naval matters and the light trireme would have survived for some years after this, with fleets containing a mix of the two types.

Athenian triremes often carried smaller marine complements than other Greek states. A case could therefore be made for classing the cataphract triremes as light triremes for gaming purposes.

At the Battle of Salamis, the Greek ships are recorded as being lower in the water than the Persians as they had been unable to beach their ships to dry them. If recreating this battle then the Athenians should be equipped with Slow light triremes with Good Captains and Crews. Their Greek allies should be equipped primarily with Slow light triremes with Good or Average Captains and Crews. A few heavy triremes may be deployed by the allies. The Persians should be equipped with a mixture of Fast and Normal light and heavy triremes with the heavier version pre-dominating. Crews should be generally Average or Poor with a mix of Captains.

Otherwise, throughout this period the Athenians were known for the speed of their vessels. This can be replicated with a very high proportion of Good Captains and Crews rather than just using Fast ships.

FLEET LISTS

ATHENIAN C. 450 - 350BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes	0 - 10%
Light threes	0 - 50%
Heavy threes	0 - 100%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 100%
Average	0 - 50%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 25%
Average	25 - 100%
Poor	0 - 50%

Equipment

None.

Admirals And Vice-Admirals

Inspired, Good, Average, Poor or Incompetent

Notes to Fleet List for Athenian C.450-350BC

The heavy (cataphract) trireme is likely to have superseded the lighter aphract version altogether by this period.

Up to 50% of an Athenian fleet may be composed of light triremes representing either older style vessels still in service or heavy triremes with a reduced marine complement.

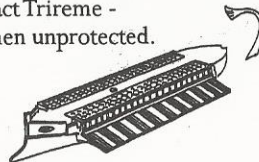
This list allows for an Athenian fleet of lesser capabilities than the previous one, reflecting the ongoing effect of decades of war, first against the Persians and then against their fellow Greeks in the Peloponnesian War.

ANCIENT NAVAL MODELS

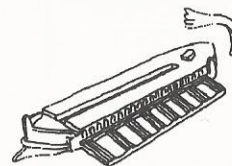
SCALE 1:1200

Langton Miniatures Ancient Naval range includes three different trireme designs.

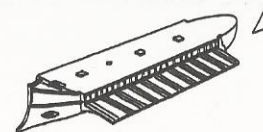
Aphract Trireme -
oarsmen unprotected.



Later Aphract Trireme -
oarsmen partially protected.



Cataphract Trireme
- full deck.



Trireme kits include main mast
and sail, boat mast and sail.

They are available with a choice
of sails set or furled.

DIAGRAMS ARE NOT TO SCALE.

GREEK C. 490 - 350BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes	0 - 20%
Light threes	30 - 100%
Heavy threes	30 - 50%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	25 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 25%
Normal	0 - 100%
Slow	0 - 100%

Qualities Of Marines

Good	0 - 50%
Average	25 - 100%
Poor	0 - 25%

Equipment

Reinforced ram bows where appropriate, e.g. by the Corinthians against the Athenians or by the Syracusans against the Athenians during the latter's Sicilian expedition.

Admirals And Vice-Admirals

Good, Average, Poor and Incompetent.

Notes to Fleet List for Greek C.490-350BC

The trireme became heavier as the period progressed with the light (aphract) type being largely superseded by the heavy (cataphract) version. Most triremes between 490 and 470 are likely to have been aphract.

This change would be more likely to occur in those states with less of a naval tradition who preferred to rely on good boarding infantry such as the Spartans.

Spartan ships should start the period with a high proportion of Poor Captains and Crews and Slow vessels. This would improve as the period progressed. Spartan marines should be considered to be Good.

Fleets composed of ships from a number of Greek states were common throughout the period. If any Athenians are included in such a fleet, then use the appropriate Athenian list from the two above to determine the qualities of Captains, Crews and Vessels as well as that of any Admiral or Vice-admiral.

Athenians or Spartans would normally command any fleet that their vessels would form a part off. If both are present then command would normally go to the Athenians.

Each national contingent of any composite fleet should be under the command of an Admiral or Vice-admiral of the same nationality to better reflect the problems of a fleet composed of differing national elements each with their own ambitions and priorities.

FLEET LISTS

MEDITERRANEAN PIRATE C. 490 - 50BC

Ship Types

Triakonters & pentekonters	0 - 50%
Biremes	30 - 90%
Liburnians	0 - 50%
Hemiolias	0 - 50%
Light & heavy threes	0 - 20%
Trihemiolias	0 - 10%
Fours to sixes	0 - 10%

Qualities Of Captains

Good	0 - 25%
Average	65 - 100%
Poor	0 - 10%

Qualities Of Crews

Good	0 - 25%
Average	65 - 100%
Poor	0 - 10%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size after 350 BC. Incendiary and chemical/biological weapons may be used.

Admirals And Vice-Admirals

Good or Average.

Notes to Fleet List for Mediterranean Pirates C.490-50BC

This is a generic list covering pirate activity in the Mediterranean from the time of the Persian Wars to the fall of the Roman Republic. The term 'pirate' is intended to cover such diverse groups as sea borne robber bands through states for whom piracy provided a useful supplement to state income to disaffected political leaders such as Sextus Pompey.

Pirate ships would by necessity have tended to be fast and their captains and crews competent sailors. A pirate of limited ability being unlikely to make much of a living. The qualities of Captains, Crews and vessels for this reflect that.

