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Reviews

Vasa I: The Archaeology of a Swedish Warship of 1628

CARL OLOF CEDERLUND, edited by FRED HOCKER, with contributions by Georg Hafström, Fred Hocker and Per Wendel

491pp., 365 figs, 48 colour plates, 6 folded plans

National Maritime Museums of Sweden, via Oxbow Books, Park End Place, Oxford OX1 1HN, UK, £40 (hbk), 2006, ISBN 19-974659-0-9

This book has one major setback: it is absolutely impossible to read it in bed. You cannot even reasonably take it with you in the train or on other travels. It is simply too bulky. However, in substance (and readability) it definitely lends itself to bedside reading, whatever the academic intentions, format and results. The book is very well edited, which of course adds to its readability. This applies both to the edited text and to the book's production. Typos are exceptional and almost all cross-references seem to be correct. Printing is good, although the process chosen seems to differ from what the book was designed for. The plentiful black-and-white photographs inserted in the text seem to have been intended for soft-contrast and a special mid-section of colour plates designed to be high-resolution printing on art-paper. Instead, the book is uniformly printed. This leaves the colour plates less brilliant than perhaps intended and the print of black and white photographs slightly hard. The quality of the photographs themselves, however, is so good that this is not a problem at all.

In many ways, it is hard or even impossible to think of the book and discuss it apart from discussing the *Vasa* project as such, to comment on the book without commenting on the project. Among other things, the book is an exciting boys' book: serious non-fiction, but with plenty of suspense. Not perhaps in some of its descriptions, but certainly in others that capture the reader to total absorption. The boys' book character has little to do with the intention of the writers—although their explicit intention is certainly to present the evolving *Vasa* project in its context—and everything to do with the concepts and values of the 1950s and the early 1960s, to the background of which the phases of the *Vasa* project on which this volume reports were carried out. Naval history, the navy itself and naval technology were mostly considered male subjects and so evidently were the archaeology of a man-of-war or the history of diving and salvage. These are all subjects that the book addresses, together with

competition and a lot of comradeship under hardship. Besides that, it gives fascinating insights in management structures and decision-making in a man's world. It is only on p.401 (of a total of 491) that the first two women start to play a part, not counting a few human bones identified as female. These two women are experts in textiles and clothes.

Otherwise, *Vasa* has from its construction to its excavation been the prerogative and the playground of men. For the engagement of the excavation crew in 1961, it was deliberately decided to hire male students only. Cederlund dryly remarks that difficulties in arranging special changing-rooms for female archaeologists are cited as the reason for this limitation in recruiting (p.200). In fact the laid-up ferry *Kung Vasa* that was to be the excavation headquarters would quite appropriately have provided for this, just as it had provided for female passengers. But it is quite clear that engaging women for very dirty hardship tasks simply did not fit the template of chivalry and 'he-man'-like behaviour that traditionally pervades the navy on the one side and salvage and construction diving on the other. The book confirms how much a specific intellectual interest in the grandeur of erstwhile naval ships and their track-record is also rooted in these two traditions. In Sweden, due to circumstances explained here and elsewhere, it took an interesting specific form (an aspect of the 'history of ideas' as Cederlund calls it) that culminated in the project on which this book reports.

The structure of the book is well chosen. It has a total of 20 chapters grouped in an Introduction and four discrete parts. It is preceded by the usual acknowledgements, foreword and prefaces, but also by a set of explanations, which proves to be very useful while reading the text. For instance the present usage of *Vasa* instead of *Wasa* is explained. As it is basically a policy decision, it is nice that it has not been applied in too rigid and purist a way retrospectively. Some guidance is given as to the value of money in 1628, and Swedish naval ranks are explained in comparison with ranks in other navies. This is not only relevant with regard to the commissioning of *Vasa* but also in relationship to developments since. The Introduction, written by Fred Hocker, gives a concise, clearly-written background to the specifications, ordering, and commissioning of the *Vasa*, including the organization of capital and resource procurement and alterations to the specifications over the production period in relationship to the political and strategic developments in the Thirty Years War. Regarding the historical data, Hocker draws heavily on recent research by Jan Glete. He also includes a convenient

survey of developments in ordnance and ordnance-related nomenclature, which is a good reference and particularly useful for later chapters, as the specifics are definitely amenable to confusion. And then, of course, but again concisely and in a slightly ironical style, he deals with the inquests and the way in which everyone blamed everyone else after the ship capsized on 10 August 1628. He concludes that trim and stability had not yet been properly fine-tuned, but that there is no reason to suppose that *Vasa* was inherently less seaworthy than any of its contemporaries. This is not to say that nothing went wrong, but it implies that an analysis of the archaeological information relating to the ship has general relevance. It also means that *Vasa* has a much wider meaning than as an illustration of 'new product disaster' in a management book.

The parts that follow, deal with 'the site', the recovery, the excavation and post-recovery explorations respectively. Part I, on the site, has a chapter on the physical environment and on the deterioration that the hull experienced over time. Based as this is on analysis by Per Wendel, who co-authors this chapter with Fred Hocker, it reveals a fresh way of looking at process and finding out which observations can contribute to its understanding. In some ways it is very basic archaeology and it clearly illustrates how complex structures not only have a telling 'stratigraphy of construction', but also a comparably informative 'stratigraphy of decay'. Besides, or rather between these two chapters, the section also includes two chapters on the influences that the 'site' suffered from human interference over time. No humbug about C-transforms, but it is the clear understanding of Schiffer's famous scheme that bring these basically historical chapters under the heading 'Site'. Because that is what these chapters are: a historical overview of salvage operations, whether successful or not, and even whether materialized or not. It is based on historical documents, notably court records and (competing) permits. In presenting this information the editor decided to translate and reproduce the excellent article that Commander Georg Hafström, Royal Swedish Navy (retired), produced nearly 50 years ago on 'The Salvage Attempts 1628–1683'. It is good history with exciting insights into both intrigues and technology, and well documented at that, a joy to read! Fred Hocker's commentary puts it in perspective in a way that is relevant for ongoing discussions in our field, and that justifies a quotation:

The one thing that strikes me more than anything else about the 17th-century salvage attempts on *Vasa* is how closely they resemble 20th-century treasure-hunting ventures. All of the familiar elements are present:

- gregarious, boastful entrepreneurs who are more salesmen than engineers
- clever but naïve engineers who are eventually taken advantage of by the entrepreneurs
- influential friends in high places

- nervous investors who rapidly lose patience with slow progress
- the constant search for operating funds
- broadly-worded permits
- trouble demonstrating early progress (or even an utter lack of physical accomplishment)
- cost and schedule overruns
- little return on the initial investment admitted by the salvors.

Hocker concludes that the most prominent entrepreneur, Albrecht von Treileben (c.1625–1688) would no doubt be a roaring success in the Florida Keys or the Philippines, at least until his creditors caught up with him.

The chapter on salvage in the 18th to early-20th centuries, written by Cederlund, again addresses activities that may or may not have influenced the 'site'. At the same time it is also the real prelude to the *Vasa* project as we have come to know it. It connects disparate information in order to explain the specific research and exploration tradition that led to the *Vasa* project. In so doing, it subtly reduces Anders Franzén's role as the one-and-only driving force and the heroic discoverer of the *Vasa*, without ever denying the essential part he played. It maps relationships between operations in for instance the 1920s and 1950s, showing how the historian Nils Ahnlund and Lt-Cdr Lenny Stackell, a naval officer and ordnance enthusiast, had been involved in both. Both died early in 1957 and therefore contributed no longer to the *Vasa* saga, but both had been more or less present at the 'discovery' of *Vasa* in 1956. It seems to be reasonable to suppose that the whereabouts of the wreck had actually continued to be known, both approximately as relating to *Vasa*'s sinking, and specifically as related to the wreck-site. With the uncertainties, rumours and secretiveness usually surrounding this kind of information it might be that one and two were not always put together. Cederlund even cites an indication that the site was used for navy training dives in the first half of the 20th century, just as it had been in the 19th. Although quite plausible, the indication is based on the memory of just one person who got the story from his father as a child and Cederlund insists that it should be corroborated. Here, as in later parts of the book, long quotations from original documents and reports are integrated in the text. In less comprehensive books, this might be a little awkward, but in this case I found it very useful and revealing.

Part II analyses and describes the period from discovery to recovery. Here the boy's book character is perhaps even more prominent than in the chapters on salvage. In many ways the development of the project, 'the drama that was soon to unfold', was an autonomous process forcing itself on a wide range of stakeholders and authorities. The *dramatis personae* are introduced and cited and so are the authorities and the positions they took in meetings and memoranda. All wanted to have full control but no

responsibilities. Matters are confused, as in fact they often are. One might get the impression that ownership—so vital in salvage—is the most important issue in heritage management as well, which of course it isn't. Surprisingly, Anders Franzén is relatively absent from these pages, although his dealings in the background are fully acknowledged. It is Commodore Edward Clason, the superintendent of the Stockholm Dockyard, who is gradually pulling ever more strings. He takes and forces all kinds of decisions, more interested in results than in process. The project would most probably have ended in 1958 had he kept to procedure rather than operated on personal authority. For assessment and management of successive on-site operations he completely relied on self-made Per Edvin Fälting. Their co-operation is presented as a fascinating symbiosis of people from very different backgrounds. Both are storytellers, have written on their experiences, and are cited extensively (good reading again; remarkable how much their narratives and other navy—and diving—lore seem to follow the same patterns; a subject for a literary study?). Fälting is presented as sympathetic and able, a charismatic gang-leader who will be responsible for all subsequent on-site operations and who stresses training of his crews, not just in tying knots, but also in historical background and understanding their tasks. A quotation has him saying that Anders Franzén's principle that the assistants could have little brains but big hands ... [leads to] no people forthcoming with hands of any size (p.254). I would be inclined to support him in that, not least in relationship to archaeological operations.

