While historians studying maritime activities on the ancient Mediterranean have tended to accept the restrictive seasonal limitations laid down by the Graeco-Roman writers, scholars focusing on the medieval period have been considerably more active in promoting the possibility that seafarers of the Middle Ages were prepared to make regular wintertime voyages. It has thus been argued that, from the beginning of the medieval period, changes in the nature of ship construction and the type of sail commonly in use permitted an increase in maritime activity during the winter half-year. Michael McCormick has therefore asserted that during the early Middle Ages, ‘the period in which the sea was reckoned to be closed ... was shorter than that which appears to have been observed in antiquity.’ However, the traditional view which holds sway in the academic literature is that it was only during the later medieval period, with the appearance of sturdy merchant ships, most notably the cog, together with the introduction of the magnetic compass and maritime chart, that seafarers of the Mediterranean finally came into possession of the technology that allowed a large volume of shipping to remain at sea during the wintertime. As such Pryor has noted that ‘the diffusion of the mariner’s compass and the development of the cog and carrack ended finally whatever closing of the seas in winter there had ever been in absolute terms.’ However, these theories, which argue for a seasonal revolution in seafaring practices during the medieval period, are open to challenge. While the ability of ancient mariners to navigate accurately and safely will be analysed in the next chapter, the following pages will attempt to demonstrate that medieval developments in

---

2 Pryor 1988: 88. Braudel has also claimed that, ‘The arrival of the northern “cog” ... seems to have marked the beginning of the Mediterranean victory over bad weather’ (1972: 252), and similar sentiments are expressed by Lane (1963: 333 f.). While cogs first appeared in the Mediterranean in the early years of the fourteenth century (Balard 1994: 135; Ellmers 1994: 39; Friel 1994: 78), they had already been in use for at least two centuries in Atlantic Europe, serving as the primary cargo vessels of the Hanseatic League from the second half of the twelfth century until the mid fifteenth century (Ellmers 1994: 38; Greenhill and Morrison 1995: 229; Guilmartin 2002: 37; Hoheisel 1994: 257).
the design and construction of ships and sails, while highly important and ultimately crucial in allowing the European nation states of later centuries to project political and economic power across the globe, did not, on their initial introduction, radically increase the potential for wintertime voyage-making from that which had been the case in antiquity. Indeed, it will be argued that the hulls and sails of ancient vessels were not only equally as competent at dealing with the violent, blustery winds and large seas that might be experienced on the wintertime Mediterranean, but that, in many respects, the ships of the Graeco-Roman period were markedly more resilient to heavy weather than were the vessels of the early Middle Ages, or even the cogs which began to appear in the Mediterranean at the beginning of the fourteenth century.

Construction Methods

From the early medieval period through to the present day, wooden vessels of the Mediterranean have, virtually exclusively, been constructed in what is referred to as the ‘skeleton-first’ or ‘frame-first’ shipbuilding technique (figure 3.1). As the name implies, it is the frame and ribs of the ship which are constructed first and, once they have been secured in place, then the planking (the strakes) which comprise the sides of the vessel are nailed directly to them: a hull built in this manner therefore derives virtually all its structural strength and rigidity from the internal skeleton of the framework. However, with the advent of maritime archaeology and the study of ancient shipwrecks it became apparent that the principal method of Mediterranean ship construction during the Graeco-Roman period was of a radically different character—one that is generally referred to as the ‘shell-first’ technique (figures 3.2–3.3). This construction process was in use from at least the fourteenth century BC where it is attested in the remains of the Late Bronze Age Ulu Burun shipwreck, excavated off the coast of south-west Turkey. By at least the beginning of the Greek Classical period, the shell-first method of hull construction had become the principal method of shipbuilding for seagoing vessels on the Mediterranean and was to remain so until the end of the Roman Empire. In direct contrast to the later skeleton-first method, the strength and rigidity of a vessel built in the shell-first manner was supplied not by the internal framework but through the planking of the hull. This was

---