

The Mediterranean Lateen Sail in Late Antiquity

Julian Whitewright

Centre for Maritime Archaeology, Dept of Archaeology, University of Southampton, Highfield, Southampton SO17 1BJ, UK

The Mediterranean lateen sailing rig has been studied since the early-to-mid-20th century. Recently-published depictions of sailing vessels rigged with lateen and settee sails, dating to the late-antique period, allow some of the principle characteristics of that rig to be established. This allows comparison with lateen- or settee-rigged vessels from both earlier and later periods. The sailing rigs depicted on other vessels can be identified and the level of technical continuity between the late-antique and medieval Mediterranean addressed. Finally it is possible to assess the extent to which the lateen sail was established in the Mediterranean by late antiquity.

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The lateen sail, and its position amongst the sailing rigs of the Mediterranean in ancient and medieval times, has focused the attention of maritime scholars for nearly 100 years. Although sporadic, investigation of, or commentary on, the lateen sail of the Mediterranean has been a regular feature of maritime publications (for example Brindley, 1926; Sottas, 1939; Hornell, 1942; Hourani, 1951; Le Baron-Bowen, 1953a; Casson, 1956; Le Baron-Bowen, 1956; Casson, 1966; Adam, 1976; Kreutz, 1976; Basch, 1989; Basch, 1991b; Facey, 1991; Pryor, 1992: 27; Pryor, 1994: 67–9; Campbell, 1995; Casson, 1995: 244–5; Basch, 2001; Makris, 2002: 96; Kingsley, 2004: 78–9; Ward and Ballard, 2004: 12; Friedman and Zoroglu, 2006; Castro *et al.*, 2008). Such studies have generally focused on the date at which the lateen was introduced into the Mediterranean, and in some cases have attempted to identify an origin, either cultural or geographical, for the emergence of the lateen rig. General attributes of the vessels, based upon their appearance in the iconographic record, have also been described.

A growing body of recently-addressed iconographic evidence relating to lateen-rigged ships from the late-antique eastern Mediterranean allows the diagnostic features of such vessels to be identified. It should be noted that such depictions record what their creators envisaged a lateen-rigged ship to look like. They are not necessarily technically

accurate representations, simply personal interpretative observations. This paper characterises the Mediterranean lateen rig of the late-antique period (on the basis of published iconographic depictions) by outlining an identifiable and repeated set of rigging components which can be associated with the Mediterranean lateen sail. An example is given of such an application. This approach does not rely solely on the interpretation of geometric sail-shape as a way of defining a vessel's rig. Against this background it is possible to assess the extent of the continuity between late-antique lateen-rigged ships and those from the medieval Mediterranean. This allows an indication of the extent to which the lateen rig was established in the Mediterranean by the late-antique period.

Settee or lateen: an issue of nomenclature

It is useful at this point to discuss and clarify an issue of nomenclature regarding the lateen/settee sail. In terms of sail-plan, two forms occur in the iconography of the ancient Mediterranean. One is a fully triangular sail, the other a quadrilateral sail with a short luff (Figs 1a and 1b respectively). It is obviously useful to be able to differentiate swiftly between the two types of sail-plan using a simple yet precise terminology. To this end, the

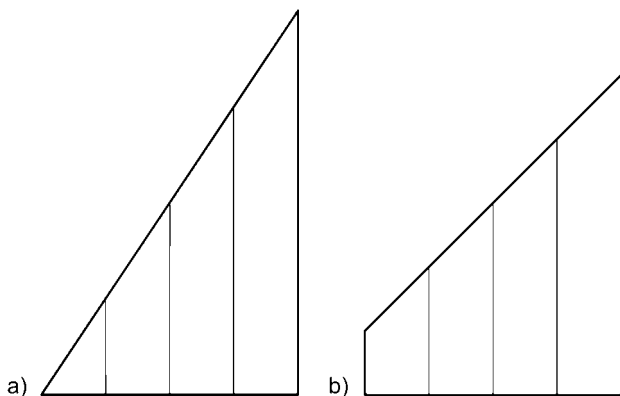


Figure 1. Definition of sail-form: a) the triangular lateen sail; b) the quadrilateral settee sail. (J. Whitewright)