The very nature of the profession, the lack of formal training and the often limited resources of a pirate group would mitigate against the use of any substantial numbers of large warships. Certainly only such individuals as Sextus Pompey would be likely to incorporate fours to sixes in their fleets.

The first recorded mention of a hemiolia can be dated to about 375 BC. This vessel may not be used before that date. The trihemiolia was probably invented by the Rhodians at the close of the fourth century. They are first recorded about 304 BC and may not be used before that time.

Liburnians may not be used before 300BC.

Pirates from 100BC onwards may use up to 50% liburnians.

LATER GREEK C. 350 - 180BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes and hemiolias	0 - 10%
Heavy threes	10 - 90%
Trihemiolias	0 - 10%
Fours	10 - 90%
Fives	0 - 50%
Sixes to tens	0 - 20%

Qualities Of Captains

Good	0 - 25%
Average	25 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 25%
Average	25 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 25%
Normal	25 - 100%
Slow	0 - 75%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size.
Incendiary and chemical/biological weapons may be used after 250 BC.

Admirals And Vice-Admirals

Inspired, Good, Average, Poor or Incompetent.

Notes to Fleet List for Later Greek C.350-180BC

This list covers the independent Greek states from the rise of Macedon until the Roman Republic assumed naval dominance in the Mediterranean. Athenian naval dominance was effectively ended before the commencement of this period.

As noted previously, the Athenians were more conservative than most and did not introduce fours and fives until about 324BC. Other Greek states would have deployed them earlier.

Sixes to tens would have been unlikely before 300BC and threes, fours and fives would comprise the major part of most fleets even after this date.

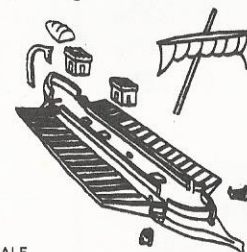
The first recorded use of the hemiolia, other than as a pirate warship, dates to around 375BC.

Rhodian fleets may include up to 25% hemiolias, and up to 25% trihemiolias after 304BC. Rhodian Captains and Crews should be classed as Good or Average.

ANCIENT NAVAL MODELS

SCALE 1:1200

by Langton Miniatures



NOT TO SCALE.

Diagram showing the Deceres (Ten) which has the option of sail set or furled.

The kit includes two catapults, mast, sail, two towers and officers accommodation.

FLEET LISTS

CARTHAGINIAN C. 350 - 146BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes and hemiolias	0 - 10%
Heavy threes	0 - 50%
Fours	0 - 50%
Fives	0 - 100%
Sixes & sevens	0 - 20%

Qualities Of Captains

Good	0 - 50%
Average	50 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 50%
Average	50 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 50%
Normal	50 - 100%
Slow	0 - 50%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size. Incendiary and chemical/biological weapons may be used.

Admirals And Vice-Admirals

Inspired, Good, Average or Poor.

Notes to Fleet List for Carthaginian C.350-146BC

This list covers the Carthaginian navy from the wars against Syracuse to the destruction of the Carthaginian state by the Romans.

Carthage generally seems to have favoured the light quinquereme and at least 75% of all quinqueremes deployed in a Carthaginian fleet must be light.

Fives may not make up more than 25% of any Carthaginian fleet before 300BC. Sevens may not be used before 320BC.

The Carthaginians long held a reputation for seamanship and ship handling skills. The option to downgrade the qualities of Captains, Crews and Vessels is included to allow the construction of fleets for the latter stages of the Second Punic War when Roman military dominance and wartime losses would have substantially reduced the effectiveness of the Carthaginian navy.

ANCIENT BUILDINGS

SCALE 1:1200

A range of harbour, dockside and buildings to complement the Ancient Naval Series. Suitable for inland and coastal settings.

To include the
MILITARY HARBOUR AT CARTHAGE

SYRACUSAN C. 370 - 250BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes and hemiolias	0 - 10%
Heavy threes	30 - 70%
Fours	20 - 50%
Fives	10 - 30%
Sixes	0 - 10%

Qualities Of Captains

Good	0 - 50%
Average	40 - 100%
Poor	0 - 10%

Qualities Of Crews

Good	0 - 50%
Average	40 - 100%
Poor	0 - 10%

Qualities Of Vessels

Fast	0 - 50%
Normal	40 - 100%
Slow	0 - 10%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size.

Admirals And Vice-Admirals

Inspired, Good or Average.

←

Notes on Syracusan C.370-250BC:

This list provides suitable opposition for an early Carthaginian fleet and represents the navy of a state considered by the ancients to be at the cutting edge of military development.

→

Notes on Alexandrian Macedonian C.335-323BC:

This list covers the naval forces of Alexander from his assuming the throne until his death. Sevens may not be used before 325BC.

ALEXANDRIAN MACEDONIAN

C. 335 - 323BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes and hemiolias	0 - 10%
Heavy threes	10 - 50%
Fours	10 - 50%
Fives	0 - 50%
Sevens	0 - 20%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size.

Admirals And Vice-Admirals

Good or Average.

FLEET LISTS

EARLY SUCCESSOR C. 323 - 300BC

Ship Types

Triakonters & pentekonters	0 - 10%
Biremes and hemiolias	0 - 10%
Heavy threes	30 - 60%
Fours	20 - 50%
Fives	0 - 30%
Sixes to tens	0 - 20%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	25 - 100%
Slow	0 - 50%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size.