Chapter 9, 'Preparing for the Final Lift', works up to the dramatic turning-point of the book. It exposes stresses to the ship's structure, but also between parties involved. Detailed instructions and memoranda are telling, although the writers do not underline the subdued differences. The evolving organisation is again addressed in the chapters of part IV that bring us up to 1967, when collection of additional material through diving was considered to be completed.

Part III describes the excavation of *Vasa's* interior. And actually this is the most eagerly-awaited part. It is probably the section we will all use most, both as reference and as a basis for research. To serve that purpose is the clearly-stated objective of this book. The plans, drawings and ample photographs are a real treasure. The clearing of the interior, to which this part is devoted, was a five-months operation. Cederlund participated in the process as one of the male students hired for the task. Rather than trusting on memory, however, these chapters build on archival material, as do the preceding ones. At its core is non-evaluative description of progress and of the registered finds, and observations on subsequent decks and in subsequent spaces. Although all the information is there to make one's own conclusion, I think it would

have been helpful to state clearly what the objectives of this part of the operation were. The excavation, after all, was a highly exceptional one, not just because nothing like it had been done before. It was undertaken in a cramped space, under dirty and wet conditions. The primary objective was evidently to empty and relieve the ship as quickly as possible, the second objective to collect as much material as possible, and the third objective to document it in a way that would allow for later analysis. The next question then is: did this succeed? The first and second objectives were evidently attained, but what of the third? Until now, we have had no way of knowing. The major achievement of this book is that we can answer this third question positively as well. Of course there are problems, as always, and many are recognized in the text, but indeed the documentation is good enough for further analysis.

In the final chapter Fred Hocker gives a short retrospective, stressing *Vasa's* position in our discipline. He is right in stressing its influence. It has frequently been held up as an example, but hardly in a well-defined way. The *Vasa* project is an icon in the development of maritime archaeology, but it is no use implicitly to assume that archaeology or developing archaeology was its objective. This has been true for the other iconic projects that Hocker mentions, but not for *Vasa*. In the first decades archaeology was a condition rather than the prime mover, and we may be grateful that the condition was effectuated at all.

This actually is the other achievement of the book, that it documents a vital episode in the history of our discipline. How did the value-system of naval historians, the navy, the salvage industry, antiquarians, the museum world and archaeology interact? What significance dominated decision-making? Which forces influenced the process? The book is extremely rich in this respect. There is one odd example that struck me: museum professionals and archaeologists in the '60s and much later were not very specific about human remains. Bones were finds and got numbers and were stored or analysed as appropriate. For the armed forces, however, the 'Unknown Soldier' and the drowned crew-member have strong connotations and command respect: *memento mori*. That archaeologists studied their remains was acceptable, just like forensic scientists do, but after that a ceremonial burial is the thing to provide for. In 1963 the human remains found during excavation were documented and buried in a memorial, an anomaly in archaeological practice. It set a trend where remains from men-of-war are concerned. In 1989, however, the very year that saw the most vehement debates on archaeological human remains elsewhere in the world, the bones were quietly disinterred for further study, and have been kept as a museum collection ever since.

We may congratulate the authors and the editor on having produced a treasure-trove for study as well as an entertaining book, and I certainly look forward to

equally-well-produced new volumes in the series, even though I probably will not be able to read those in bed either.

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Underwater Cultural Heritage at Risk: Managing Natural and Human Impacts *(Heritage at Risk Series, Special Edition)*

R. GRENIER, D. NUTLEY and I. COCHRAN (eds)
 xix + 104 pp, 130 illustrations, mostly colour

ICOMOS International Secretariat, 49–51 rue de la
 Fédération, Paris 75015, 2006, €20 (sbk) or free pdf via
<http://www.international.icomos.org/risk/2006/index.html>

The ‘Heritage at Risk’ series, published by ICOMOS and now numbering 10 issues, has served the very important task of identifying and publicising endangered cultural monuments and sites so that action can be taken to save them. This special edition has a particular aspect as Grenier points out: under the sea, irreplaceable sites can be destroyed by acts of people or of nature without anyone knowing. They are, therefore, especially vulnerable.

‘Mankind is the true threat to underwater cultural heritage’. This is the conclusion of Robert Grenier, one of the editors of this volume. Commercial enterprises or treasure-hunters argue that historic wrecks are at risk, threatened by the forces of nature and by time, which is pressing, and that archaeologists are not available in sufficient number, having neither the time, nor the technical and financial means to save these wrecks, while they (the ‘salvors’) have ‘saved’ more wrecks than all the archaeologists together. As Grenier points out, the reality is quite different. Very old wrecks like the *Kyrenia* ship, properly explored after 2300 years, had been kept in safety in the sea-bed until its extraordinary archaeological exploration two millennia later, while the *Sussex*, sunk in 1694 in thousands of metres of water, was still in no danger except from the advanced technology used by the contractors involved in attempting to identify it for salvage.

Furthermore, no historic wreck has ever been saved by commercial contractors or treasure-hunters; only archaeologists have succeeded in this task. Grenier was, of course, one of the activists in the negotiation of the Convention on the Protection of the Underwater Cultural Heritage 2001 and feels that ‘If it were necessary to keep only a single article of this Convention, it is clear that Article 2.2 and Rule 2 of the Annex, [which] together form a single entity, would suffice to eliminate the fundamental problem, the allure of financial gains, source of all the threats posed to the underwater cultural heritage.’

The 30 expert contributors to this collection of essays cover a wide range of issues essential for managers of underwater cultural heritage to know. The very different kinds of cultural heritage concerned are illustrated through the examples given. Apart from the wrecks of ships made of wood, ironclad (the *Monitor*) and full metal (a Japanese midget submarine at Pearl Harbour which is also a war grave, the *Yongala* off Townsville in Australia, *Glamis* in the Cayman Islands), there are submerged human settlements (Port Royal in Jamaica, Santa Fé La Vieja in Argentina); pre-colonial fish-traps (South Africa) and fish-weirs (Canada); unexplored sea-bed in historic maritime areas (Hong Kong); prehistoric remains in the sea-bed (a British ALSF-Funded Seabed Prehistory Project is most developed off the Sussex coast); memorial sites such as the *Titanic*; and the extraordinary deposit of hundreds of stone items found at Tupaparau in French Polynesia.

The various kinds of harm to which these sites are vulnerable are also well illustrated. Damage by humans includes dredging for marine aggregates or to make a shipping channel (a late-16th-century wreck in the Thames and a late-15th-century wreck in the Orio River in Basque country); bridge-building (fish-weirs in Canada); land reclamation in Hong Kong; tourist operations in Jamaica and South Africa; coastal development in South Africa; port development in Spain (Ubieta wreck); construction work, environmental degradation and heavy traffic (all threatening HMS *Swift* in Argentina); fishing (Wadden Sea wrecks in the Netherlands); souvenir hunting (*Maori*, *Monitor*); concerted looting (*Queen of Nations*); dynamite (*Maori*, sites of Campeche Sound in the Gulf of Mexico, the Molasses Reef wreck); penetration diving (*Yongala*) and fishing (Campeche Sound).

Damage from nature includes river erosion at Santa Fé La Vieja in Argentina and seabed erosion in the Netherlands (Wadden Sea); erosion of previously protective sediment (*Solway*, *Elizabeth and Mary*); marine wood-borers (*Swift*, *Avondster*, *Pride of Hawaii*, BZN10 in the Texel Roads in the Netherlands); aerobic corrosion (*Yongala*); cyclonic conditions (*Yongala*) or storm surges (*Pride of Hawaii*, *Monitor*); strong currents (*Monitor*), ice (*Elizabeth and Mary*) and rusticles (*Titanic*, the Pearl Harbour midget sub). The most direly-threatened site and the most intriguing is perhaps the site of the *Avondster* in Sri Lanka: originally threatened by turbulent waters at the site, chemical degradation and wood-eating organisms (as well as looting and fishing), it was directly affected by the 2005 tsunami which damaged the harbour of Galle and destroyed the underwater-heritage workshop there, including the laboratory, conservation area and the records. Yet the measures in place to protect the *Avondster* against the previously-existing threats were almost untouched and the wreck is still available for research.

While we can all no doubt name other examples of both human and natural causes of damage, the selection made gives a newcomer to this field a very

good idea of the threats which may need to be met. Even more useful to the underwater-heritage manager are the various strategies of management which have been adopted in response.

First and foremost is the emphasis on education: of divers, of tourists, of the public. Stanley shows how all three can be reached through commercial dive businesses which are licensed and which respect and inspire visitors to shipwrecks *in situ* (Conception Bay, Newfoundland). Nutley describes partnerships with charter-boat operators for joint management: this included the installation of a permanent sub-surface mooring system to avoid anchor-damage, as well as Finder's Recognition Plaques, resulting in a site accessible and frequently visited that is 'as intact and as attractive as the day it was found'. Sports-diver training was important for the long-term protection of the *Elizabeth and Mary*. Then there are Underwater Archaeological Preserves administered by the state government in Florida, National Marine Sanctuaries by the federal United States government, Shipwreck Preserves in the Cayman Islands and Protected Zones in Australia. Underwater trails have been established (Cayman Islands; Italy) while guided tours under water are available in Portugal and a land-based 'Maritime Heritage Trail' has proved popular in the Cayman Islands. Maritime museums serve a significant role in education and link with preservation: the Molasses wreck became the nucleus of the Turks and Caicos National Museum. Portugal's experience with the organization of museums, models and exhibits is most valuable. Underwater museums are planned in Campeche Sound. A special effort is made by GRAN, in French Polynesia, to reach children from the very youngest age—an example that might profitably be followed by many island countries where supervision of sites is difficult.

