

# Shipwrecks and maritime archaeology

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## Abstract

Shipwrecks are the most numerous and distinctive type of site studied by maritime archaeologists. Their uniform characteristics, regardless of date, place and type, mean that virtually all wrecks can be investigated using similar methodologies and research strategies. The contributions to this issue of *World Archaeology* demonstrate both these common features and the wide variety of archaeological and historical contexts in which wreck data can be placed. They also reflect the truly global nature of underwater archaeology as it has evolved over the past decade, with many sites investigated in previously undeveloped regions and an attendant increase in cultural resource management. This period has also seen significant developments in theory. A distinctive agenda is developing which emphasizes the unusual quality of maritime data and the possibilities of inductive analysis, yet seeks to expand and diversify the contexts in which ships and their material culture are viewed; new approaches have been derived from symbolic, contextual and critical archaeology, and from wide-ranging socio-economic models. Diversifying the contexts in which wreck evidence is interpreted underlines its essential richness and its unique contribution to archaeology.

## Keywords

Shipwrecks; maritime archaeology; archaeological theory.

## Introduction

Maritime archaeology, the study of the material remains of human activities on the seas and interconnected waterways (after Muckelroy 1978: 4), is fundamentally focused on shipwrecks. Although the definition encompasses many other types of context such as harbours, submerged land surfaces and coastal settlements, shipwrecks are the most distinctive and numerous type of site studied by maritime archaeologists. Globally the number of wrecks of archaeological or historical significance that have been discovered is difficult to estimate, but certainly runs to thousands. In the Mediterranean region alone Parker (1992) catalogued 1,189 shipwrecks and abandoned hulls discovered dating before AD 1500, a figure which should now be increased by several hundred on the basis of new

finds and publications over the past decade. In the UK, the number of sites designated under the 1973 Protection of Wrecks Act, fifty-one, represents but a small fraction of wrecks dating before the twentieth century that have been found (Fenwick and Gale 1998; Martin 1998). In other areas such as the Indian Ocean where underwater archaeology is still in its infancy the rate of discovery is likely to increase dramatically over the next few years (Rao 1988; Kuppuram and Kumudamani 1996; Gaur et al. 1998; Tripathi 1999; Tripathi et al. 1998, this volume).

It may be that more wrecks remain undiscovered than any other site type of comparable significance since the Neolithic. No other type of site consistently produces the range and quality of intact artefacts found in wrecks as well as raw materials in transit. The fourteenth-century BC Uluburun wreck off Turkey has shed incomparable light on late Bronze Age trade (Bass 1987; Pulak 1998), and it is only a matter of time before other prehistoric wrecks of similar importance are discovered. Long ago the Mediterranean Sea was described as the last great repository of works of art from classical antiquity, and future exploration should produce finds of comparable significance to the classical bronzes recovered from underwater sites at Riace, Artemision and Mahdia (e.g. Hellenkemper Salies 1994; Ridgeway 1995). Ships themselves have been described as the most complex artefact routinely produced prior to the Industrial Revolution, and their crews and material culture as unique manifestations of society as a whole.

### **Shipwrecks as archaeological contexts**

As archaeological assemblages shipwrecks offer a number of inferential advantages over other types of site where the same types of artefact are found. A wreck preserves a largely contemporaneous group of material which was not intended for discard; the nature of a ship as a self-regulating system would have counted against the retention of significant quantities of redundant materials. An often unacknowledged time-depth may exist through small but significant quantities of residual material, but the bulk of the assemblage will usually be made up of functional equipment and cargo in transit (Adams this volume).

Wreck assemblages have been described as fine-grained, where all characteristics are associated in a distinctive way through the depositional event; they have particularly high resolution and integrity, the relative homogeneity respectively of the events or conditions whose byproducts are present in the deposit and the agents responsible for the deposition (Gibbins 1990 after Binford 1981: 19–20). These are uniform characteristics of virtually all wrecks, regardless of date, place and type, and allow wrecks from widely differing archaeological and historical contexts to be examined using similar investigative methodologies and research strategies.