fully triangular sail will be referred to as a 'lateen', while the quadrilateral sail will be referred to as a 'settee' (*cf.* Moore, 1925: 88). The same differences in sail-form have been noted by others (for example Pomey, 2006: 329) and the term 'Eastern lateen sail' has been used to refer to the quadrilateral sail on the basis of the terminology set out by Beaudouin (1990). However, it is worth recalling that while the settee rig is often associated with the Indian Ocean and terms such as 'eastern', it has also remained in use in the Mediterranean, including the western Mediterranean, until the present day (see examples in Moore, 1925: ch. 4). It is the opinion of the present author that the term 'settee' remains more concise, less prone to confusion, and less suggestive of geographical origin.

The lateen/settee sail in the late-antique Mediterranean

The origin of the lateen/settee sail has often been attributed by scholars to the Indian Ocean (Brindley, 1926: 14; Hourani, 1951: 100–105; Le Baron-Bowen, 1953b; Casson, 1956: 3; La Roërie, 1956: 238; Casson, 1995: 243–5; Kingsley, 2004: 78; Ward and Ballard, 2004: 12) and its introduction into the Mediterranean traditionally ascribed to the Arab expansion of the early-7th century (for example Hourani, 1951: 103). This was due mainly to the earliest (at that time) iconographic depictions of lateen/settee rigged ships from the Mediterranean post-dating the Islamic expansion into the Mediterranean basin (Frost, 1995: 154; Kingsley, 2004: 78). It follows that the Indian Ocean origin of the lateen/settee rig was founded on its predominance in the waters of the Indian Ocean in recent times. It was

assumed that the Arab people who invaded the Mediterranean basin in the 7th century carried with them the sailing rig familiar to them. Such theories have been superseded by unequivocal depictions of lateen/settee-rigged Mediterranean sailing vessels which pre-date the Arab invasion. These vessels are now described.

The Kellia ship

The first vessel to consider is a graffito of a lateen-rigged ship from the monastic site of Kellia in northern Egypt, which dates to the early-7th century AD (Fig. 2). The vessel was first published in the maritime literature by Basch (1991b), whose paper should be referred to for a full description. It has also been referred to by Frost (1995), Kingsley (2004: 78) and Pomey (2006). The creator of the graffito has been apparently unequivocal in his rendering of a lateen-rigged ship due to the unmistakable triangular form of the sail. Several other features of the vessel's rigging are also clearly shown, most notably the halyard system and masthead. The halyard system comprises a pair of blocks towards the stern. A series of lines is shown running between these blocks which must have provided purchase when raising the yard. A pair of lines runs from the uppermost block to the top of the mast and from there to the yard. The masthead itself is shown with a pronounced forward-facing hook. The vessel is also shown with a forestay, supports around the base of the mast, and a large pair of steering-oars. A series of vertical posts is shown in the bow and stern of the vessel.

The Kelenderis ship

The second vessel under consideration comes from the port of Kelenderis in southern Turkey (Fig. 3) and has been the subject of recent detailed discussion in the pages of this journal. This debate has revolved around the status of the vessel as a Mediterranean square-sail (Friedman 2007; Friedman and Zoroglu, 2006) or lateen/settee-rigged vessel (Pomey, 2006; *cf.* Pomey, in press; Roberts, 2006). The vessel is depicted in a mosaic dating to the late-5th or early-6th century AD (Friedman and Zoroglu, 2006: 108–09) and is shown entering the harbour of the town. The vessel is depicted with a quadrilateral sail with a short luff. As well as the distinctive shape of the sail, the artist has also illustrated a number of other features. The halyard system is virtually identical to that seen on the lateen-rigged vessel from Kellia, as is the hook-shaped masthead to