Admirals And Vice-Admirals

Inspired, Good, Average or Poor.



Notes on Early Successor

C.323-300BC

This list is based upon the fleet assembled by Antigonus in 315 BC. It can be considered as typical for the period following the death of Alexander the Great. This was a time of substantial naval building programs and also marks a watershed in that the dominance of the trireme with its need for skilled crews and reliance on ramming tactics is ending and the age of the larger polyremes with their reliance on boarding actions is beginning.

Notes on Later Successor



C.300-180BC

This list covers the period from the supremacy of Successor states in the Eastern Mediterranean until their virtual subjection by Roman Republic. It reflects the increasing use of the larger polyremes by the Successor states in a world where size of ship and quantities of boarders played a much bigger part in naval tactics than seamanship and sea handling skills.

LATER SUCCESSOR C. 300 - 180BC

Ship Types

Triakonters & pentekonters	0 - 50%
Biremes and hemiolias	0 - 20%
Heavy threes	0 - 30%
Trihemiolias	0 - 10%
Fours	0 - 50%
Fives	0 - 50%
Sixes to tens	0 - 70%
Elevens to sixteens	0 - 30

Qualities Of Captains

Good	0 - 25%
Average	0 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 25%
Average	0 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 25%
Normal	0 - 100%
Slow	0 - 75%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size. Incendiary and chemical/biological weapons may be used after 250 BC.

Admirals And Vice-Admirals

Good, Average or Poor.

REPUBLICAN ROMAN C. 264 - 50BC

Ship Types

Liburnians, biremes, hemiolias & smaller	0 - 20%
Heavy threes	0 - 10%
Trihemiolias	0 - 05%
Fours	0 - 10%
Heavy fives	70 - 100%
Sixes	0 - 20%
Sevens to tens	0 - 05%

Qualities Of Captains

Good	0 - 10%
Average	15 - 100%
Poor	0 - 75%

Qualities Of Crews

Good	0 - 10%
Average	15 - 100%
Poor	0 - 75%

Qualities Of Vessels

Fast	0 - 25%
Normal	25 - 100%
Slow	0 - 75%

Qualities Of Marines

Good	0 - 100%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers on cataphract vessels of approp. size. Incendiary and chemical/biological weapons after 250 BC. The corvus allowed on vessels of quadrireme size and larger between 250 and 200 BC.

Admirals And Vice-Admirals

Good, Average, Poor or Incompetent.

**Notes on Republican Roman
C.264-50BC**

Roman fleets before 210BC should include at least 50% Poor Captains and Crews and 50% Slow ships.

There is no strong evidence for the use by the Romans of any vessel larger than a six. If any sevens to tens are used it must be as a fleet flagship and then only after 200BC.

**Notes on Barbarian Fleets →
C.100BC-AD500**

This is a generic list covering such widely varying nations as the Veneti, the Goths and the Saxons. Seamanship and ship handling skills would vary by nation as would the quality of the vessels used. For example Saxon vessels appear to have been quite handy whilst many of those used by the Goths in the mid third century AD seem to have been little more than large rafts.

BARBARIAN FLEETS C. 100 BC - AD500

Ship Types

Appropriate barbarian ships	0 - 100%
-----------------------------	----------

Qualities Of Captains

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 10%
Normal	40 - 100%
Slow	0 - 50%

Qualities Of Marines

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Equipment

None.

No rams may be used.

Admirals And Vice-Admiral

Good, Average, Poor or Incompetent.

FLEET LISTS

ANTONY'S FLEET AT ACTIUM 31 BC

Ship Types

Threes and smaller	0 - 10%
Fours	0 - 10%
Heavy fives	10 - 20%
Sixes	10 - 30%
Sevens to tens	50 - 60%

Qualities Of Captains

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size. Incendiary and chemical/biological weapons may be used after 250 BC.

Admirals And Vice-Admirals

Average or Poor.

Notes on both fleets at Actium 31BC

These lists are conjectural, being based upon the little ancient evidence that has come down to us.

It seems that Octavian's use of the harpago made both sides at the battle decide to avoid the use of incendiary weapons. The fear of fire spreading between grappled ships outweighing any advantages from the use of such a weapon.

OCTAVIAN'S FLEET AT ACTIUM 31 BC

Ship Types

Threes and smaller	0 - 30%
Fours	0 - 10%
Heavy fives	50 - 90%
Sixes	10 - 20%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 50%
Average	25 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size. Incendiary and chemical/biological weapons may be used and the harpago may be carried on vessels of quadrireme size and larger.

Admirals And Vice-Admiral

Inspired or Good.

EARLY IMPERIAL ROMAN

27 BC - AD150

Ship Types

Liburnians or smaller	0 - 100%
Heavy threes	0 - 90%
Fours	0 - 20%
Fives & sixes	0 - 10%

Qualities Of Captains

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Crews

Good	0 - 25%
Average	50 - 100%
Poor	0 - 25%

Qualities Of Vessels

Fast	0 - 25%
Normal	50 - 100%
Slow	0 - 25%

Qualities Of Marines

Good	0 - 50%
Average	25 - 100%
Poor	0 - 25%

Equipment

Artillery and towers may be carried on cataphract vessels of appropriate size. Incendiary weapons may be used and the harpago may be carried on vessels of quadrireme size and larger up to AD 50.