### **This issue**

The nine papers brought together here reflect the global nature of shipwreck archaeology today. In the fields of study focused on the maritime past, the ubiquity of shipwrecks as a

site type has seemed at times to promote their research profile at the expense of palaeo-landscapes, submerged settlement sites and other structures such as harbours and fish traps. This is less of a concern now that the importance of these other site types has been recognized; a welcome acceleration in long-term research programmes into the maritime past in its widest sense (e.g. Dixon 1991; Fulford et al. 1997) means that we need not be oversensitive about a volume with the uncompromising title 'Shipwrecks'. Indeed the reverse is the case, for shipwrecks will always provide maritime archaeology with much of its source material. Their constant re-evaluation as high-resolution manifestations of past human strategies is thus an obligation.

The number of papers collected here cannot of course comprise a comprehensive treatment of the current breadth of shipwreck research. We nevertheless present a group that reflects important aspects of the subject's priorities and directions today. The focus is less on methodology, in the sense of techniques and field strategy, because recent publications have been extensively devoted to the subject (e.g. Green 1990; Dean et al. 1992). This volume instead deals with the phenomena of wrecks themselves, as assemblages representing vehicles of major social enterprise such as communication and trade and as manifestations of technological and social change. In this way the unique *histoire éventuellement* visible in a particular site provides the basis from which to address both broader social questions and processes of change over various *durées*. We also focus on the obligations of the research community as a whole to promote the protection and management of the resource, in the process providing high-quality research output linked to public access.

Adams is concerned with the nature of boats and ships as material culture and with wrecks as archaeological source material. Ships are conceived and designed according to the influence of various mental templates and ideologies. They are then constructed, used and disposed of within a complex, interrelated set of social and physical constraints. The growing maturity of research work carried out on wrecked and abandoned hulls over the past thirty years has perhaps leant rather too heavily on notions that were first formulated in the 1960s and 1970s. While they retain a basic validity, the increasingly sophisticated interpretations that shipwreck assemblages are generating require their fundamental qualities to be re-examined. Although we must be wary of stretching the elasticity of inference too far, there is clearly much untapped potential.

Gibbins focuses on one of the main interests of Mediterranean wreck archaeology, the study of pottery amphoras, to demonstrate how wreck data can be integrated with other archaeological evidence in a way that is mutually enriching and opens up new interpretative possibilities. He presents a detailed study of a cargo of north African cylindrical amphoras of c. AD 200 excavated at Plemmirio off south-east Sicily. The context of a wreck assemblage means that the data significantly improve our understanding of morphological variability among amphoras, the contemporaneity and significance of different forms, the chronology and scale of production, and contents, packaging and epigraphy. Wreck data thus provide evidence not only for transport but also for production and consumption, and form an integral part of research programmes involving the investigation of sites reflecting all three types of activity. The methodologies for pottery research reflected in this paper have now been applied to wreck evidence from the more recent historic period (e.g. Marken 1994), and this common approach is seen elsewhere in this volume.

Flecker reports on a ninth-century AD wreck off Indonesia which may provide the earliest evidence for direct trade between India and China, and is therefore a site of potentially far-reaching historical significance. The excavation of this site, a commercial endeavour, inhabits an uneasy environment where archaeology competes with enterprises that, though often called 'archaeology', are nothing of the sort. Pragmatic compromise is advocated by many but, as one of us has argued elsewhere (Adams forthcoming), adding an alchemical dash of archaeological method to profit-motivated salvage does not create 'archaeology' but rather fools' gold. A discipline is more than the sum of its methodologies. Without an ontological and an epistemological basis, operations that merely utilize technical procedures that are 'archaeological' may provide a façade of respectability but they do not constitute 'archaeology'. Here Flecker provides a welcome exception by demonstrating how considerable information can be retrieved, preserved and presented in a scholarly fashion from such enterprises when the 'archaeology' is seen as more than just a public relations exercise.