Another important aspect of management is the legal and administrative framework within which the heritage managers do their jobs. The international framework is provided by the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001. Interesting examples of national regulation include Hong Kong's Marine Archaeological Guidelines and legislative changes in Australia in response to the looting of the *Queen of Nations*. The need to update laws which allow loopholes and to bring them into line with the Convention and Sofia Charter (ICOMOS Charter on the Protection and Management of Underwater Cultural Heritage) 1996 is stressed by Leshikar-Denton and a serious loophole in Basque legislation, which fails to apply archaeological standards to work in river estuaries, is pointed out by Izaguirre.

Administrative practices such as the development of a detailed management-plan in Hong Kong and the making of inventories and surveys (Cayman Island, French Polynesia, Gulf of Mexico) are also considered. One important aspect of administration may be getting the local government, such as a municipal or

rural council, to understand the importance of the underwater cultural heritage. When the *Queen of Nations* was exposed by a violent storm in 1976, the local council regarded it as nothing but a swimming hazard: considerable quantities of timber were dragged out of the water by bulldozers, most of which was chopped up and burned or used as landfill (fortunately this would not happen today). Contrast this with the action on the important wreck found in the estuary of the Orío River in Spain, which was not protected by law, but where the Regional Council of Gipuzkoa alerted the Basque government to the need for an archaeological survey when it began work on a port construction in 2000.

Practical strategies on sites are also discussed. A cleaning-up project after serious interference with a site is illustrated by Nutley (*Queen of Nations*) and Hall (the 'Pipe Wreck' in the Dominican Republic). Both succeeded in retrieving valuable information about the wrecks despite the substantial damage done by previous hands. Successful means of physically protecting wrecks include polypropylene nets (BZN), sandbags (*Solway*) and a combination such as the tarpaulins, sandbags and a metre-thick layer of sand and coral rubble used on the 'Pipe Wreck'. The site of the *William Salthouse* in South Australia was stabilized by the use of sea-grass matting.

Two detailed examples show how *in situ* protection can be used to protect (Conception Bay in Newfoundland, BZN wreck in The Netherlands). Even in a situation of urgency, a prior non-intrusive assessment has proven to be very significant (*Elizabeth and Mary*). Salvage archaeology can sometimes be combined with *in situ* protection of less sensitive materials (*Monitor*), while Firth discusses an 'archaeological mitigation strategy' for an Elizabethan wreck found in the difficult area of the Thames estuary.

As one reads through the volume one cannot help noting the sad cases of damage and destruction, despite the best efforts to rescue wrecks from scavengers: the *Queen of Nations*, the Playa Damas shipwreck in Panama, the *Monitor* which, by the 1990s, was losing 'the battle against both natural and human threats'. A cloud of confusion still hung over the Playa Damas wreck at the time the article on it was written by Castro and Fitzgerald: one wonders whether the efforts to ensure that the wreck (claimed by commercial salvors to be Columbus's *Vizcaina* and apparently dating from the early-16th century) has yet been successfully resolved. The better news is that, even where wrecks have been substantially maltreated, good management techniques have rescued important knowledge and elements which can form the basis of public education through museums as well as diver training.

One feels less desperate about the losses already made where one can say that they have inspired better practice in the future. The long process required to have a wreck scheduled under the appropriate historic-wrecks legislation, and the consequent frenzied looting

of the *Queen of Nations* wreck during that process, convinced Australian archaeologists of the necessity for 'blanket' or automatic protection of all wrecks of a certain age. Accordingly it is illegal to take any action in relation to them until an authorization has been issued by the appropriate authorities and inappropriate activities on a site such as that of the *Queen* can now be controlled immediately. This provision is now enshrined also in the 2001 UNESCO Convention (Article 1(1)).

Encouraging is the collaboration between British institutions and archaeologists with Argentinians and the participation of many foreign nationals in the project on the *Swift*, a British ship located in Argentina. This reflects existing best practice by archaeologists and the provisions of the 2001 UNESCO Convention. Less successful appears to be the effort to defuse opposition between commercial interests and an archaeological team in Panama (Playa Damas wreck). This also seems to reflect experience in many countries, where the conflicting aims of these two groups militate against fruitful cooperation.

Nonetheless I find it depressing that some of most important wrecks ever found, such as those which were potentially the oldest in their area, like the Molasses Reef wreck in the Turks and Caicos Island, discovered in 1972 and probably the oldest in the Western hemisphere (Keith, p.82), the Urbieta wreck of late-15th century, the only medieval ship discovered in Basque country and a forerunner of the famous Red Bay whaling ships, and the Playa Damas wreck have all been subjected to the risks of looting, public works and non-scientific excavation. One might add the Hon Dam and Cu Lao Cham 15th-century wrecks in Viet Nam (these two are not discussed in this volume) where only the cargo was salvaged and little or no scientific information retrieved about the ships themselves, despite their early date and consequent historical significance. This reader concludes that almost all the underwater cultural heritage, known and unknown, remains substantially 'at risk'.

The Introduction to the Convention (Guido Carducci), Foreword (Michael Petzet), Grenier's comment, a note on ICOMOS and another on ICUCH (the ICOMOS International Committee for the Underwater Cultural Heritage) are all given in English, French and Spanish—a welcome and useful practice. The text of the UNESCO Convention 2001 is given in English at the back of the book (official versions in Arabic, Chinese, French, Russian, and Spanish are available at http://portal.unesco.org/en/ev.php-URL_ID=13520&URL_DO=DO_TOPIC&URL_SECTION=201.html. It might have been useful to indicate this in the text).

This is a really important volume for administrators, politicians, divers, tourism-authorities and concerned citizens to understand fully the nature of the threats and to acquire skills to deal with them. Far from a simple indication of what is at risk, its broad geographical coverage and discussion by specialists

result in a kind of compendium of risk-management. Everyone interested in the underwater cultural heritage should have a copy.

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Møllebegt II—a Submerged Mesolithic Settlement in Southern Denmark

(*BAR International Series 1328, in association with Langelands Museum*)

JØRGEN SKAARUP and OLE GRØN, with four contributors

150pp, 150 illustrations including colour, 6 tables

BAR via Hadrian Books, 122 Banbury Road, Oxford OX2 7BP, 2004, £48 (sbk), ISBN 1-84171-673-1

In the 1920s humanoid skeletons and worked antlers were recovered during a dredging operation from the shallow waters of a sheltered channel between Ærø and Dejrnø in the Funen archipelago, Denmark. This was one of many finds from drowned settlements, the discovery of which had intrigued the Danes for over a century. But Møllebegt was the first to witness a structured programme of archaeological research and excavation, albeit not until its rediscovery in the 1970s. The project was led by the Langelands Museum and it unearthed a rich Late-Mesolithic, Ertebølle coastal site (Møllebegt I) in 2.3 m of water.

The introductory chapters of this monograph recount how Møllebegt I was located and excavated with the help of committed avocational divers. Once the archaeological potential of these submerged occupation-sites was appreciated, and the enthusiasm of the sport-diving community galvanised, systematic searching of coastal waters revealed further extensive areas of well-preserved inundated landscapes. It was this ongoing spirit of enquiry that led to the discovery of Møllebegt II in 1987 when divers visiting Møllebegt I ventured into the deeper waters of the adjacent channel. Møllebegt II proved to be of greater antiquity and consisted of a boat-burial and dwelling occupied between 5250 and 4800 BC cal., in 4.5 m of water.

Under the supervision of Langelands Museum, survey, sampling and excavation was conducted between 1987 and 1996. The initial programme of work included a site-plan, a borehole-survey and test-pits to determine the context and extent of the archaeological deposit. Two pits were excavated within which pristine flint implements were found in undisturbed stratigraphy. This prompted a further initiative and in 1990 a more comprehensive programme of work was put in place.

To complement analysis of the archaeology, a chapter is provided on the geology and topography of the landscape within which the dwelling sits.

Geophysical survey work was not conducted until 1997 but, to the credit of the authors, we are presented with the morphological development of the inundated land-site before entering into a detailed discussion of the excavation method and results. This section (Chapter 2) provides the reader with an insight into the landscape before submergence, thereby aiding our understanding of the relationship between the human occupation and the contemporary environment. Particular attention is drawn to relative-sea-level and sea-level change which, as well as having cultural implications, highlights the value of archaeology as a tool to inform the debate on climate change.

Having placed the site within a coastal geomorphological context, the methodology used for archaeological excavation is described in Chapter 3. The approach employed was similar to that on land although the wheelbarrow was replaced by a water-dredge with a mesh to catch any finds. The site was divided into a grid of 0.5 × 0.5 m squares, each being excavated in 5-cm spits. Details of the methods employed and the results achieved provide a very useful insight into the problems faced by the prehistorian investigating a compact multi-phase site under water.

The first part of the site to be investigated was the boat-burial found in 4.75 m of water, 5 m to the south of the dwelling structure. This is described in section 4. The boat measured 2.5 m long, was made of lime, contained the remains of a young man about 25 years old, and is dated to 4900–4730 BC (cal.). The boat-grave was fixed to the sea-bed below the water. This practice is not unique and a valuable summary of the 270 dugout boats which have been found in Denmark is given (30–35 of which came from the Mesolithic). For the maritime archaeologist this boat demonstrates the breadth of the discipline by integrating submerged prehistoric land-sites with the study of water-craft.

The main area excavated in detail was the dwelling-place which contained a number of hearths and a large bark platform within a well-defined oval area of 5.5 × 3.5 m. It has been dated to c.5250 BC (cal.) but believed to have been occupied over a period of several hundred years. Material within a defined area measuring 6 × 4 m was recovered systematically and sorted to produce data for detailed distribution analysis. Anthropological parallels drawn from social-spatial activities of hunter-gatherer societies were used in conjunction with the distribution patterns to interpret the functioning of the dwelling-space.

The fifth and final section comprises the second half of the monograph and presents analysis of the environmental and archaeological material. Detailed reports on the artefacts include flint, bone and antler, wood, bark, seeds and fruit from both the early trench excavations and from the dwelling-place. The assemblage is then compared to other sites in the region and a useful gazetteer of submerged Ertebølle (late-Mesolithic) settlements is provided to give a broader context. This is followed by an archaeo-botanical analysis as well as

reports on the study of mammal-remains, bird-remains and fish-bones. Useful descriptions of bore-hole analysis, a catalogue of Stone-Age boat-burials in Scandinavia, the distribution of flint without retouch and the distribution of non-organic artefacts are given as appendices.