Admirals And Vice-Admiral

Good, Average or Poor.

Notes on Early Imperial Roman 27BC-AD150

At the time of the greatest establishment of the Roman Imperial Navy (second half of the first century AD) the main Imperial fleets (*classes praetoriae*) were based at Misenum and Ravenna with provincial fleets at Alexandria, Seleucia, Cyzicus and Gesoriacum. These were supported by river fleets, one on the Rhine and two on the Danube.

It seems likely that the *classes praetoriae* and the provincial fleets were organised with fives and sixes as fleet flagships and squadron leaders with the main bulk of the fleets composed of threes and fours supported by liburnians. The river fleets would have been largely composed of liburnians with threes as flagships and squadron leaders.

By the end of the first quarter of the second century AD the larger vessels appear to have all but disappeared and threes and liburnians seem to have been the majority types used with predominance going to the liburnians.

Given the limited uses of the fleets during the early Empire coupled with the growing expense of maintaining the Empire a deterioration in the qualities of Captains, Crews and Vessels is to be anticipated.

FLEET LISTS

MIDDLE IMPERIAL ROMAN AD 150 - 350

Ship Types

Liburnians or smaller	0 - 100%
Heavy threes	0 - 100%

Qualities Of Captains

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Crews

Good	0 - 10%
Average	40 - 100%
Poor	0 - 50%

Qualities Of Vessels

Fast	0 - 10%
Normal	40 - 100%
Slow	0 - 50%

Qualities Of Marines

Good	0 - 25%
Average	25 - 100%
Poor	0 - 50%

Equipment

Artillery may be carried on cataphract vessels of appropriate size.
Incendiary weapons may be used.

Admirals And Vice-Admiral

Good, Average or Poor.

←

Notes on Middle Imperial Roman AD150-350

Constantine supposedly raised a fleet of triremes in the early fourth century AD. This may be true or an anachronistic use of a Classical term. The majority of fleets in this period would be composed of liburnians or smaller with triremes acting as flagships and squadron leaders and becoming rarer as the period progresses.

Seamanship and ship handling skills can be assumed to deteriorate as the period progresses.

Notes on Late Imperial Roman → AD350-600

This list covers the fleets of the later Roman Empire in the West until it's fall in AD476 as well of those of the Eastern Roman Empire.

Seamanship and ship handling skills progressively declined during the course of this period, particularly in the West where little in the way of a fleet would have existed by the beginning of the fifth century AD.

LATE IMPERIAL ROMAN AD350 - 600

Ship Types

Liburnians or smaller	0 - 100%
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Qualities Of Captains

Good	0 - 10%
Average	15 - 100%
Poor	0 - 75%

Qualities Of Crews

Good	0 - 10%
Average	15 - 100%
Poor	0 - 75%

Qualities Of Vessels

Fast	0 - 10%
Normal	15 - 100%
Slow	0 - 75%

Qualities Of Marines

Good	0 - 10%
Average	15 - 100%
Poor	0 - 75%

Equipment

None.

Admirals And Vice-Admiral

Good, Average or Poor.

Development of the Ancient Oared Warship

GENERAL

The purpose of this section is to give a general overview of the development of the ancient oared warship and the tactics employed by those who commanded them.

Given the time period involved and the size of the subject, this overview must needs be sketchy. It is hoped, however, that the information will provide a background to the period, particularly to those new to it, as well as giving some understanding of the conditions and limitations under which the ancient warship operated.

EARLY DEVELOPMENTS

The ship is the subject of decorative reliefs, paintings and models from the third millennium BC onwards. Flat bottomed Egyptian river craft are depicted around 2650BC and oared Egyptian ocean going vessels can be dated to the 5th dynasty (2560-2420BC). Both types of vessel are obviously cargo carriers.

In contrast to the rounded Egyptian vessels with their symmetrical raised bows and sterns, lead models from Naxos and other sources and drawings from about the same period depict a different ship type altogether. These oared vessels are long and narrow. On some, often referred to as Aegean ships, a projecting forefoot is visible. At the time, this design would be just an extension of the keel beyond the stern post in the bow but it would develop later into the ram beaks of the warships of the Classical Age.

Thus, by the Bronze Age, a Mediterranean naval tradition is clearly established and embryonic versions of both the rounded merchant vessels and the sleek warships that were to dominate the seas of the Classical period for over a thousand years are in existence.

THE FIRST GALLEYS

By the 16th century BC, the Cretans were trading widely in the central Mediterranean. Cretan wall paintings from about a century later show vessels of varying sizes under oars and/or sail. Some are shown being paddled, the paddle possibly being used as an aid for entering and leaving harbour.

300 years later, the Myceneans had become a naval power with outposts in Asia Minor and elsewhere. The Phoenicians were also well established as pirates and traders and Cyprus appears to have benefited from its position between the Phoenician and Mycenaean spheres of influence. From this period dates the galley as we know it. Homer's Iliad, though later in time, draws on an oral tradition that probably extends back to the Mycenaean period. The ships mentioned are all oared galleys, usually rowed by 50 men, early pentekonters in fact.

The central feature of naval warfare at this time is that the ships were used to transport soldiers to the place of battle and not used as warships in the sense that we would use the term today. That is not to say that encounters at sea did not take place but that these would have been isolated occurrences and not the norm. There was no formal tactical doctrine for war at sea and the ram had yet to be invented.