Tripathi and colleagues describe recent underwater research off Goa on the west coast of India which has revealed guns and other finds from an early modern shipwreck. Their work demonstrates the generation of momentum in a new field and their efforts can only be applauded, especially in contrast with so much of underwater investigation in the Indian Ocean and Pacific regions that fails to satisfy the basic requirements of archaeology as enshrined in the *ICOMOS Charter on the Protection and Management of Underwater Cultural Heritage* (ICOMOS 1996). This constitutes valuable groundwork in an area where little has been done to date yet where there is clear potential. Such work sets precedents and helps to establish benchmark standards for what follows, and we are pleased to expose their efforts to a new international readership.

Ward reveals that Egypt was a hub of maritime contact within and between the Mediterranean basin, the Red Sea and the Indian Ocean not only in antiquity but also into the modern world. Her paper describes an eighteenth-century AD wreck in the Red Sea which attests to a link between the Eastern and Western worlds at the time of the Indies trade from Europe; like the Beitung wreck in Indonesia described by Flecker dating almost a thousand years before, she was carrying a cargo of Chinese ceramics. Although we now know a considerable amount about the major shipbuilding traditions of these regions, these two wrecks remind us that their fundamental characteristics were not universal and that we still have a great deal to learn. Ward's paper is an example of the advances to be made in studying the recent maritime past from meticulous, uncompromising excavations based on the methodology developed by George Bass and his colleagues at ancient wreck sites in the Mediterranean during the 1960s.

Martin considers the ways in which we approach the study of artefacts from wrecks of historic date off the British Isles, including ships of the 1588 Spanish Armada. His paper provides a fascinating insight into the subject from the perspective of someone who has been at the forefront of its development and who has seen research priorities shift and mature, not least through his own input. Twenty years after the death of Keith Muckelroy, one can see that his influence is still profound, yet things move on. The way in which Martin interrogates his sites reflects both a conviction of the value of traditional methodologies, such as links with history and the relevance of the specific event, and an accommodation of ideas manifested in key developments in recent archaeological thinking. In this

way he espouses the middle ground that it was so difficult to occupy in the heated debates of the 1970s and 1980s.

'Archaeology begins yesterday' is an apt dictum for those who might wonder at the effort invested in a site from the recent past as reported by Arnold and colleagues. Yet time and time again, the remains of watercraft from the historical or post-Columbian era have provided surprises. We may know what nineteenth-century engineers specified but we often do not know how those designs were realized and adapted within the context of use in various mercantile or naval enterprises. Arnold and colleagues describe the investigation of an American Civil War blockade-runner off Galveston in Texas, and consider the wreck in the light of the detailed historical context available in documentary sources in England and America of the mid-nineteenth century.

Lastly, Oxley is concerned with the enormity of heritage management: how we quantify our resource and how we then manage it in the widest sense of the term, including legal protection dovetailed with the needs of research and public access. This is one of the major issues that came to the fore in the 1990s (e.g. Firth 1993; Firth and Ferrari 1992; Fulford et al. 1997). Regional concerns are primarily the remit of Oxley's paper, but these must also be seen against the crisis in the management of the archaeological resource beyond the relative control of territorial seas. He considers the administrative and practical issues regarding the management of the underwater heritage in Scotland, including First and Second World War wrecks which have sanctity as war graves and added archaeological significance as monuments to events of national significance in the recent past.

