Homer presents the same detail of construction. It is remarkable that some of the early types of boats belong­ing to the North Sea present an intermediate method, in which the planks are fastened together with pins or trenails, but are attached to the ribs by cords passing through holes in the ribs and corresponding holes bored through ledges cut on the inner side of each plank.

We thus arrive, in tracing primitive efforts in the art of ship construction, at a stage from which the transition to the practice of setting up the framework of ribs fastened to a timber keel laid lengthwise, and subsequently attach­ing the planking of the hull, was comparatively simple. The keel of the modern vessel may be said to have its prototype in the single log which was the parent of the dug-out. The side planking of the vessel, which has an earlier parentage than the ribs, may be traced to the attempt to fence in the platforms upon the sea-going rafts, and to the planks fastened on to the sides of dug-out canoes so as to give them a raised gunwale. @@1 The ribs of the modern vessel are the development of the framework originally inserted after the completion of the hull of the canoe or built-up boat, but with the difference that they are now prior in the order of fabrication. In a word, the skeleton of the hull is now first built up, and the skin, &c., adjusted to it ; whereas in the earlier types of wooden vessels the outside hull was first constructed, and the ribs, &c., added afterwards. It is noticeable that the invention of the outrigger and weather platform, the use of which is at the present time distributed from the Andaman Islands eastward throughout the whole of the South Pacific, has never made its way into the Western seas. It is strange that Egyptian enterprise, which seems at a very early period to have penetrated eastward down the Red Sea and round the coasts of Arabia towards India, should not have brought it to the Nile, and that the Phoenicians, who, if the legend of their migration from the shores of the Persian Gulf to the coast of Canaan be accepted, would in all probability, in their maritime expeditions, have had opportunities of seeing it, did not introduce it to the Mediterranean. That they did not do so, if they saw it at all, would tend to prove that even in that remote antiquity both nations possessed the art of constructing vessels of a type superior to the out­rigger canoes, both in speed and in carrying power.

The earliest representations that we have as yet of Egyptian vessels carry us back, according to the best authorities, to a period little short of 3000 years before Christ. Some of these are of considerable size, as is shown by the number of rowers, and by the cargo consist­ing in many cases of cattle. The earliest of all presents us with the peculiar mast of two pieces, stepped apart but joined at the top. In some the masts are shown lowered 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, λvhich 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'eau,* which we shall meet with in Phoenician and

Greek galleys. It is more on a level with the proem- bolion 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 900-800 β.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 somewhat conventionally. The fish-like snout of

@@@1 Compare the planks upon the Egyptian war galleys, added so as to protect the rowers from the missiles of the enemy.