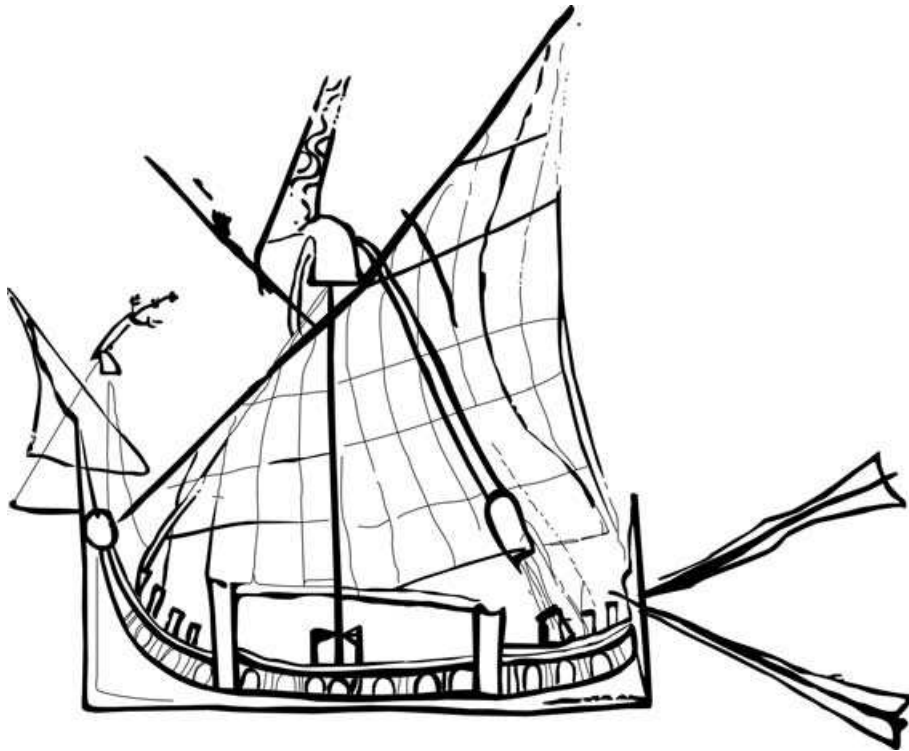


Figure 2. Lateen-rigged ship depicted at the monastic site of Kellia, northern Egypt. (J. Whitewright, after Basch 1991b: fig. 1, with permission)

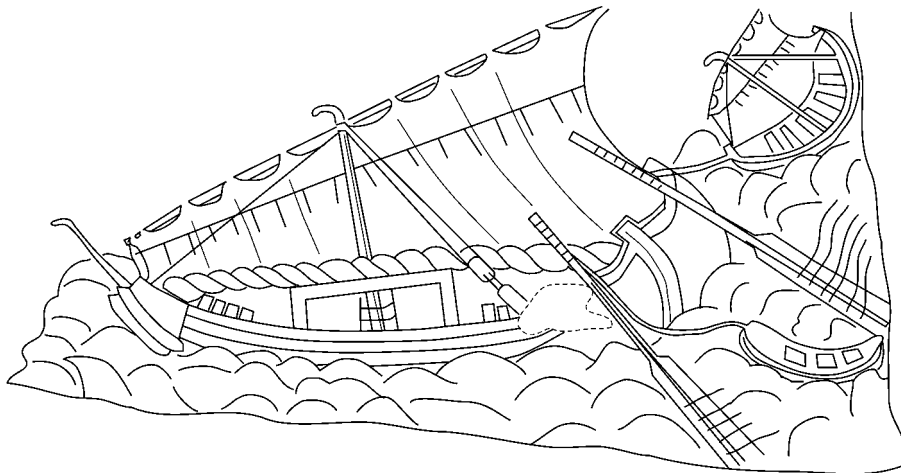


Figure 3. Settee-rigged ship depicted at the port site of Kelenderis, southern Turkey. (J. Whitewright, after Friedman and Zoroglu, 2006: fig. 2)

which the halyard system runs. The Kelenderis vessel is also depicted with a forestay, supports around the base of the mast, and a large pair of steering-oars. A series of vertical posts is shown in the bow of the vessel. In addition, reefing-points are depicted, to allow the sail to be shortened in strong winds. These must have replaced the

traditional Mediterranean system of brails. The rigs of the Kelenderis and Kellia ships exhibit obvious similarities, and Pomey (2006) is clearly correct when he concludes that the Kelenderis ship represents a vessel rigged with a form of lateen sail. Using the nomenclature outlined above it can be classified as a settee sail.