### The late twentieth century in review

In 1984 Toby Parker likened the state of shipwreck archaeology to that of Romano-British villa studies had all known sites been discovered since 1960: basic investigative methodologies would still be in development, syntheses would only now be being attempted, and, crucially, most scholarly endeavour would still be expended on data characterization and publication. Happily maritime archaeology is no longer a 'nascent' discipline (UNESCO 1972) and things have moved on apace in the past fifteen years, not least through the appearance of Parker's magisterial catalogue of ancient Mediterranean wrecks (1992). The past decade has also seen the publication of several dozen high-quality monograph reports, some at the conclusion of post-excavation programmes (e.g. Adams et al. 1990; Bost et al. 1992; McGrail 1993; Rule and Monaghan 1993; Santamaria 1995; Crumlin-Pedersen 1997; Milne et al. 1998; Nayling 1998), others revisiting old material (e.g. Marsden 1994; Hellenkemper Salies 1994). Many reports have appeared in non-specialist and specialist journals, particularly the *International Journal of Nautical Archaeology*, *Archaeonautica* and *Archeologia Subacquea* (see Illsley 1995); in regular conference publications including the *Underwater Archaeology Proceedings* of the Society for Historical Archaeology Conference (e.g. Carrell 1991), the *Tropis* volumes from the International Symposium on Ship Construction in Antiquity (e.g. Tzalas 1996), the Proceedings of the International Symposium on Boat and Ship Archaeology (e.g. Westerdahl 1994; Litwin 2000) and others (e.g. Atti 1997); in other collections (e.g. Gibbins and Chippindale 1990; Olsen et al. 1995; Kuppuram and Kumudamani 1996; Redknap

1997; Delgado 1997; McGrail 1997; Werz Bruno 1999); in Institute and Project newsletters (e.g. the *Newsletter* of the Roskilde Museum, the Institute of Nautical Archaeology *Quarterly* and the *Bulletin* of the Australian Institute for Maritime Archaeology); and in a proliferation of websites (e.g. <http://nautarch.tamu.edu/inal> and <http://cma.soton.ac.uk/>).

Nevertheless, the rate of wreck discovery has increased almost exponentially and the essential problem remains. The fact that Parker's catalogue already needs a substantial supplement less than a decade on is, in one sense, testimony to the health of wreck archaeology, but it is also a worrying indication that the resources needed for proper investigation, post-excavation work and site protection will never be sufficient. These concerns are especially acute as new areas, such as the Black Sea, are opened up to intensive investigation and as increasingly affordable technologies allow access to deep waters beyond territorial limits and outside the remit of protective legislation (e.g. Ballard et al. 2000). In this respect the collation and presentation of data is intimately bound up with one of the more pressing issues of global heritage management (Dromgoole 1999).

Research strategy, often hotly debated, has been an explicit component of maritime archaeology since the time of the earliest wreck investigations following the introduction of the aqualung during the Second World War. To begin with much of the focus was on investigative techniques, and these continue to preoccupy many researchers in a field which has a much greater logistical component than most other types of archaeology (e.g. Green 1990; Dean et al. 1992). Beyond this, developments in method and theory have mirrored those of archaeology as a whole, yet in a much-compressed time-frame; the evolution from antiquarianism and connoisseurship to scientific wreck archaeology took place less than fifty years ago. George Bass's plea in 1966 that wrecks should be studied in their entirety, however humble the activities represented, recapitulates the strategy proposed by Guiseppe Fiorelli at Pompeii almost a century previously. Yet in the few decades since Bass's formative excavation of the Cape Gelidonya Bronze Age wreck in 1960 the discipline has assimilated much that is worthwhile from prevailing archaeological theory, and developed its own distinctive aspects (reviews include Gibbins 1992, 1995, 2000a; Delgado 1997; Blackman 2000).

The most important individual contribution remains that of Keith Muckelroy, who as a Cambridge student in the 1970s was much influenced by the 'New Archaeology'. His 1978 book remains the most important single statement of method and theory in the discipline which he dubbed 'maritime archaeology'; his focus on site formation processes among UK wrecks, paralleled by work in the Mediterranean (Parker 1979, 1980, 1981), has spawned a programme of research which has been termed the maritime 'middle-range', focusing on interpretative methodologies that bridge between wreck and ship, between empirical data and higher-level abstraction (Gibbins 1990; Gibbins and Adams forthcoming).

