and laid along **a** high spar-deck. The larger vessels show on one side as many as twenty-one or twenty-two and in one case twenty-six oars, besides four or five steering. They show considerable camber, the two ends rising in a curved line which in some instances ends in a point, and in others is curved back and over at the stern and terminates in an ornamentation, very frequently of the familiar lotus pattern. At the bow the stem is sometimes seen to rise perpendicularly, forming a kind of forecastle, sometimes to curve backward and then forward again like a neck, which is often finished into a figure-head representing some bird or beast or Egyptian god. On the war galleys there is frequently shown a projecting bow with a metal head attached, but well above the water. This, though no doubt used as a ram, is not identical with the beak *à fleur d'eaut* which we shall meet with in Phoenician and Greek galleys. It is more on a level with the proembolion of the latter.

The impression as regards the build created by the drawings of the larger galleys is that of a long and somewhat wall-sided vessel with the stem and stern highly raised. The tendencies of the vessel to “ hog,” or rise amidships, owing to the great weight fore and aft unsupported by the water, is corrected by a strong truss passing from stem to stern over crutches. The double mast of the earlier period seems in time to have given place to the single mast furnished with bars or rollers at the upper part, for the purpose apparently of raising or lowering the yard according to the amount of sail required. The sail in some of the galleys is shown with a bottom as well as a top yard. In the war galleys during action it is shown rolled up like a curtain with loops to the upper yard. The steering was effected by paddles, sometimes four or five in number, but generally one or two fastened either at the end of the stern or at the side, and above attached to an upright post in such a way as to allow the paddle to be worked by a tiller.

There are many remarkable details to be observed in the Egyptian vessels figured in Duemichen’s *Fleet of an Egyptian Queen,* and in Lepsius’s *Denkmäler.* The Egyptian ship, as represented from time to time in the period between 3000 and 1000 b.c., presents to us a ship proper as distinct from a large canoe or boat. It is the earliest ship of which we have cognizance. But there is a noticeable fact in connexion with Egypt which we gather from the tomb paintings to which we owe our knowledge of the Egyptian ship. It is evident from these records that there were at that same early period, inhabiting the littoral of the Mediterranean, nations who were possessed of sea-going vessels which visited the coasts of Egypt for plunder as well as for commerce, and that sea-fights were even then not uncommon. Occasionally the combination of these peoples for the purpose of attack assumed serious proportions, and we find the Pharaohs recording naval victories over combined Dardanians, Teucrians and Mysians, and, if we accept the explanations of Egypto­logists, over Pelasgians, Daunians, Oscans and Sicilians. The Greeks, as they became familiar with the sea, followed in the same track. The legend of Helen in Egypt, as well as the numerous references in the *Odyssey,* point not only to the attraction that Egypt had for the maritime peoples, but also to long-established habits of navigation and the possession of an art of shipbuilding equal to the construction of sea-going craft capable of carrying a large number of men and a considerable cargo besides.

But the development of the ship and of the art of navigation clearly belongs to the Phoenicians. It is tantalizing to find that the earliest and almost the only evidence that we have of this development is to be gathered from Assyrian representations. The Assyrians were an inland people, and the navigation with which they were familiar was that of the two great rivers, Tigris and Euphrates. After the conquest of Phoenicia, they had knowledge of Phoenician naval enterprise, and accordingly we find the war galley of the Phoenicians represented on the walls of the palaces unearthed by Layard and his followers in Assyrian discovery. But the date does not carry us to an earlier period than 700 b.c. The vessel represented is a bireme war galley which is “aphract,” that is to say, has the upper tier of

rowers unprotected and exposed to view. The apertures for the lower oars are of the same character as those which appear in Egyptian ships of a much earlier date, but without oars. The artist has shown the characteristic details, though some- what conventionally. The fish-like snout of the beak, the line of the parodus or outside gangway, the wickerwork cancelli,@@l the shields ranged in order along the side of the bulwark, and the heads of a typical crew on deck (the πρωpevs looking out in front in the forecastle, an *επιβάτης,* two chiefs by the mast, and, aft, the κeλeυστ⅛s and *κυβερνήτης).* The supporting timbers of the deck are just indicated. The mast and yard and fore and back stays, with the double steering paddle, complete the picture.

But, although there can be little doubt that the Phoenicians, after the Egyptians, led the way in the development of the shipwright’s art, yet the information that we can gather concerning them is so meagre that we must go to other sources for the description of the ancient ship. The Phoenicians at an early date constructed merchant vessels capable of carrying large cargoes, and of traversing the length and breadth of the Mediterranean, perhaps even of trading to the far Cassiterides and of circumnavigating Africa. They in all probability (if not the Egyptians) invented the bireme and trireme, solving the problem by which increased oar-power and consequently speed could be obtained without any great increase in the length of the vessel.

It is, however, to the Greeks that we must turn for any detailed account of these inventions. The Homeric vessels were aphract and not even decked throughout their entire length. They carried crews averaging from fifty to a hundred and twenty men, who, we are expressly told by Thucydides, all took part in the labour of rowing, except perhaps the chiefs. The galleys do not appear to have been armed as yet with the beak, though later poets attribute this feature to the Homeric vessel. But they had great poles used in fighting, and the term employed to describe these *(vαυμαχα)* implies a knowledge of naval warfare. The general characteristics are indicated by the epithets in use throughout the *Iliad* and the *Odyssey.* The Homeric ship is sharp (0o⅛) and swift (ώκ€Ϊα); it is hollow *(κοίλη, yλαφυρη, μeγακητης),* black, vermilion-cheeked *(μιλτσπάρηος)*, dark-prowed (xυαp07rpφpos), curved *(κοpωvlς, άμφιέλισσα),* well-timbered *(έΰσσελμος),* with many thwarts (τroλ6fυγos, *iκατbξ*ι\*γos). The stems and sterns are high, upraised, and resemble the horns of oxen *(ορθοκραίραι).* They present in the history of the shipping of the Mediterranean a type parallel with that of the Vikings’ vessels of the North Sea.

On the vases, the earliest of which may date between 700 and 600 b.c., we find the bireme with the bows finished off into a beak shaped as the head of some sea monster, and an elevated forecastle with a bulwark evidently as a means of defence. The craft portrayed in some instances are evidently pirate vessels, and exhibit a striking contrast to the trader, the broad ship of burden *(φορτiς ebpeια),* which they are overhauling. The trireme, which was developed from the bireme and became the Greek ship of war (the long ship, rαυs *μακρά, navis longa, par excellence),* dates, so far as Greek use is concerned, from about 700 B.c. according to Thucydides, having been first built at Corinth. The earliest sea-fight that the same author knew of he places at a somewhat later date—664 B.c., more than ten centuries later than some of those portrayed in the Egyptian tomb paintings.

The trireme was the war ship of Athens during her prime, and, though succeeded and in a measure superseded by the larger rates,—quadriremc, quinquereme, and so on, up to vessels of sixteen banks of oars *(inhabilis prope magnitudinis),—* yet, as containing in itself the principle of which the larger rates merely exhibited an expansion, a difference in degree and not in kind, has, ever since the revival of letters, concentrated upon itself the attention of the learned who were interested in such matters. The literature connected with the question of ancient ships, if collected, would fill a small library, and the greater part of it turns upon the construction of the trireme and the disposition of the rowers therein.

@@@1 See Rawlinson, *Ancient Monarchies,* vol. ii. p. 176.