On the whole, the publication provides a great deal of unique information and highlights the archaeological potential of a site-type that is rarely exposed and little understood. On land, desiccated sites of a similar age would contain little more than flints, hardy seeds and post-holes. Underwater, prehistoric sites can contain exquisitely-preserved organic material of which there are many late-Mesolithic examples in the region but few with such great antiquity.

However, the report is not without minor failings; a number of small grammatical and typological errors creep in, and the style varies noticeably between authors; suggesting editorial control has been less than omnipresent. In addition, despite occupation of a few hundred years, little attention was given to possible phases of occupation in the dwelling, although this is most probably due to the problems associated with excavating under water and disturbance due to continual occupation. Be that as it may, the study of submerged Mesolithic sites in the Baltic may be relatively new but it is still decades ahead of the rest of us and has a great deal to teach the discipline as the study of submerged prehistoric archaeological sites evolves in other locations around the globe. It is a 'must' for all students of this important and fascinating area of maritime archaeology and should be read by anyone tackling the tricky problem of excavation under water.

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Living on the Lake in Prehistoric Europe: 150 Years of Lake-Dwelling Research

FRANCESCO MENOTTI (with 23 Contributors and Foreword by B. Cunliffe)

304 pp., 71 b&w figures and maps, 2 tables

Routledge, 2 Park Square, Milton Park, Abingdon, OX14 4RN and 270 Madison Avenue, New York, NY 10016, 2004, £65 (hbk), ISBN 0-415-31720-7, £22.50 (sbk), ISBN 0-415-31719-0

A 280-page synthesis covering 150 years of lake-dwelling research is an achievement which makes this publication a definite success.

Reading the title alone, one would expect to learn about discoveries from all over Europe but 'only' the circum-Alpine regions are covered, apart from a chapter about England. Why then is Denmark not

presented, and more generally so, not Scandinavia or Eastern Europe (cf. *Antiqua*, Swiss archaeological society on the subject, published in 2006)? It would have been preferable to research more thoroughly the areas restricted to the circum-Alpine region, or to present, as a conclusion, an overview of the lake-dwelling phenomenon in the European context as a whole.

In order to deal with the diversity and complexity of the theme, the contributions of many different authors cover the broadest possible fields. There was a considerable editorial effort to achieve this volume. The resulting advantages are both a remarkable diversity of themes presented by the most prominent scholars in their field and some authoritative syntheses. The prodigious vitality of the research in that domain over the past 30 years has produced a substantial number of published documents, making it extremely difficult to draw large-scale syntheses. This volume will therefore be an indispensable companion to every scholar, student, and to the non-professional who wishes to be enlightened on the subject.

A major limitation is that the authors concentrate solely on areas they know best, leaving the rest to other scholars, who are not included in this volume; thus entire regions are left out, often coinciding with a language barrier, given that the book is written in English. This is particularly the case for parts 2 to 4 where the regional aspects limit the full significance of certain studies. Chapter 15, for example, deals only with Germany while, in contrast, Chapter 17 entirely ignores it.

Why do the Swiss lakes of Neuchâtel, Morat and Léman (or Lake Geneva) appear to be a no-man's-land (cf. fig. 1.3, 1.5, 17.2; or, on p.254, why is it stated that the site of Cortaillod is in the canton of Geneva?) when half the lake-dwelling sites discovered in Switzerland were found on those shores? Furthermore, many of these sites have been extensively excavated and published in the following series: *Archéologie fribourgeoise*, *Archéologie neuchâteloise* and the *Cahiers d'archéologie romande*. There is no mention of the work of a pioneer, Paul Vouga, and of his excavations between 1919 and 1934, where he used stratigraphy to define the different phases of the lakeside Neolithic of western Switzerland, still pertinent today. A mere four lines in the chapter on museums mention the Latènum (p.229), built on the shores of Lake Neuchâtel and winner in 2003 of the Council of Europe Museum Prize, and not a word on its archaeology park where a house was reconstructed according to the plans of house number 6 from the Final Bronze Age site of Cortaillod-East (p.241).

Apart from these few remarks, both the quality and the quantity of information found on each page should be acknowledged. The subjects, dealt with precision and concision, cover the history of research and the most recent developments, dendrochronology, the impact of climate, husbandry and hunting, agriculture and collecting, underwater excavations, relations with the public—new challenges archaeo-

logists will have to meet in facing political authorities. One author alone could not have conceived such a variety of viewpoints and interpretations; only the contributions of many different archaeologists made it possible. A lakeside village site is no longer just an accumulation of remarkable prehistoric organic remains or a simple confrontation of opinions on whether a village was established over water or on firm ground. Its dynamic is now studied under all aspects with reference to climate, topography (some authors mention the defensive aspect), regional integration and development of copper mining. The chapters on experimental archaeology and computers are less convincing.

There would be little sense in summing up the various syntheses, but a detailed reading of the volume is highly recommended as it will undoubtedly become a work of reference, legible to the non-specialized public too.

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Odysseus Unbound: the Search for Homer's Ithaca

ROBERT BITTLESTONE with JAMES DIGGLE and JOHN UNDERHILL

598 pp, c.400 illustrations, mostly colour

Cambridge University Press, Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, UK, 2005, £25.00/\$40 (hbk), ISBN 0-521-85357-5

In his book, *Odysseus Unbound*, R. Bittlestone attempts to solve a question that has bothered readers of Homer's *Odyssey* for more than 2300 years: where precisely is Ithaca, homeland of famed seafarer Odysseus? His answer, which is both straightforward and complex, requires almost 600 pages of text, over 400 colour illustrations and tables, and five appendices. Let us start with the straightforward part: Bittlestone believes that one can find Ithaca not on Ithaki, the modern Greek island most identify with Homer's Ithaca, but on the nearby island of Kephallenia, more precisely on its NW corner, the Paliki peninsula. No one has recognized this before because, in historical times, Paliki was physically attached to Kephallenia. At the time of the poem's composition, however, a marine channel separated the peninsula from the rest of the island. After the poem's composition, catastrophic earthquakes thrust the island upward, obliterated the channel and erased Paliki's identity as Ithaca.

You can now begin to understand the complex part. A serious examination of this theory requires expertise in Bronze-Age archaeology, the text and transmission of Homeric epic, and the geomorphology of Kephallenia, none of which define Bittlestone's particular skills. He is first and foremost a businessman, founder of a

successful management firm named Metapraxis. He and his colleagues advise clients how best ‘to define, extract, diagnose, present, control and predict management information at Board level’ (from an earlier version of the company website: <http://www.metapraxis.com>). No intellectual lightweight, Bittlestone interrogates his Ithaca theory with vigour and persistence but also with an appropriate measure of respect for expert knowledge. He knows that for his theory to gain acceptance, he must convince experts to criticise and adjust his views.

Most academics, particularly those with projects requiring grants and private funding, sweat bullets courting businessmen like Bittlestone with fund-raisers and lectures. In a rare role-reversal, we find Bittlestone courting academics like Cambridge philologist James Diggle and Edinburgh geologist John Underhill. Intrigued by what they saw and heard, both decided to join his quest and *Odysseus Unbound* is the result of their collaboration.

Is the book worth buying? Definitely. The narrative reads well and the text is lavishly illustrated with beautiful photographs, mostly shot by the author, and excellent graphics, particularly a series of maps created from satellite imagery. Bittlestone (hereafter ‘B’) is, after all, an expert in organizing and presenting information. I presume that a generous subvention has allowed the inclusion of so many colour illustrations while keeping the cost at an affordable £25.00 (\$40). My only serious criticism here concerns the book’s lack of an illustration list which would have facilitated movement back and forth between illustrations in different chapters—and the book’s text demands a lot of this. In other respects, B has a real talent for explaining difficult concepts in clear English and for summarizing complex arguments. He also writes the book from a distinctly personal point of view, which imparts a disarmingly naïve, yet passionate quality to his narrative. In sum, the book raises interesting questions about important topics while neatly summarizing past scholarship on ‘the Ithaca question’. This alone makes it worth the asking price.

Is the book convincing? Yes and no. Certain aspects are utterly convincing. There can be no doubt that tremendous earthquakes have impacted the island of Kephallenia in historical times, thrusting the island upward, changing relative sea-levels along its coasts and altering the very nature of its landscape. On the other hand, I am not yet convinced that B has found Homer’s Ithaca in the NW corner of the island. In order for me to explain my lingering doubts, I must briefly explain how the author develops his argument.

B’s main premise is that Homer describes Ithaca with such accuracy that the astute reader can draw a detailed map of its topography. In order to prove this point, B first identifies ‘key locations in or near Ithaca’ and notes their characteristics (fig. 3.3, p.31). Guided by what he considered to be ‘four key clues’ regarding the island’s location (pp.34–9) and by Strabo’s report in the 1st century BC that a marine channel cut across

the NW corner of the island (p.51), he concludes that this region corresponds best with Homer’s Ithaca. To test this hypothesis, he catalogues the poem’s main locations of action (fig. 3.3) and then analyses where these places could be located in the modern topography of Paliki. For example, by tracing the route of various characters who come and go from Odysseus’ palace, B determines the essential features of the landscape: 1) the pig-farm (of Eumaeus) is located on the heights well above Phorcys Bay; 2) the journey from pig-farm to palace is not regarded as far; 3) the palace is not visible from the pig-farm; 4) the pig-farm must be relatively close to where Telemachus landed on his return from a trip to the Peloponnesus; and so forth. In all, he identifies 37 indicators, which he calls ‘palace clues’ (fig. 17.2 on p.194). He performs similar analyses for the location of the island Doulichion (p.270) which he identifies with modern Ithaki, and for the farm of Odysseus’ father Laertes (p.286). He represents these identifications on excellent colour plates produced from satellite imagery (cf. figs. 32.5–6, 32.12–13, 32.17) that preserve a sense of elevation. In the end, he feels he successfully identifies every important locus of action in the poem.