Since Muckelroy's death in 1980 theory and research strategy in maritime archaeology has taken three directions. One, espoused mainly by classical, Near Eastern and historical archaeologists, is avowedly historically particularist, and has been associated especially with George Bass and the programme of research which he instigated in the Mediterranean in the 1960s (Bass 1983). Shipwrecks are viewed within a conventional historical framework, at a general level in terms of justifying the fieldwork and at a particular level once the data come to be analysed, for example in using dating evidence to associate the

wreck with a known historical context or in linking an artefact or group of artefacts to other historically or archaeologically attested phenomena. The main focus has been well-preserved wrecks which are likely to produce the greatest quality and diversity of new information.

This approach is associated with some of the most meticulous and complete wreck excavations yet undertaken, and with equally exacting post-excavation programmes which have involved the preservation and reconstruction of hull remains (Steffy 1994) as well as intensive artefact characterization (e.g. Bass and Van Doorninck 1982; Pulak 1998). Most effort has been expended on the scholarly exposition of material which is self-evidently rich in terms of individual artefacts and in the context of the reconstructed ship and its assemblage. At the same time, the quality of the data has given them a singular role in wider programmes of archaeological or historical research, and has perhaps done more than anything else to secure the significance of wreck evidence in the eyes of the scholarly community at large. Examples include the Cape Gelidonya and Uluburun Bronze Age wrecks, which have fed into virtually every aspect of research on trade and society in the late Bronze Age Aegean and Levant (e.g. Gale 1991); the first-century BC Madrague de Giens wreck off south France, another well-preserved, completely excavated wreck which has linked together and galvanized such diverse areas of research as Roman wine production, the growth of the slave economy in Italy and its implications, and the behaviour and social structure of the 'Celtic' elite in north-west Europe (Tchernia et al. 1978; Tchernia 1986); and, of more recent date but within the same methodological tradition, ships and shipwrecks of the Americas whose investigation has fleshed out, emphasized or revised central events of national history (Bass 1988).

A second direction, followed mainly by scholars based in America with an anthropology background, has been to conform with general 'paradigm shifts' in archaeological and anthropological theory; thus we see the hypothetico-deductive, processualist stance of the 'New Archaeology' being followed by some (e.g. papers by Lenihan, Murphy and Watson in Gould 1983; Gould 2000: 12–20; Gould in Delgado 1997: 377–80; Babits and Van Tilburg 1998), and rejected by others in favour of the post-processualist agenda (Spencer-Wood 1991).

From the viewpoint of the historical particularist, the applicability of a positivist stance seemed tenuous at best: how could a hypothetico-deductive approach improve the investigation of a wreck, especially given the richness and unpredictability of the assemblage? Every fully excavated site confounds easy generalizations, and hypothetico-deductive archaeology works only through selective and highly questionable data acquisition (Bass 1983). These criticisms may seem to be borne out by the fact that few major wreck investigations were explicitly 'driven' by hypothesis-testing in the language of anthropology. Processualism thus had limited influence on the totality of wreck investigation, though as a step in the intellectual evolution of theory it was as important as elsewhere in archaeology (cf. Johnson 1999; Martin this volume). Tangible effects on maritime archaeology that have proved enduring include the concern with formation processes referred to above in connection with Muckelroy, and experimental archaeology involving rigorous, quantifiable recording and testing (e.g. McGrail 1977, 1987). Most of these studies have been pursued within an uncompromisingly historiographic framework seeking to elucidate

historical events and trajectories, and therefore do not reflect an overall positivist stance on archaeological methodology.