By the 12th century BC the Mycenaean civilisation had collapsed and the Hittite empire was ending. There were vast movements of peoples by land and sea throughout the central and eastern Mediterranean. From this period comes our first record of a naval battle, that between the Egyptians under Ramses III and a Sea Peoples fleet in 1176BC. The relief at Medinet Habu commemorating this battle appears to show a coastal action, the ships involved possibly armed merchantmen rather than true warships. The Egyptian ships are equipped with both oars and a sail whilst those of the Sea Peoples appear to be sailing ships. This is unlikely to be artistic licence and the ships of the Sea Peoples may well represent a small supporting naval contingent rather than a serious attempt at naval invasion, at least in this instance.

In the centuries that followed the collapse of Mycenaean civilisation a dark age, as far as historical information is concerned, occurs. Yet during this period, naval development must have continued. Certainly by the end of the 8th century, the ship is becoming a weapon of war in itself and not just a troop transport. Vase paintings of the period show troops fighting around beached ships and later fighting from the decks of vessels at sea. At around this time, certainly by the beginning of the 7th century, the use of the ram was becoming a factor in sea battles. A new era was dawning, one which was to shape warfare at sea for over a thousand years.

Development of the Ancient Oared Warship

The Bireme

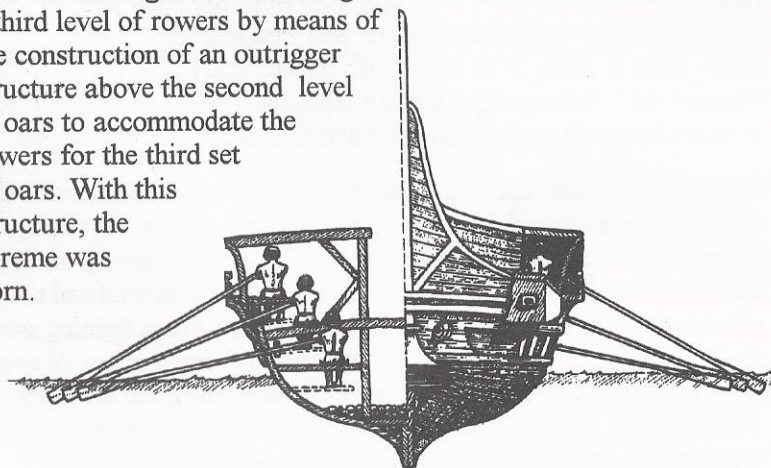
The introduction of the ram made additional demands upon warship construction. To effectively use a ram, a ship had to be both manoeuvrable and be able to maximise its momentum. The ratio of oarsmen to length had to be increased yet, at the same time, the overall weight of the vessel had to be as low as possible.

The problem of maximising the ratio of oarsmen to ship length was initially solved by adding another level of oarsmen above the first, thus effectively doubling the number of oarsmen in a given hull length. Such a method of construction was definitely in use by 701BC where ships with two levels of oars are shown on the reliefs of Sennacherib at Nineveh recording the evacuation of Tyre by sea.

Such vessels may have existed earlier and are depicted possibly as early as 735 BC. There is no clear evidence as to which nation invented the bireme, both the Phoenicians and the Ionian Greeks are possible contenders. Certainly, the two level system was in use in mainland Greece by about 650BC.

The doubling of rowing levels was, however, only the first in a two stage process of improving ramming efficiency.

The second stage was the adding of a third level of rowers by means of the construction of an outrigger structure above the second level of oars to accommodate the rowers for the third set of oars. With this structure, the trireme was born.



The Trireme

The importance of the invention of the trireme cannot be understated. As a weapons system it is at least as important as the Dreadnought battleship of the first part of the twentieth century. Here was an oared warship that maximised the number of oarsmen to ship length, thus producing the momentum necessary to deliver a devastating ram whilst at the same time being light enough to be extremely manoeuvrable. This combination tended to make the trireme quite fragile, but properly managed, it was one of the most effective weapons of war ever constructed.

The date for the introduction of the trireme is difficult to determine. Thucydides credits their invention to the Corinthians, possibly as early as 700BC or, more conservatively, by 650BC. The Sidonians are also mentioned as the inventors, by other sources. If these dates are correct the fact that 150 to 200 years were then needed for the trireme to become the standard warship of the ancient navies should not be considered as surprising. The relative cost and the high degree of discipline and skill required by its crews in order to make the best use of the vessel would initially have limited its development.

The trireme gradually supplanted other warship types during the course of the 6th century BC. Development was slow: Athens, the state with which the trireme is perhaps most closely associated, did not begin the construction of a trireme fleet until 482BC, some eight years after the Battle of Marathon and only two years before the second Persian invasion of Greece.

However, it is reasonably safe to say that by about 550BC the trireme was common to the majority of navies, certainly to most of the great powers of the day. It is during this period that the tactics of the ram equipped fleet were developed, something which Herodotus attributes to the Phocaeans in the mid 6th century BC, those tactics first being applied to the pentekonteres and then to the trireme.

The earliest type of trireme was only partially decked, having a central walkway with the rowers heads and bodies unprotected on either side. In these rules we represent this style as the 'aphract early' trireme.