Despite B’s enthusiasm for his results, I remain troubled by his method and therefore unconvinced by his conclusions. First, I find it difficult to believe that the text of the poem was composed with such minute attention to topographic detail. It is an attention to detail that seems less necessary for the poem than for B’s theory. Second, I find it difficult to believe that the poem was composed by a poet on Ithaca, as B proposes, and that the work was transmitted through other artists in Ionia, hundreds of miles to the east, without any alteration to scores of exact topographic details until the epic was written down, perhaps centuries later. I have always felt that the master-poet lived much closer to the period when the poem was reduced to writing (although I cannot prove this). Third, I find the geological evolution of the island fascinating, but not overly-compelling as proof that Paliki is Ithaca. Primarily I am troubled by our need to accept that everyone forgot Ithaca’s location following the earthquakes that obliterated Homeric Ithaca and progressively closed the channel. I feel this way because island dwellers *around* Ithaca would have remembered the island’s name well after Ithaca’s destruction. Coastal names have a tendency to stay put, perpetuated by sailors and fishermen who name promontories and islands for recognition purposes. In like manner, Strabo often refers to ‘old’ and ‘new’ settlements of the same name (cf. Oiniadai, Strabo 10.2.2 and Pleuron, 10.2.4).

Indeed, by the 4th century BC, a *periplus* or nautical itinerary ascribed to Skylax clearly identifies Ithaca with modern Ithaki (Ps. Skylax 34), a situation that surely existed a century earlier when Herodotus and Thucydides considered Paliki a part of Kephallenia. I find it difficult to believe that all traces of Ithaca’s

memory would have disappeared between *c.*800 and *c.*500 BC. Furthermore, in the 3rd and 2nd centuries BC, when scholars like Demetrius of Scepsus and Apollodorus of Athens tried to square Homeric toponyms with contemporary geography, no one suggested the identification of Paliki with Ithaca. For me, this is the most compelling evidence against B's theory.

In a detailed discussion roughly the length of this review, Strabo (writing in the first century BC) methodically described what others had published regarding the locations of Ithaca, Dulichium, Same and Kephallenia. He says nothing about B's provocative identification. The natural conclusion from Strabo's discussion is that *none of his numerous sources* identified Homeric Ithaca with Paliki (cf. Strabo 10.2.10). To argue otherwise (as does J. Diggle on pp.511–12) means that we must seriously question Strabo's ability to understand his own sources. I would suggest, on the other hand, that one can accept the existence of Strabo's channel and still not identify Paliki with Ithaca.

Let us now consider this marine channel, which Strabo describes as occupying the region of a 'low isthmus' (10.2.15: *tapeinon isthmon*). As I read the authors' reconstruction of this region as a rather steep-sided channel—at least along its east side (cf. fig. 27.14)—I wondered about the meaning of Strabo's words. According to geologist J. Underhill, this channel came into existence by *c.*8000 BC and remained navigable until a series of cataclysmic earthquakes closed it off around 800 BC. This date, I should add, derives solely from his need to identify Paliki with Ithaca. Considering the scores of seismic events recorded in historical times (fig. 11.5, p.97) and the description of this region as sitting on top of a major fault, are we then to believe that the intervening period of roughly 6.5 millennia was relatively quiescent? My point is this: during the period of *The Odyssey's* composition, the steep eastern sides may have already collapsed into the channel, thus joining Paliki to the rest of Kephallenia.

Can we be sure that a navigable channel dates to the time of the poem? According to B, one important indicator can be found in a short stretch of retaining wall peeking from a landslide at the north end of the channel. Its identification reveals how B's mind works. First we are introduced to J. Underhill's 'sensational discovery' (fig. 31.2, p.428) and then we learn from Anthony Snodgrass, a well-known Cambridge archaeologist, that the wall's construction looks 'like Mycenaean' and therefore could be dated on style 'from *c.*1500 BC onwards' (p.433). Although 'from *c.*1500 BC onwards' is a prudent estimate representing a rather long period, by p.467 the modest wall has become a 'harbour wall of Mycenaean-like design'. I found that much of the argument concerning Homer's Ithaca and the landscape of the poem is constructed in like manner. Wishful thinking cannot transform a short stretch of wall into a Mycenaean harbour wall or a barren hill into a palace site, no matter how many times you pronounce it so.

Limitations of space do not allow me to discuss a number of other, specific questions I noted while reading the text. Although none of these individually derails B's theory, they suggest in their aggregate that his Ithaca identification is based upon too many unlikely suppositions to be more than a statistical long shot. At the book's end, I suspect I found myself in the position of other scholars whose advice B has sought throughout his quest. I admire his passion and drive. I secretly hope he can prove me wrong. But despite this goodwill, I remain unconvinced that we can go to Paliki and walk in Odysseus' footsteps. This feeling persists despite the 'buzz' B and his publishers have carefully generated for this book and for its provocative theory (cf. <http://www.odysseus-unbound.org/news.html>).

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Patterns in a Rocky Land: Rock Carvings in South-West Uppland, Sweden

JOHN COLES with BO GRÄSLUND

246 pp., 246 figs & 166 plates + (vol. 2) 118 site-plans
Uppsala University, S:T Eriks Torg 5, SE-753 10 Uppsala, Sweden, 2000, ISBN 0284-1347

Shadows of a Northern Past: Rock Carvings of Bohuslän and Østfold

JOHN COLES

222 pp., 264 b&w figs + 16 colour, 166 b&w plates

Oxbow Books, Park End Place, Oxford OX1 1HN, 2005, £30, ISBN 1-84217-181-X

Rock carvings have fascinated archaeologists for about 200 years. In Scandinavia, it is usual to divide them into two main groups. One group depicts the animals hunted by Stone Age people: they are often called hunting carvings. They are mainly found in the northern part of Scandinavia. The other group, the 'agricultural' carvings are mainly dated to the Bronze Age, and have a more southerly distribution. The motifs are varied. The rock carvings pose many problems. How old are they? Why were they made? and what was the significance of these pictures for the society which made them? There is a large body of publications, mainly in the Scandinavian languages.

The English archaeologist John Coles has visited rock-carving sites in various parts of Scandinavia for more than 40 years, documenting and studying them. The two books under review treat material from two different districts rich in carvings; Uppland in Sweden

and Bohuslän/Østfold on both sides of the present Swedish-Norwegian border.

Patterns in a Rocky Land is a survey of carvings in the parishes around the city of Enköping, north-west of Stockholm, an important part of the 'rock carving province' of Uppland. Coles has done fieldwork here since 1974, visiting and revisiting sites under different conditions, documenting the carvings by photo, tracings and rubbings. On many sites he has co-operated with the Swedish archaeologist Bo Gräslund. Gräslund has edited the publication which is in two volumes, No. 27 of the series AUN, from the Department of Archaeology at the University of Uppsala. The text in vol. 1 is illustrated by a large number of excellent photographs. In vol. 2 we find the site-plans, to a uniform scale of 1:20. A few large sites have an additional overall plan at 1:40. The book gives a fine overall view of the carvings in the district, but the author is clear on the point that a complete survey is an impossible task. New sites are found, and old sites, known from previous publications, have been lost.

After a brief introduction, the situation of the carvings is described, the degradation seen is the result of modern damage due to agriculture, probably acid rain and other pollution. Coles describes the study area, and then lists and discusses the various motifs. The most numerous, as in all areas where rock carvings are found, is the 'cup mark'. Next by number are ships, or boats, as Coles prefers to call them. In South-West Uppland alone, there are more than 1600. They range in size from tiny figures of about 250 mm long, to the monumental and unique Brandskog Ship, over 4 m long. They are found alone or in 'fleets', generally with other figures, humans, animals, footsoles, discs and other shapes which are difficult to interpret. The Brandskog ship has 6 paddlers clearly shown, other ships have short vertical strokes above the sheerline. Sometimes the numbers seem unrealistic; a Bronze-Age vessel with a crew of 70 may be a skipper's dream, or the ship of the gods. The best way to document rock carvings has been a matter of debate, as has the techniques of cleaning the rock and whether to paint the carvings as part of the presentation to the general public or not. Coles uses the well-tried techniques of photography with oblique light to bring out the relief, chalking before photography, tracing full scale, and rubbing. The tracings form the basis for the plans in vol. 2. The topographical situation of the various sites is documented.

Since the ice-cap which covered Scandinavia during the last Ice Age melted, the land mass has been rising. In eastern Sweden, the Bronze Age sea-level was 20–25 m, above the present level. The rock-carving sites reflect this, and maps show that most of them are situated close to the old shorelines.

Coles does not join the debate on what type of boat is shown, logboat, skin-boat or plank-built. He documents and describes, and does so very well. In the final comments he stresses the need for seeing the carving sites as part of a landscape, rather than

looking at the various motifs as separate elements, as has often been done in the past.

The publication is a fine example of how a large body of rock-carvings can be presented. The volumes are well produced, but the spiral binding of vol. 2 may not stand up to as much use as the book deserves.

Shadows of a Northern Past. Rock Carvings of Bohuslän and Østfold, has the same theme, but focuses on other aspects than documentation. Coles has selected a number of carvings from a much larger body of sites, both in Sweden and Norway. His site-plans are often based on older documentation, but supplemented with results of his own extensive fieldwork. The sites have been selected to show the quality and variety of the carvings: many of the best-known sites of both countries are included. There is a large number of photos in the text, a few in colour, with site-plans to uniform scale at the end of the book.