## **Prospectus**

Paradoxically, a problem with anthropological theory as applied to maritime archaeology has been a general lack of innovation; its proponents have too often slavishly followed prevailing fashion, including the elevation of 'sacred' texts which provide the creed (cf. Gibbins 1992; Spencer-Wood 1991; Babits and Van Tilburg 1998). In fact, those very features which made wreck archaeologists less receptive to processualism, the singular nature of wrecks and their self-evident richness, provide the basis for a distinctive agenda which rests firmly on the hard edges of empirical data.

The inclusiveness of post-processualism, a statement of increased theoretical receptivity rather than a rigidly defined methodology, could be seen to encompass much of the third direction identified here. This describes a variety of approaches, models and ideas which spring from intensive familiarity with maritime data in their own right, and involves the use of comparative materials drawn from a wide variety of disciplines and intellectual traditions rather than from a single theoretical dogma. It encompasses the tenets of historical particularism and inductivism, but within a wider brief which accommodates and seeks a multiplicity of contexts and meanings for data. Maritime researchers have thus become increasingly receptive to the contextual, symbolic and critical archaeologies of post-processualism and its successors (Johnson 1999), yet have developed distinctive approaches which are closely focused on the characteristics and possibilities of maritime data. These advances are especially associated with scholars working in north-west Europe and Scandinavia, where important developments include the notion of maritime cultural 'landscapes' (Westerdahl 1994) and the exploration of symbolic meanings in ship structure and design (Cederlund 1994; Crumlin-Pedersen and Thye 1995; Adams this volume).

As elsewhere in archaeology we return to what was worthwhile in past theory, and reject ideas which have endured less well; though he was a product of the processualist era Keith Muckelroy did not structure his agenda for maritime archaeology around this dogma, and his position was, in fact, closer to the approach just described than to that of the processualists who claimed him as one of their own (Gould 1983).

## **Maritime archaeology: a subdiscipline?**

The history of maritime archaeology reflects the backgrounds and interests of its practitioners. The first generation were divers who learned to be archaeologists, often by trial and error. The second generation were land archaeologists who learned to dive; they and their students were then able to establish academic programmes which provided accredited training in techniques and theory, and the third generation are thus academically and professionally qualified in maritime archaeology as a specialization. Globally many hundreds of students complete undergraduate degrees each year in which they have



attended at least one course dealing with maritime archaeology, and in the USA and the UK several dozen complete specialized degrees at the masters' or doctoral level. These students and the specialized academics who teach them are integrated within wide-ranging archaeology departments which foster a great deal of cross-fertilization at every level.

To some extent this absorption within mainstream archaeology serves to erode the idea of a 'subdiscipline' as advocated by Muckelroy (1978). Much maritime fieldwork and research is developed within a broad perspective; as the papers in this issue demonstrate, cargoes are seen in the context of production, transport and consumption, and ship technology in terms of wider socio-economic constraints such as availability of labour and resources, the incentive to more economical techniques, optimal units of production and so forth. The increasingly inter-disciplinary nature of research in the arts and social sciences broadens the perspective even more: emerging areas for wreck data contextualization derived from historical theory are the notions of 'institutions', formal and informal (North 1981, 1990), which broaden the economic contexts in which wrecks are conventionally viewed (Gibbins 2000b: 294–5). Another is the *annaliste* model (e.g. Bintliff 1991), in which wrecks such as the *Mary Rose* and the 'kravel' can be viewed both in terms of *événement* and *la longue durée*, in terms of the specific historical events of the sixteenth century and the underlying socio-economic structures of Tudor England and Sweden of the early Vasas respectively, which are uniquely evidenced in their material culture (Adams and Rönby 1996; Adams and Dobbs forthcoming; cf. Gibbins 1996).

Nevertheless, the fundamental similarities between shipwrecks and their investigation, regardless of date, place or vessel type, also underline the value of regarding this area of research as one guided by a unitary methodology and similar research questions. Together the papers in this volume serve to emphasize the singular aspect of this field of archaeology.

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