The Trireme - continued

By the time of the Persian wars, two distinct types of trireme exist, requiring different tactical approaches. They were virtually identical in profile, the chief difference being in deck construction.

As the trireme became more common, the design was modified and improved and greater protection was afforded to the rowers in the form of canopies to protect them. This type is referred to in the rules as the 'aphract later' trireme.

The other type was fully decked (thus, heavier) and is referred to in the rules as the 'cataphract' trireme, although the oarsmen would still not have been fully enclosed.

The effective use of the trireme in combat depended upon speed, manoeuvrability and, most of all, the skill of the vessel's crew, their main tactic being to inflict ramming damage on another ship.

The lighter triremes were the most manoeuvrable and accurate at ramming. Their development into the heavier fully decked version however, had the advantage of protection to oarsmen and the ability to carry more troops - a valuable resource in boarding actions.

The type of trireme favoured by a state was often a reflection of their tactical preference. Even when the decked over trireme became the standard, trireme warfare still depended on the use of the ram. The preference of a particular state to deploy additional marines would have been more than likely to offset their lack of seagoing skills.

The Larger Polyremes

The trireme was the standard warship through the 5th and 4th centuries BC. They were the mainstay of most Mediterranean navies during this period and, though supplemented by smaller ships at times, are mentioned in nearly every recorded naval battle. Differing situations and requirements however, brought about change and by the mid 4th century BC, new types of warships were beginning to appear. These were of increasingly larger sizes and are known by the generic name of polyremes.

It is important to note that the development of the trireme did not cease with the appearance of these larger vessels. The basic design continued to be refined through to the early Roman empire. The polyremes, however, changed the nature of naval warfare and, over the course of time, relegated the trireme to a subsidiary position.

The fundamental difference between the trireme and the polyremes that followed it, apart from the obvious one of size, is in the way that the oarsmen were employed. Galleys up to and including the trireme employed one man to each oar. The polyremes changed this arrangement, usually employing two or more men to each oar on up to three levels.

It is now generally accepted that the quadrireme or four was actually of the earlier bireme construction, but with two men to each oar; and that the first quinqueremes or fives were initially of trireme construction, with two men per oar on two levels with a final level of one man per oar.

Later quinqueremes appear to have been of bireme construction with three men per oar on one level and two on the other.

The greater number of oarsmen per oar increased the width of the polyremes in comparison to the trireme without necessarily, at least in the case of the early models, substantially increasing the length of the vessel. What resulted was a stronger, fully decked vessel, capable of carrying a much larger marine complement than the trireme though with diminishing manoeuvrability as the vessels became larger. The first true cataphract ships, in the sense that their oarsmen were fully enclosed, had been developed.

The initial building of such ships seems to have been prompted by an arms race between Carthage and Syracuse. The continued construction of even larger vessels became both an exercise in power projection and a reflection of the shift from ramming to boarding tactics.

The earlier triremes had required highly trained 'professional' crews; however, with the polyremes' need of much larger crews, naturally

Development of the Ancient Oared Warship

The Larger Polyremes - continued

overall skill levels dropped. The effect of this was, however, minimised by the nature of the polyremes themselves. Their reduced manoeuvrability and multiple manning of oars, meant the skills of an individual oarsman would make less of a contribution to the effectiveness of the vessel's performance. In any case, through their sheer size and mass alone, a polyreme could deliver a far more damaging ram than a trireme ever could. Greater emphasis was also put on the marine complement in the resolution of any conflict.

The need to maximise the marine complement led to larger ships and to a compromise between manoeuvrability and capacity. A balance was seemingly reached in the quinquereme, although that did not stop some states from going on to develop twenties, thirties or even forties.

The first quadriremes seem to have been built by the Carthaginians, probably in the closing years of the 5th century BC. Like the trireme, it took a while to become established but even the conservative Athenians were building them by about 330BC.

Dionysius I of Syracuse is credited with the invention of the quinquereme and their deployment by 398BC.

By around 350BC, the type had become widely known and was in use as a front line warship in the Phoenician states of the Persian Empire. Like the trireme, the quinquereme seems to have been built in two basic styles: a lighter, more manoeuvrable version favoured by such nations as the Carthaginians; and a heavier version capable of carrying up to 120 marines, preferred by the Romans, amongst others.

The invention of the six is attributed to Dionysius II of Syracuse, who was deploying them about 356BC. Larger vessels soon followed. The seven probably dates to the late 4th century and Alexander the Great is supposed to have contemplated the construction of a fleet of them to support an invasion of Carthage.

Following the death of Alexander, one of his successor's generals, Antigonus is recorded as having nines and tens in his fleet of 314BC.

Demetrius Poliorketes, the son of Antigonus, is credited with the building of elevens, twelves, thirteens and sixteens after 307BC. Ptolemy II of Egypt, at the time of his death, is reported to have had a fleet containing thirteens, a twenty, and two thirties.

The increasing size and structural strength of galleys allowed the use of catapults from on board a ship and the building of towers on deck. The Romans even equipped many of their ships during the Second Punic War with the *corvus*, a spiked boarding bridge, designed to lock two ships together to facilitate boarding actions.