The material is very large: it has been calculated that there are about 5000 sites in Bohuslän and Østfold, with as many as 75,000 separate images. Of the sites selected, some have been in use for a long time, with old carvings amended and new ones made some time between 1600 BC and c.400 BC. Dating of the figures is based on analogy with objects found in a datable context and on analysis of style. The chronology of ship figures is based on comparison with ships on bronzes, mainly razors. Coles takes us through the motifs, ships, humans, animals, discs and vehicles, trees and the numerous cupmarks. He then looks at the way the sites are placed in the landscape, and their relation to the Bronze Age sea-level, and how the sites are organized. The final chapter touches on the possibility of foreign impulses from further south in Europe.

Both books can be warmly recommended. They present the material in an excellent way, and discuss features outside the actual carvings more thoroughly than is usually the case.

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Portus

(Archaeological Monographs of the British School at Rome)

SIMON KEAY, MARTIN MILLETT, LIDIA PAROLI and KRISTIAN STRUTT, with 23 other contributors

373 pp., 230 b&w illustrations, 25 tables, large double-sided fold-out

The British School at Rome, 10 Carlton House Terrace, London SW1Y 5AH, in collaboration with the Ministero per i Beni e le Attività Culturali, Soprintendenza per i Beni Archeologici di Ostia, available from Oxbow Books, Park End Place, Oxford OX1 1HN, UK, 2005, £49.50, ISBN 0-904152-47-2

This is a weighty volume in every sense. It draws together work done between 1997 and 2004 by the British School at Rome, the Soprintendenza per i Beni Archeologici di Ostia, and the universities of Southampton, Durham and Cambridge, focusing on the Trajanic harbour, but extending over a wider area, and using non-intrusive geophysical survey methods. Also included in this volume are reassessments of some earlier results, and of historical, numismatic, epigraphic and iconographic sources. It is a modern archaeological landscape study, which aims to provide a sound basis for any future intrusive work, whether research-based or in response to development pressure.

A 9-page 'Introduction' (S. Keay, M. Millett and H. Patterson) summarises the scope of the project, and the historical and geomorphological context of the study area. 'Portus ... is of key importance to understanding Rome and her relationship to the empire. It is paradoxical, therefore, that the site has received little sustained archaeological attention, especially by comparison with that lavished upon the neighbouring river port of Ostia since the 1930s' (p.1). The team covered as wide an area as possible using topographic survey, magnetometry and surface collection in an attempt to understand the area.

Chapter 2, 'Historical Background' (A. Arnoldus-Huyzendveld, S. Keay, M. Millett and F. Zevi), consists of three parts: an objective summary of the classical sources (4pp.); a summary of evidence for changes to the course of the Tiber, and the coastline around its mouth (17pp.); and a discussion of the port area of Ostia and its relationship with Puteoli (11pp.). Chapter 3, 'History of Past Research at Portus' (L. Paroli), discusses the various phases of stone-robbing, hunting for carved stones, and, gradually, excavations, though the earlier ones were not always well documented. This chapter is illustrated with various plans and reconstruction drawings of the Claudian and Trajanic harbours, dating from 1567 to 1965.

In Chapter 4, 'Methodology', S. Keay, M. Millett and K. Strutt discuss the reasons for the particular methods used, and some of the problems involved, as well as the successes. 'Our survey strategy was to apply complementary methods of survey across as much as possible of the site. This enabled us to integrate the results in order to gain the maximum information, allowing for the constraints imposed by time, funds and limitations on access to different parts of the site. The strategy had to be flexible because of the different types of land-use found in various parts of the site'. These land-uses range from grassland, arable fields and their drainage ditches, to the edges of Fiumicino (Leonardo da Vinci) airport, its railway and road access, canals of various dates, medieval buildings, modern cemeteries, and formal gardens.

'The Survey Results' (Ch. 5, various contributors) are presented clearly and systematically, with numerous paired full-page illustrations of the magnetometry plots and their interpretation. The result is impressive.

There is also evidence from air photography and from field-walking, also presented in a user-friendly way, with plans showing the areas of distribution of pottery period by period, and of other finds by type. Chapter 6, 'The Finds from Field Walking' (various contributors), discusses the material by type—coins, brick-stamps, ornamental stone, glass, and ceramics (subdivided into fine wares, lamps, coarse and plain wares, and amphoras). In each case there is a full-page plan showing the find-spots. The 'Summary of Other Recent Fieldwork at Portus' offered in Chapter 7 (C. Morelli, L. Paroli and P. A. Verduchi), presents and discusses the results of excavations carried out in 2001–02 by the Soprintendenza in the area of Fiumicino airport, which finally disproved the theory that the entrance of the Claudian harbour faced north rather than west.

Chapter 8, 'Integration and Discussion', and Chapter 9, 'Portus in Context' (both by S. Keay and M. Millett), are key chapters, tying together previous and current work. According to Keay and Millett, 'The main strength of the [present] work lies in its scale, with new topographic evidence provided for areas across the whole site principally as a product of the geophysical survey' (p.269). While the quality of the geophysical survey results inevitably varied depending on the conditions, in some places 'the technique has provided clear evidence for the plans of hitherto unknown buildings', and even when less clear, when compared with information from earlier fieldwork the results 'clarify the interpretation of buildings, enabling us to gain new insights into old evidence' (p.269). In addition,

other aspects of the survey work have provided new information. Most importantly, the evidence from aerial photography has provided a key to understanding the character of the area beside the river Tiber. A detailed contour survey of parts of the site has provided important information also about buried structures, aiding the interpretation of the geophysical survey results. The broader topographic survey has ensured that evidence from across the whole site can be accurately interrelated, and better interpreted. (p.269)

However, as the editors freely admit, what such survey does not yield is dating evidence. With such a complex and long-lived site this is a serious problem. However, although the surface finds collected during field-walking were not stratified, they did add an element of dating evidence to the complex picture.

Summarising the results of the project, Keay and Millett write: 'First, the port complex begun under Claudius was more extensive than previously thought, with new building work on the construction of the canals, an outer harbour basin, an inner basin and adjacent port facilities. The structure beside the Tiber that was perhaps established in the pre-Claudian phase continued in use. Second, the inner harbour was connected to the Tiber by the construction of the canal hitherto identified as the *Fossa Traiana*' (p.271). As a consequence, the argument continues,

‘extensive as Trajanic developments were, they did not fundamentally alter the pre-existing configuration of outer basin, inner basin and transshipment facilities. Instead, Trajan’s architects added to and enhanced the earlier port, not only creating a new hexagonal basin to provide additional mooring and greater warehousing capacity than before, but also turning the axis of the site through 90° and connecting it more directly with Rome via a new canal that permitted easier transshipment’ (p.281). ‘The survey has also made an important contribution to the understanding of the range of buildings present at the Trajanic port’ (p.310).

Each chapter contains references and endnotes. There are four appendices, listing the main historical, epigraphic and numismatic sources, and providing an overall plan of the areas field-walked, and of the magnetometry results and their interpretation. These are followed by a full bibliography, a list of contributors’ addresses, and an index.

The volume is clearly and effectively illustrated, making full use of the 210 × 280 mm format, though the reproduction of photographs is sometimes a bit subdued, particularly the colour aerial photograph on the cover. But this is my only adverse comment. This book is a prompt and thorough publication of a major landscape archaeology project. While the survey methods had their limitations, their use has helped to redress the balance from assumptions drawn from previous excavations, some small-scale and some poorly-published. This work is a major contribution towards a more thorough and broadly-based assessment of this important site. The harbours and their associated storage and transshipment facilities were essential to feed the population of Rome. This is a user-friendly, clear and helpful publication of work important for understanding Rome’s maritime trade, and the shipping hub of its far-flung empire.

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The Significance of Portages: Proceedings of the First International Conference, Norway, 2004

(*BAR International Series 1499*)

CHRISTER WESTERDAHL (ed.)

iv + 273 pp., 163 b&w illustrations including maps (all numbered as figures)

BAR via Archaeopress, available from Hadrian Books Ltd, 122 Banbury Road, Oxford OX2 7BP, 2006, £38 (sbk), ISBN 1-84171-930-7

The concept of portage indicates both the inter-relationship of land and water and the difficulty of

transport in antiquity across much of Europe. This *pot-pouri* of 24 papers and five abstracts from this 4-day conference at Lyngdal, Vest Agder, on the Norwegian coast near Kristiansand, demonstrates continuing interest in a type of site which is inherently difficult of comprehension, being characteristically deficient in both fixed structures and chronological evidence.

Regrettably, this volume suffers from poor presentation to an extent which is not justified by any apparent reduction in price. The absence of either an index or a comprehensive location map renders its use difficult, as does the random arrangement of the papers. The quotation of passages in foreign languages without translation is unhelpful; *résumés* would have been useful. The reproduction of the illustrations is poor, the conventions for numbering them vary between papers, and some should have been re-drawn. These are serious reservations, as the volume contains many illustrations new to the standard literature. The reproduction by both Westerdahl and Larsson of illustrative woodcuts from the *Historia* (1555) of Olaus Magnus serves to draw attention to this significant authority (although only the former author cites the English edition), while the drawings from the 1732 travels of the botanist Carolus Linnaeus (Carl von Linné) in Swedish Lapland are both informative and historically significant.

The work is founded on general papers by the late Andrew Sherratt, Christer Westerdahl, and Gunilla Larsson. Sherratt considers portages as a geographical concept and as points of concentrated human activity within the landscape. His consideration of the history of the topic starts with Victor Bérard’s *loi des isthmes*, which recognises the early importance of such choke-point cities as Mycenae and Corinth. He considers the fundamental relationship between the value (per unit weight) and bulk density (volume) of goods carried before contrasting such industrial developments as the Suez Canal with the early ‘canoe-routes’ of the Baltic and the Mediterranean Cyclades.

The extended paper by Westerdahl adopts a practical approach, using place-name evidence to stress the frequency and significance of portage and haulage places in Norway, both along the coast and within the interior. He also discusses the ethnographic use of dismountable boats and boat-sleighs as well as ‘sleepers’, ‘furrows’ and canals. Further afield, he lists the historically-attested instances of galley-portage during Mediterranean military operations; his reconstructed section of the Corinthian *diolkos* is informative, while Egyptian and Indian examples are considered.