Late-antique lateen/settee rig characteristics

The settee sail was therefore in use in the Mediterranean from at least the late-5th or early-6th century AD, and the lateen sail from at least the late-6th or early-7th century. The two depictions of lateen/settee-rigged vessels briefly described above share certain characteristics which can be positively identified in the iconographic record (*cf.* Pomey, 2006: 327–8). These include: a multi-block halyard system running from the masthead to a large block-and-tackle at the stern of the vessel (the absence of a dedicated backstay suggests the halyard system also fulfils this function); a hook-shaped masthead which facilitates the halyard system running to the yard; a long yard, which is roughly the same length (or slightly longer) than the vessel itself; and the presence of vertical supports and lashing around the base of the mast.

The most notable of these features is probably the hook-shaped masthead. This has been previously observed as a characteristic of Mediterranean lateen-rigged ships during the medieval period (Adam and Villain-Gandossi, 1991: 21). So far, no examples of hook-shaped mastheads have been found in the archaeological record. The double halyard and associated blocks depicted on the both the Kelenderis and Kellia ships is a rigging component typically associated with the lateen sail (Pomey, 2006: 328). This practice, also with a system of blocks consistent with those pictured at Kelenderis, can be found in traditional lateen/settee-rigged sailing vessels in the Mediterranean and Indian Ocean (for example Moore, 1925: 98–9; Hornell, 1942: 12; Villiers, 1962: 122; Vosmer, 1997: 221). Archaeological remains of such a halyard system have been excavated from the 11th-century shipwreck at Serçe Limani (Mathews, 2004: 178).

The use by Mediterranean artists in antiquity of a repeatable set of characteristics when depicting vessels rigged with lateen or settee sails is of further significance. It suggests that rigging components such as hook-shaped mastheads or the double-halyard system were the defining features in the eyes of the artist. The exact shape of the sail is apparently less significant. This can be illustrated by the variety of different yard and luff angles/lengths visible in modern Mediterranean or Indian Ocean lateen/settee-rigged vessels (Moore, 1925: ch. 4; Gillmer, 1994: ch. 4; al-Hijji, 2001: 86–7). The geometric shape of a sail could

be depicted in a number of different ways in antiquity. Only the inclusion of other specific rigging components indicated to the viewer the exact type of sailing rig being portrayed.

Discussion

The correlation between the rigging components depicted on the vessels from Kellia and Kelenderis allows further analysis of Mediterranean lateen/settee-rigged vessels to be made. This takes two main directions. Firstly, comparisons can be made with depictions of lateen/settee-rigged ships from the medieval period, to establish the extent to which the characteristics described above remained in use over an extended period. Secondly, other iconographic depictions can be addressed to establish whether they are intended to represent lateen/settee-rigged or square-sailed vessels.

Medieval Mediterranean lateen/settee-rigged vessels

As noted above, prior to the discovery of the graffito of a lateen-rigged ship at Kellia, the earliest depictions of lateen/settee-rigged ships in the Mediterranean post-dated the Arab invasion of the 7th century AD. Iconographic depictions of lateen/settee-rigged vessels date to the 9th century and provide a record of how society visualised such vessels at that time. Probably the most famous are in a Byzantine manuscript showing the homilies of St Gregory of Nazianzus (see Hourani, 1951: figs 5–6; Basch, 1991b: figs 1–2), now housed in the Bibliothèque Nationale, Paris (MS. *Grec* 510, ff. 3, 367). In both cases the vessels are depicted with hook-shaped mastheads and double halyards running towards the stern. The sails are also shown with a fully triangular form, indicating that they were lateen-rigged (*cf.* Brindley, 1926: 12–13). It has been suggested that the manuscripts are copies of earlier works (see Kreutz, 1976: 85; Polzer, 2008: 246). If this is the case then the copyists obviously felt that the ships they were reproducing would still be representative of suitable watercraft to the intended 9th-century viewer. Another 9th-century manuscript, the Chludov Psalterium (Ps. LXXXVIII) from Turkey, also depicts a sailing vessel relevant to the current discussion (Basch, 1991a: fig. 3a–b). In this example the vessel is shown with a clearly quadrilateral sail, indicative of a settee rig. As well as this a hook-shaped masthead is shown, from which runs a double halyard towards the stern of the vessel. A large pair of steering-oars is also shown.