While ever larger ships were being constructed, the development of smaller vessels was not forgotten. The *hemiolia*, a progression of the *bireme*, designed to operate under both oars and sail, makes an appearance about 375BC as a pirate vessel and about 350BC in the service of regular navies. Around 304BC, the Rhodians are recorded using the *trihemiolia*, apparently a development of the trireme, designed to operate in the same manner as a *hemiolia* but as a pirate chaser. The successor states often employed large numbers of small ships in their fleets and some 75% of the Macedonian fleet at the Battle of Chios in 201BC was reported to have contained 30 to 60 man vessels.

'Coming Full Circle'

The 3rd century BC was the high water mark of the largest polyremes, as well as the time in which the Roman Republic assumed domination of the Classical Mediterranean world. The naval battles of Rome's great wars with Carthage were fought largely with quinqueremes of both the light and heavy types.

With the defeat of Carthage, Rome went on to absorb or neutralise Alexander's successors, using the quinquereme as its standard warship with the occasional six as a flagship. Though the Roman Civil Wars saw a resurgence in the use of larger vessels, in particular by Anthony at Actium, by the time of Octavian's creation of the Roman Empire, the quinquereme and the six were the largest ships deployed. The early empire saw the trireme, supported by smaller vessels, once again become the standard warship with quinqueremes and sixes in use as flagships.

'Coming Full Circle' - continued

The relative peace, particularly at sea, during the first century of the Empire, saw a continuing decline in the size of Roman fleets. With no nation able to threaten Rome by sea, naval activities became centred on ensuring that the Egyptian corn supply reached Rome and providing support to the legions, particularly those in northern and central Europe.

By the 2nd century AD, the bulk of the Roman fleets had become composed of liburnians or smaller, with the occasional trireme as a flagship. The economic and military pressures of the 3rd century AD saw a further decline in Roman naval power and a growing increase in piracy.

Though there may have been a resurgence of trireme building under Constantine during the civil wars of the early 4th century AD, the art of trireme building had been lost by the end of that century. Piracy was rampant and the barbarian nations were able to roam the Mediterranean almost at will.

The final years of the Roman Empire in the west and the early years of what became known as the Byzantine Empire in the east, saw the Mediterranean seas patrolled by a few, small Imperial ships - scarcely different from the pentekonters and triakonters of 1,000BC. The years of Imperial peace followed by growing military and economic pressures had taken their toll. The Empire could not maintain enough troops to defend the dwindling number of provinces, let alone build and man sufficient ships to police the Mediterranean as well.

Though the galley would continue to play a substantial role in naval warfare for another thousand years, the age of the Classical ram equipped warship was ending and the history of oared warfare had, for the time being, come almost full circle.

The Development of Naval Tactics

Whether a state relied on the skill of its oarsmen or the strength and number of its marines, there were three basic tactics of galley warfare: the **Periplous**, **Kyklos** and **Diekplous**. These were developed in the later 6th and early 5th centuries BC and continued in use through to the Roman Empire.

Ancient warfleets would usually have adapted their deployment in order to benefit from any geographical features, weather or sea conditions and any specific national strength or advantages in ship design. Fleets would deploy either on mass or, more usually, by squadron in line abreast with a distinct centre and wings depending upon the number of vessels available.

The Periplous

At its simplest, the periplous was an attempt to outflank a fleet in 'line abreast' formation by extending one's own line beyond one or both flanks of the enemy.

Superiority in numbers in an open sea area gave the greatest chance for the performing of such a manoeuvre; however, it could be performed by two opposing fleets of equal numbers, where each would be able to outflank one wing of the other, leaving the battle to be decided by a general melee in the centre.

Variations on the periplous involved backing water with part of one's own fleet to draw the enemy on and then reversing direction to outflank and attack any of the enemy that had broken formation. Another tactic was to use part of your fleet, sometimes from a concealed position, to envelop one or both flanks of the enemy ships attempting to close with those of one's own fleet who were backing water.

As always, it was the fleet which, whilst working to a good plan, had the crews best trained to react to and exploit the changing shifts of any battle, that stood the greatest chance of victory.

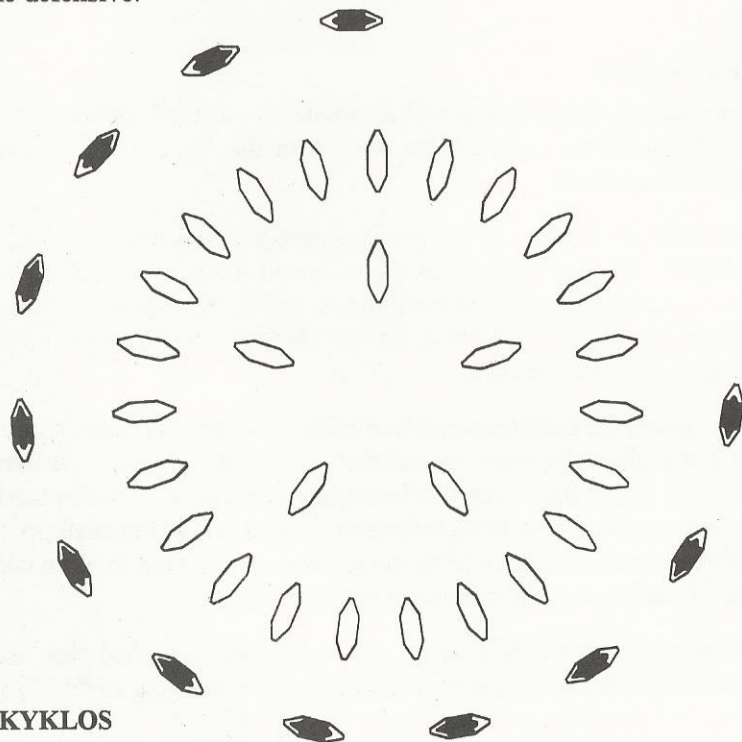
NAVAL TACTICS

The Kyklos

The kyklos was a manoeuvre that could be adopted by fleets inferior to their opponents - whether in numbers, skill or manoeuvrability. Basically, it was a defensive circle formed by bringing the sterns of vessels closer than their bows, and with their ram beaks pointing outward.