Larsson addresses the mechanics of portage from a ‘commonsense’ viewpoint. The practice is considered applicable to small vessels (rather than the larger examples generally cited); ethnographic recording among the Sami of northern Scandinavia records a specialised water-transport system based upon specialised lightweight boats (of sewn spruce planks) and prepared portages (using permanently-placed logs

as rollers). The value of experiment is stressed in this paper, which might have been entitled 'Suggestions for Future Research'.

The volume concentrates on Scandinavian evidence, this term encompassing Greenland and Scotland. Both H. C. Petersen and Robert Petersen consider the significance of portages in Greenland within the social circumstances and ethnographic practices of their use, in the former case within hunting systems and in the latter as meeting places; the first paper has implications across the European Mesolithic. The Scottish evidence is considered generally by Christine Phillips, and with specific reference to Orkney and Shetland by Doreen Waugh. Phillips stresses the value of skin boats but spoils her argument by the unjustified assertion that 'the Scots with skin boats would have had an advantage over the Picts with wooden boats'. In contrast, Waugh doubts the equation of the place-name element *eið* with formalised portages, but notes the presence of *hlunnr* names, implying the presence of rollers. Her documentary account of the use of the famous portage at Mavis Grind (Shetland) in 1864 is revealing. Eva Nyman considers the Scandinavian place-names more generally, and summarises the inherent limitations of such evidence.

The evidence for Norwegian portages is well covered. Turid Tveit and Endre Elvestad consider the example from Rogaland against a background of 'power' as represented by nearby concentrations of other monuments (notably grave-mounds containing 'prestige' depositions), and also summarise the excavation of the Haraldseid example. The absence of any mention of rock art in any of these papers is surprising. Kalle Sognnes infers developments in prehistoric trade within the Trøndelag from field evidence within well-studied areas at Drageid (Åfjord) and Valseidet (Bjugn) and against the background of isostatic variation. A brief paper by Paul Sveinall summarises the evidence from Harkmark, Vest-Agder.

The six papers pertaining to Southern Scandinavia discuss evidence from later periods. Klaus Brandt considers portage across the base of Jutland in the Viking and Medieval periods with particular reference to the major proto-urban settlements at Haithabu, Hollingsstedt and Schleswig, integrating documentary and excavation evidence. Ulrike Teigelake develops this theme, considering the 'secondary sources' for water transport within Jutland and North-West Germany in a paper based upon several comprehensive distribution maps. This paper also extends the study into later prehistory and (uniquely) considers the significance of logboats. Frans-Arne Stylegar considers the development of portages and related monuments around Cape Lindesnes, within a transitional zone between the differing artefact-types and boatbuilding practices of the North Sea and the Baltic. The construction of the Spangereid canal is assessed (and a developmental sequence postulated) on the basis of evidence from recent excavations.

Johan Anton Wikander considers the sea-route along the South-East coast of Norway, and details the practical use of such passages (for timber transport as well as boat passage) with their portages, 'milestones' and route descriptions. Max Vinner further considers the Danish historical evidence for ship-portage in military operations. His hypothetical classification of portages (by their situation within the landscape) is valuable. Finally, Nils Storå summarises the evidence from the Åland archipelago.

Consideration of the Mediterranean evidence is restricted to a short (and unreferenced) consideration by Olaf Höckmann of the Corinthian *diolkos*, but the Germanic evidence receives more comprehensive treatment from Olaf Höckmann (again) and Robert Koch. Höckmann returns to prehistory, considering the evidence from the Late Bronze Age of North-West Germany. Both his concept of 'cargo portage' and his quantification of the bronze supply to Denmark are informative. Koch offers a short account of the Carolingian *Fossa Carolina* canal, based on recent topographic survey.

Much of the significance of this volume lies in its presentation of evidence from European Russia, the Baltic lands and the lower Danube, all areas of known 'wetland' potential from which further discoveries may be expected under changed political circumstances. The lower Danube is a case in point. Long considered the route from the 'Orient' into Europe, Danubian archaeology has apparently been largely neglected since the days of Childe. The paper by Dragos Gheorghiu considers portage within the area below the Iron Gates at the time of the inception of metalwork. The problems of sea-level change, *tell* (settlement) formation and 'trade' that characterise this period are considered against the background of the study of boats in a valuable paper with a comprehensive bibliography.

Ojārs Bušs, Juris Urtāns and Robert Domzal consider portages and canals in the Baltic lands. Bušs summarises the place-name evidence in Latvia and Lithuania, while Urtāns describes the historically-attested construction of a canal at Courland, Latvia, in the 17th century. Domzal considers portage between the sunken lagoons of the southern Baltic coast, deriving a further attempted classification.

The evidence from European Russia (including the Ukraine) is considered by Marek E. Jasinski and Oleg V. Ovsyannikov, Vladimir Ja Petrukhin, Katarzyna Skrzyńska-Jankowska, Evgenij Nozov, and Nikolaj Makarov. The lengthy contribution by Jasinski and Ovsyannikov considers the major portage-networks of the Far North against a background of medieval hoards and boat-types. Their consideration of sewn-plank boats is as valuable as their numerous illustrations are informative. The short paper by Petrukhin describes the topography and significance of the Dnieper rapids, the traditional southern boundary of Russia. Skrzyńska-Jankowska considers portages in Podlasie (the marshland area around the

headwaters of the Vistula, Bug, Pripiat and Dniepr rivers) relying largely on place-name evidence, and with a view to future research. Nozov and Makarov offer extracts which summarise the evidence from specific areas within northern Russia.

In sum, this worthy volume far exceeds its brief. Its comprehensive approach and high standard of authorship outweigh both its poor presentation and the limitations of the evidence to make it a valuable contribution to both nautical and European archaeology. The dedication *in memoriam* to Andrew Sherratt is entirely apposite.

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Excavating Waves and Winds of (Ex)Change: a Study of Maritime Trade in Early Bengal

(BAR International Series 1533)

SHANAJ HUSNE JAHAN

235 pp., 41 b&w illustrations, 25 tables

BAR via J. & E. Hedges, 7 Longworth Road, Oxford
OX2 6RA, UK, 2006, £46 (sbk), ISBN 1-84171-753-3

The terrestrial and maritime archaeology of Bengal has long been neglected and in this study Shanaj Husne Jahan attempts to collate existing archaeological findings and link them with literary, epigraphical, numismatic and iconographic evidence to throw light on the history of the maritime trade of Bengal (modern Bangladesh and the Indian state of West Bengal) from the proto-historic period to the mid-sixteenth century.

Her study comprises seven chapters beginning with a chapter in which she attempts to locate the major riverine and coastal ports active during the period under review. Chapter 2 discusses commodities; Chapter 3 studies the various media of exchange circulating in Bengal; Chapter 4 focuses on the types of vessels operating out of Bengal (and their construction); Chapter 5 examines various aspects of nautical science; Chapter 6 identifies trade routes; and Chapter 7 identifies merchants and their operating milieu.

As the author admits, her work is, in the absence of any large corpus of archaeological evidence, heavily reliant upon evidence from other sources. Chapter 1 is in many ways the one most reliant upon the work of terrestrial archaeologists, which the author skilfully blends with evidence from literary sources in particular to locate major port sites. Despite accepting Himanshu Ray's well-argued contention that most 'ports' of the period were, given the seasonal nature of maritime trade, probably physically unprepossessing

(p.7), Jahan still seems bewildered by the lack of physical evidence at many of the sites and does not seem fully to have digested the implications of Ray's arguments and the broad acceptance of most modern scholars that the pre-modern Asian port only marginally resembled the physical construct of contemporaneous European ports. In part her confusion may be due to the fact that some sites did reveal evidence of substantial structures, but indications are that these sites had a *raison d'être* beyond their role as a port and were political and administrative centres of local polities; the other sites that provided so little evidence of substantial structures are perhaps more typical of coastal market-places whose rhythms of life were determined by the seasonal nature of maritime trade.

Chapter 2 is devoted to the commodities involved in the maritime trade of Bengal, ranging from a goodly number of staple items such as rice, cotton cloth and salt to luxury items such as Chinese (and later Bengali) silk, ivory, gold, pearls and gemstones. The archaeological evidence for commodities is very thin and this chapter is really a collation of evidence from literary sources with some very marginal archaeological evidence.

Chapter 3 which investigates the medium of exchange for commercial transactions draws on much of the evidence used in Chapter 2 plus the not-inconsiderable numismatic evidence. I may be obtuse but I was not sure what the author intended with this chapter as it really is little more than a listing of coins, specie and the ubiquitous cowrie, and needs to be set in a broader context of what the evidence can or cannot tell us about trade linkages. The author might have found it useful to take into account some of the existing studies on the cowrie and to have linked their arguments into her own as a means of using various mediums of exchange as evidence of trade linkages.

Chapter 4, with its analysis of ships and shipbuilding, ranks with Chapter 1 as one of the most successful and original parts of this publication. Given the total absence of maritime archaeological evidence in Bengali waters the author nevertheless skilfully uses a range of other sources to develop a very convincing chronology of the origin of local and foreign craft operating in Bengali waters. The author neatly demolishes two of my arguments about the origins of certain South-Asian shipping types (pp.123–4) and presents an excellent series of arguments locating local ships and shipbuilding in the context of both local and international maritime trade. Unfortunately the author's good arguments are at times obscured by suspect references, trying to link South-Asian maritime traditions to the waterborne Aboriginal settlement of Australia some 60,000 years ago (p.118), and the much later South Asian 'colonisation' of Southeast Asia (p.123) which has long been discredited by both South- and Southeast-Asian scholars as the mechanism for the Indianisation of Southeast Asia.

The remaining chapters, while generally well written, are little more than a collation of current knowledge and do not add significantly to our understanding of Bengal's external maritime links.