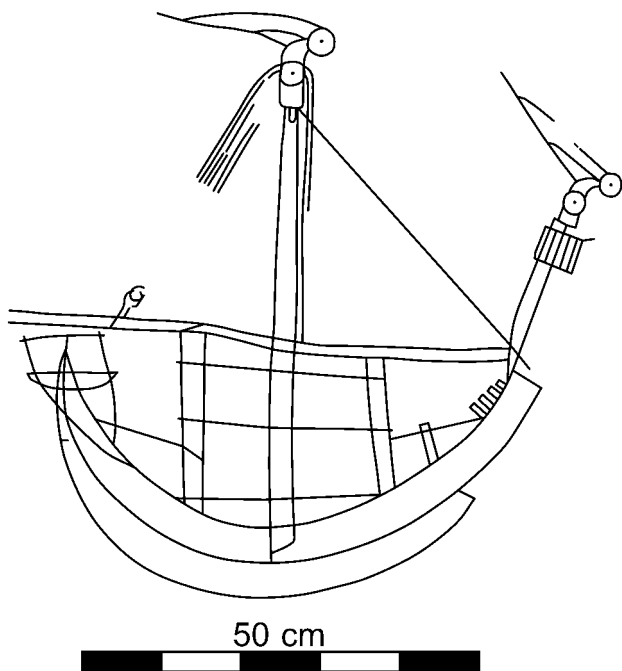


Figure 4. Graffito of a ship depicted at Corinth. (J. Whitewright, after Basch, 1991a: fig. 8, with permission)

Other depictions of Mediterranean lateen/settee-rigged vessels from the medieval period are also shown with hook-shaped mastheads (Brindley, 1926: fig. 4; Adam and Villain-Gandossi, 1991: 21; Mathews, 2004: 179). Two 12th-century AD examples may be referred to here. The first is in a manuscript from Mount Athos, Greece (Nicolle, 1989: fig.43a; Pryor, 1994: 70); the vessel has a single lateen sail and a hook-shaped masthead. In this instance the yard and sail are squared across the vessel and an additional brace has been rigged to the lower end of the yard. Comparison with recently-observed practice (Moore, 1925: 100–101) indicates that the illustrated vessel is running downwind. The second example is shown on the Pala d'Oro altar screen from the Basilica of St Mark, Venice, which was originally from Constantinople (Pryor, 1994: 68). In this example a single-masted lateen-rigged vessel is again shown with a hook-shaped masthead. Examples of lateen/settee-rigged ships with hook-shaped mastheads also come from contemporary Islamic iconographic sources (for examples see Nicolle, 1989: figs 11a, 29b) and indicates the widespread use of such components across the Mediterranean. There is therefore clear continuity between the depictions of lateen/settee-rigged sailing vessels from late antiquity and those from the medieval period, at least until the 12th century

AD. Rigging components, such as hook-shaped mastheads, are consistently present, indicating that lateen/settee-rigged ships continued to be perceived in a similar way by the people who created images of them.

This contrasts with 13th-century depictions where the hook-shaped masthead has been replaced in the iconographic record by a barrel-like structure more reminiscent of a 'crows-nest' (for examples see Landstrom, 1978: 54–9, figs 123, 125, 133; Nicolle 1989: figs 69, 71b; Pryor, 1994: 71, 73). The lateen/settee rig had obviously undergone a technological change profound enough to alter the way in which such vessels were depicted. The very different form of masthead visible from the 13th century offers further reinforcement of the continuity visible in the rigging of Mediterranean lateen/settee-rigged vessels between late antiquity and at least the 12th century AD. It is tempting, although simplistic, to suggest that this change followed the introduction of northern European shipbuilding practice during the 13th century. This suggestion requires further, more considered, investigation. It may be concluded that the continuity visible in the iconographic depiction of Mediterranean lateen/settee vessels until at least the 12th century AD may be indicative of a real continuity in the form, arrangement, and use of the rigging components that were characteristic of the lateen/settee rig. In contrast to the 13th century, these earlier vessels did not undergo technological change significant enough to alter the depiction of such vessels by on-looking society.