Any enemy attempting to close, unless highly skilled in breaking out one ship at a time, would find himself facing a number of potential rammers.

Any ancient admiral, unwary enough to expose the flanks of his ships while navigating around a kyklos, could suddenly find his vessel being rammed in the beam by ships accelerating out of that kyklos. Ships which had, up to moments before, been stationery and looked to be on the defensive.



The Diekplous

The key tactic for the disruption of a 'line abreast' deployment or the exploitation of any gap in such an enemy formation, would be to form one's own fleet, or a portion of it, into 'line astern'.

This formation would approach the enemy line and the lead ship would single out a target for an attempted oar rake and, in completing the rake, break through to the area behind the enemy line. The result of this would be to disrupt the enemy line, leaving the raked galley vulnerable to following vessels. Other galleys in the 'line astern' formation could single out targets for their own oar rakes or exploit a gap or confusion created by the file leaders.

Any enemy vessel turning out of 'line abreast' - either to aid another, or attempting a beam ram against one of the penetrating 'line astern' ships - would expose itself to a beam ram from an oncoming galley.

Once a vessel had successfully broken through an enemy line, it would attempt a rapid turn to bring itself back into the battle to take advantage of any disruption. It would thus be in a position to ram any enemy vessel turning out of formation in response to the breakthrough. This rapid turn, a subsidiary manoeuvre to the diekplous, was called an anastrophe.

Defence against the Diekplous

A standard counter to a potential enemy diekplous was to form your fleet into two or more lines, to take advantage of any disorganisation in the ships breaking through.

By forming up in more than one line, a fleet either had to reduce its frontage or increase spacing between vessels. By reducing frontage, it could fall victim to an enemy feinting a diekplous and then rapidly converting to a periplous. By increasing spacing, it might avoid the periplous but the initial damage from a diekplous attack would be greater.

In the diagrams on the opposite page, the 'white' vessels would have been protected if there had been a second line of friendly vessels behind them. The second line of white vessels would have been able to attack the black vessels as they turned after breaking through.

DIAGRAMS SHOWING THE STAGES OF A SUCCESSFUL DIEKPLOUS.

The 'white' C class triremes moving at slow speed have completed their move too close to their A class opponents ('black').

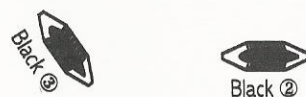
The 'black' A class triremes are at ram speed and are close enough to effect a Diekplous.



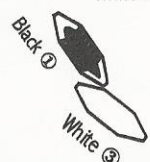
1.



As the rake is successful, White 3 is moved so that its angle B/C is touching Black 1's angle A/B, forming a straight line between the raker's side B and the target's side C.



3.

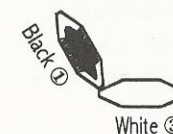


Black 1 makes a turn enabling it to oar rake White 3.

Black 2 has made two turns (1 to starboard, then back to port) and is ready to exploit the breakthrough.



2.



Black 1 has completed a full Oar Rake, disabling White 3.

Black 2 and Black 3 are safe from attack due to white's inability to reach them - because White's maximum speed could only be cruise.



4.



Tactics for Late Bronze Age Warships

Special Tactics for Late Bronze Age Warships

The use of the ram did not come into effect until after the end of the Bronze Age. The introduction of the ram made a dramatic leap forward in the field of naval tactics and influenced the development of massed fleet tactics by the Phocaeans in the 6th century BC.

Prior to the invention of the ram, ancient warships were often no more than troop transports. Battles were, however, occasionally fought at sea, hand held missile weapons being used as ships came together.

One tactic that appears to have been favoured by the Egyptians against the Sea Peoples is the use of grapples, whilst backing water, to capsize an enemy vessel. The evidence for this is based upon the reliefs at Medinet Habu showing the fleet of Ramses III in action.

To replicate this on the wargames table, the following strategy has been devised.

Note: The relevant game rules apply, eg actions must be announced in Ship Orders at the beginning of the game Turn; grappling is a 'task' (Alterations and Repairs) etc.

TO CAPSIZE AN ENEMY VESSEL

Procedure

A vessel intending to capsize another must, during its movement phase:

- Ω Make contact with his bow (base edge A) along position C of the target ship's base;
- Ω Successfully grapple that opponent.

THEN provided that the opponent does not cut those grapples during his own part of the game Turn - the attacker may back water to its full extent during its next movement phase. The target vessel is considered to be capsized on the completion of that move and becomes a partially submerged hulk.

Restrictions

Any attempt to deploy grapples to capsize a vessel and any attempt to cut such grapples (Alterations & Repairs) is subject to a specific case modifier to the Ability score of -4.

The restriction to the use of this strategy is that it may only be used by warships not equipped with ram beaks and then not after 900BC.

