To and from Ostia, the harbour town at the mouth of the Tiber about 15 miles from Rome, came hundreds of cargo ships every year in the heyday of the Empire. In size these boats varied widely, from little scaphae or skiffs to be seiled or rowed by one or a fen men, to enormous ocean-going vessels like the one Lucian described, the Isis. She was a grain ship blown off course by stormy weather which took shelter in the harbour at Athens. All the athenians rushed down to the harbour to see her: 180 feet in length, more than 45 feet in the beam, and 44 feet from the deck to the bottom of the hold. Most likely the isis could carry well over 1000 tons of grain. As Lionel Casson hes stated, "It was not until 1845 that the North delantie saw a ship its size."

The Isis Giminiana, however, was a much smaller boat, and perhaps not intended as a ses-going vessel at all. This boat, a navis codicaria, was painted on the wall of a tomb outside Pompeii. She was probably a river boat, though her steering oars are large, and her mast may be a \&owing mast rather than meant to carry canvas. Farnaces, the captain or helmsman, holds the tiller which is fixed at right angles to the bar connecting the two steering oars. He stands on the roof of a little stern cabin, while from the bow runs a gangplank to the dock.

The Europa, unlike the Isis Giminiana, is a navis oneraria. Her tonnage might be acound $15 \overline{0}$, her size perhaps 60 or 70 feet lons and 20 or 25 feet in the beam. This is what J.G. Landels has called "an ordinary smallish merchantman." He goes on to remark that "ships of 400-500 tons burden were by no means uncommon, and we do not know how many very large ones were in service. It is significant that those singled out for special mention are all well over 1000 tons." The Europa was drawn by some unknown dradghtsman on the wall of a house in Pompeid. He evidently knew quite well what he was doing, for he showed accucately the details of bow and stern design, the double steering oars, the ship's bogt on its towline, the stays, braces and brails. We can even see what seens to be a crowsnest at the mast head, and a third mast carrying a pennant. If the horizontel line behind the mast represents the roof line of a cabin amidships, it is exceptionally large, though smaller ones asn be found at times, replacing the usual stern cabin.

In a typical navis oneraria, there are two masts, main amidships and artemon or fore in the bow; three sails (top, main and fore or $j i b$ on the artemon), two of which are raised and lowered on brails. These are ropes which run in parallel vertical lines up across the sail,
through rings sewn to it, bnrougn pulleys attached to the yardarm, and down on the other side of the sail where they are grouped in bundles and fastened down onto the deck. Hauling on the bundles of brails will raise up the foot of the sail until the canvas is completely furled up underneath the yardarm, where some sailor must make it all ship-shape when in port. So to lower sail in modern terms, a Roman skipper had in fact to raise it! Notice the pennants, the name and some suitable carved bow ornament, the hole in the topsail to pass the heavy forestay through, the very rounded buckety shape of the hull with its high curved prow and stern, the traditional gooseneck carved ornament on the stern, and the fact that the boat is a square-rigger, not fore and aft rigged as a modern sailboat normally is.

For more details on Roman merchant vessels, you may want to consult Casson's The Ancient Mariners or Landels' Engineering in the Ancient World.