Comparative iconographic interpretation

The interpretation of maritime iconography has a number of well-documented considerations (for example Tzalas, 1990; Villain-Gandossi, 1994; Le Bon, 1995; Calcagno, 2006). The simplest way to interpret the type of sail used by a vessel depicted in the iconographic record is via the geometric shape of the sail. A vessel depicted with a square or rectangular sail might be classified as carrying a square-sail rig, while an image with a triangular sail might be cited as carrying a lateen rig. Such a simple approach can be successful in cases where the depiction is obviously unambiguous—the lateen-rigged Kellia vessel is a good example. If the geometric sail shape is ambiguous or absent, however, such an approach encounters obvious difficulties. In such an instance, recourse must be made to other rigging components depicted in the image and associated with particular

rig-types. For example, the presence of brails or brail-rings would indicate that the vessel was rigged with a Mediterranean square-sail. This latter statement is equally true when dealing with the archaeological remains of rigging elements (*cf.* Whitewright, 2007: 287).

The depicted characteristics of lateen/settee-rigged vessels (above) can also be used to identify rig-type where components such as the sail have been omitted by its creator. As an example, this approach can be applied to the graffito of a vessel found at Corinth and dating to the 5th or 6th century AD (Basch, 1991a). This vessel (Fig. 4) carries a hook-shaped masthead, a complex halyard system running from the masthead to the stern of the vessel, structure supporting the mast, and a row of vertical posts in the bow. An element interpreted as the lowered yard runs the length of the vessel (Basch, 1991a: 18). The depiction of the vessel contains all the elements required for the depiction of a lateen/settee-rigged ship during late antiquity, even though the sail is not shown. The correlation between the other characteristics of the Corinth ship and those on late-antique lateen/settee-rigged ships lend weight to the conclusion that the Corinth ship also had a lateen/settee rig (*cf.* Basch, 1991b: 20). The Corinth ship is depicted with a vertical element in the bow which also carries a hook-shaped top similar to that seen on the mainmast. This may represent a foremast, in which case the Corinth vessel represents the earliest currently-identified example of a two-masted lateen/settee-rigged ship in the Mediterranean. The presence of near-contemporary two-masted square-sail vessels (for example Basch, 1987: 482, fig. 1111) illustrates the existence of such a mast arrangement in the Mediterranean at that time. The ship from Corinth provides a good example of how rig-type can be identified by using all of the illustrated rigging components, even when no sail is shown.

The vessel depicted on the tombstone of Alexander of Miletus, dating to the 2nd century AD, has also been cited as representing a vessel carrying a settee sail (Casson, 1956: 148; Moore, 1957: 241; Kreutz, 1976: 82; Casson, 1995: fig. 181). Inspection of the relief (Fig. 5) reveals a vessel carrying a very inclined curved yard on which is set a quadrilateral sail with a short luff. The depiction seems relatively unambiguous in its depiction of a settee-rigged sailing vessel. However, none of the characteristics visible in the iconography of late-antique Mediterranean lateen/settee-rigged ships is visible. The absence

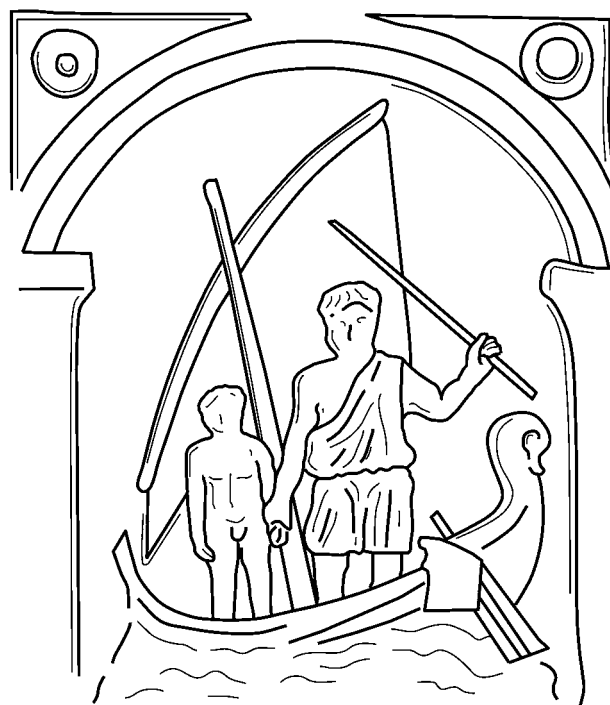


Figure 5. The tombstone of Alexander of Miletus. (J. Whitewright, after Casson, 1995: fig. 181)

of rigging components which can be associated with the Mediterranean lateen/settee rig over an extended period might suggest that the vessel of Alexander of Miletus was not rigged with a settee sail. Despite this, the fact remains that the method of interpretation used for most other depictions of ancient sailing rigs, analysis of geometric sail-shape, strongly suggests that the vessel is rigged with a settee rig. If this is the case, the vessel of Alexander of Miletus may represent a form of the Mediterranean lateen/settee rig depicted prior to the standardisation of rigging components, as subsequently reflected in the iconographic record. This seems the most suitable explanation for this particular relief; the implications of this are discussed below.

Conclusion

A number of conclusions can therefore be outlined regarding the Mediterranean lateen/settee sailing rig. Firstly, it is possible to categorise such vessels on the basis of a definable, consistently-repeated set of characteristics which are visible in the iconographic record of the late-antique Mediterranean. Secondly, that there is a high level of continuity of such characteristics over an extended period. This suggests that there was

only limited technological development of the lateen/settee rig between the late-antique period and the 12th century AD. Following this, changes in the iconographic depictions of lateen/settee-rigged ships are suggestive of actual changes to the rigging and use of such vessels. Thirdly, it can be postulated that such a long period of continuity suggests that the lateen/settee rig was fully developed by the late-antique period. It is widely accepted that a newly-invented technology can undergo a period of development and change, termed ‘stabilisation’, following its initial invention. This process ends when the technology reaches a state which is acceptable to the society which uses it, such a point has been termed ‘closure’ (Law, 1989: 111; Pinch and Bijker, 1989: 44–6; Pinch, 1996: 24–5). The currently-available evidence suggests that the Mediterranean lateen/settee rig had reached a point of closure by the time the Kelenderis mosaic was laid down in the late-5th or early-6th century AD. The continued presence of settee-rigged vessels in the Mediterranean is also important. This indicates that although the lateen sail may have developed from the settee rig, it did not do so along a deterministic trajectory which necessitated the subsequent extinction of the settee rig.

Finally, in contrast to later depictions, the 2nd-century AD vessel of Alexander of Miletus does not exhibit any of the features which define late-antique and medieval lateen/settee-rigged vessels. Its status as a settee-rigged vessel is based on sail-form alone. Such a vessel may be representative of the lateen/settee rig during the process of stabilisation which followed its invention, when features which later came to be definitive, such as the hook-shaped masthead, had yet to be developed. The currently-available evidence firmly indicates that the lateen/settee rig was strongly established in the Mediterranean by the late-5th century AD. Furthermore, it had taken a form which included rigging components that distinguished it from contemporary sailing vessels. The discovery of future evidence may yet move the point of technological closure to an earlier date. Likewise, it is unlikely that the tombstone of Alexander of Miletus represents the earliest settee-rigged vessel in the Mediterranean. However, it does have the potential to indicate the possible time-lapse between the invention of a maritime technology and its wider adoption by society.

Note

This article is partially derived from the author’s recent PhD thesis entitled ‘Maritime Technological Change in the Ancient Mediterranean: the invention of the lateen sail’. This work will be published in full in due course. In the meantime the author is happy to enter into discussion regarding any of the points raised here.

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