While this is in many ways a pioneer study it disappoints on several counts. The proofing is terrible. The text is riddled with misused forms of the words 'evidence' and 'craft' alongside some schoolboy howler mis-spellings, repeated text, and inability correctly to identify the gender of certain Muslim authors; for example Atiya Habib Kidwai is, as the forename Atiya should inform a fellow-Muslim, a woman (p.117). The work shows great potential on the part of the author but she has been ill-served by her publishers. Nevertheless, in the absence of any other reputable work on the topic, Chapters 1 and 4 in particular provide vital clues for maritime archaeologists of the future—although they had better move quickly before climate change irrevocably re-shapes the delta and coastal tracts of Bengal.

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Ships' Fastenings: From Sewn Boat to Steamship

MICHAEL McCARTHY

248 pp., 12 b&w photos, 95 drawings

Texas A&M Press, College Station, TX 77843-4354, 2005, \$65.00 (hbk), ISBN 1-58544-451-0

Many archaeologists believe that the evolution of shipbuilding can best be understood over time by following the thread of hull fasteners, from one era to the next. They feel that technological advances in human history, from the earliest assembled boats onward, are most accurately reflected in the materials used for piercing and binding hull-parts. In this well-researched book, Michael McCarthy combines evidence from archaeological, historical and ethnological sources to tell a technological tale of ships' fastenings. He is most at home when dealing with 19th-century fastenings in steel hulls, and this is also the most original part of the book. However, he does not stint in discussing the earlier development of fastenings during the time of bronze tools and iron fastenings.

In the first chapter on 'organic' fastenings, the author discusses sewn boats using ethnological examples from the western Pacific and Indian Oceans that deserve to be better known, in addition to the standard set of archaeological examples from the Mediterranean. The goal here is to describe the variety of fastening technologies encountered, and to organise them into a hierarchy of historical development. A sequence of fastening technologies requiring

stone, bronze and iron tools may be seen through archaeological evidence ranging from withy lashings to wooden tenons. In several examples, edge-lashings are combined with wadding to seal the planking joints.

In the chapters on hull-sheathing, patented Muntz metal, and iron and steel ships, the book charts new territory. The author's trademark approach of combining different sources of evidence to create a technological narrative is particularly well carried out. Lead sheathing, an ancient technique, was replaced by copper sheathing in the 18th century. The significant benefits of copper sheathing to reduce fouling and increase sailing-speed were countered however by the 'very pernicious' galvanic effect of copper that came in contact with iron fastenings. New copper alloys were experimented with and patented to benefit from the advantages of rustproof copper without weakening iron hull components. A review of relevant archaeological evidence on alloys, concretions and degradation is particularly fascinating, including the example of a diver's knife recovered after a decade under water (p.130).

Muntz metal, a patented zinc and copper alloy which could be rolled easily into the sheets used for sheathing, had widespread effects on the development of the fastenings that underlay it. In this context, insurance underwriters came to be interested in hull-fastenings and the author has dissected the Lloyd's registers to gather information on the subject. These contextual passages are extremely useful for understanding the otherwise arcane evolution of rivets, forelock-bolts, threaded bolts, nails and dumps.

On a technical level, the author has placed a priority on illustrations. Many drawings are signed by Chris Buhagiar and are based on original figures published elsewhere. As a body, the drawings bring a pleasant visual cohesiveness to the book and, often, the original figure's interpretive value has been improved. Good-quality figures are indispensable to a field like archaeology that is based on visual information. Despite these advantages, the practice of redrawing figures opens a Pandora's box of copyright issues. Unfortunately, the original figures are not always well identified, which will induce further referencing errors down the road when other scholars cite this book (a case in point is on p.80). Given the important role of figures in archaeology, special watchfulness should go into crediting them.

In its central aspects, the book fits well into the history of technology, despite its obvious archaeological interest. The author has conceived it as a work to be built upon by other researchers, by presenting many original sources and by providing basic scholarly tools like a glossary, an index and an excellent bibliography. The book excels in describing a multitude of technologies and in objectively presenting the sources and studies that inform it. The immense task of research it accomplishes is of inestimable value and, especially, the evolving technological context of metals

is thoughtful and original. The reader with an archaeological interest may also wish to discover what the author actually thinks about ships' fastenings and their contribution to the study of human history over a long period of time. In this respect, the book would have benefited from a few passages aimed at explaining how fastenings help understand the 5000-year relationship between humans and assembled ships.

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Seafarers, Merchants and Pirates in the Middle Ages

DIRK MEIER (translated by Angus McGeoch)

184 pp., 157 illustrations including colour

Boydell Press, PO Box 9, Woodbridge, Suffolk IP12 3DF, UK, 2006, £19.99/\$37.95 (hbk), ISBN 1-84383-257-2

This book, first published in German in 2004, seeks to illustrate how trade and exchange have shaped the coastal regions of the North Sea and the Baltic. Aimed at the general public, and drawing upon archaeological, geographical and historical research, it has a wide span from the forays made along the river-network in Russia as far as the Baltic, and Atlantic voyages from Norway as far as Greenland. Sailing, navigation, seamanship and coastal landscape, merchants and seaborne trade, the origins of seafarers, and the Hanseatic League all appear as headings in an introduction, though the book's structure (much geographically arranged) remains elusive until one has read further. Its 11 chapters are all fairly short, and include 'Navigation in the early Middle Ages', 'Shipbuilding in the Middle Ages' (though this starts with the Hjortspring boat and a third of the chapter is devoted to Viking craft); advances in navigation (from Arabian navigation to compass, first charts, and litigation charts created 'to establish in a court of law the boundaries of fairways and shipping channels'); and the North Sea and its early trading points (focusing on Dorestad, London and Ribe).

The author admits at the outset that he does not set out to provide a complete survey of maritime history, but rather to 'shed shafts of light on the development of maritime culture in northern Europe from the early to the late Middle Ages' (p.vi). It is in this light that the book should be judged—albeit a flickering light which at times appears to skip and dance between regions, periods and subjects, leaving this reviewer periodically adrift, out of sight of *terra cognita*. This is largely a result of the absence of a clear chronological framework (two-thirds of the book is devoted to *early* medieval evidence), and limited contextualisation of the society in which seafarers and

merchants operated. Little is said of the hierarchies of trading sites which once operated within the various trading networks (or at least the ways in which we can classify them today), or the different exchange mechanisms that may have operated at different times. In describing the development of maritime activity by region (with chapters on 'The North Sea and its Ports', 'Early Trading Ports on the Baltic', 'Along the Russian Rivers', the text is dominated by early-medieval trading ports, and coverage of the 12th to early-16th centuries is largely delivered through the section on the Hanseatic League (29 pages). Areas outside Germany receive uneven coverage (Dorestad four pages; Hamwih/London half-a-page each), though balance appears restored in the Baltic. An opportunity has been lost to illustrate many of the early *entrepôts* (plans of these would have been useful), and readers may prefer to consult the well-illustrated *Towns of the Viking Age* by Helen Clarke and Bjorn Ambrosiani (Leicester, 1991, though new discoveries such as the recognition of the site of Reric/Gross-Stromkendorf post-date the 1995 paperback edition). More dates would have been helpful—for example, the reader is left to guess when the Slavic inhabitants of the south Baltic coast are supposed to have adopted clinker construction techniques, or when the Vendel or Valsgarde boat-graves were sealed (p.28).

The section on the Hansa provides an interesting shift from geographical survey to economics, legal status, social and economic histories and life on board a Hanseatic ship. The illustrations, which include details from illuminated manuscripts and a replica medieval crane at Bruges, are helpful, though again a few maps would have been handy. The regional review of Hanseatic cities is useful, even if again there are occasional jumps in time. New ground for many readers will be the penultimate chapter on the *Vitalienbrüder* privateers who operated as a new and unpredictable power during the late-14th century, inflicting great damage on shipping in the Baltic until their power was broken by Teutonic knights in 1398 (though operating in the North Sea until 1400).

Valuable are the results of research by a range of German institutions presented alongside that from the Netherlands, Denmark and the Baltic States. If readers want more information (some will feel short-changed by the paucity of references), some signposts to further information appear in the final chapter. These include the maritime heritage of the Baltic and North Sea to the EU project 'Landscape and Cultural Heritage of the Wadden Sea', launched in 1997 (results available on the *Lancewad* website), the Greater Thames Estuary Partnership (covering the Kent and Essex shores of England) and the EU project *Navis I*, a database of ships of Roman-to-medieval date. Some terms are explained in a short glossary, and, while there are no references or footnotes supporting statements within the main narrative, there is a short list of 'further reading' at the end of the book. The

majority of illustrations are in colour, and while some are familiar, some are not—though the information on sources for most of these is far from adequate.

What readers makes of the book will depend on their motivation for reading it. The book is aimed at a popular market at a very reasonable price, and as such will cast a glimmering light on some fascinating aspects of medieval seafaring that, for many, would otherwise remain unlit and obscure.

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The Renaissance Shipwrecks from Christianshavn

(Ships and Boats of the North 6)

CHRISTIAN LEMÉE

371 pp., richly illustrated including colour

Viking Ship Museum in collaboration with the National Museum of Denmark, 12 Vindebonder, Roskilde 4000, Denmark, 2006, Dkr 385 /€52 (hbk), ISBN 87-85180-34-3

The latest volume in the Danish *Ships and Boats of the North* series is in the same easy-to-read 290 × 240 mm format and within the familiar stout blue cover. Stout it needs to be, since it will certainly become a key work of reference for ship archaeologists. The illustrations are of a superb quality with captions which elucidate the text. It sets a standard for integrated historical archaeological research and structural analysis which is unlikely to be bettered.

After a foreword by Thijs Maarleveld the book is arranged in five main sections, followed by substantial summaries in English, Dutch, French, Danish and German. A useful glossary of relevant ship-terms in these languages is completed by an index. An introduction precedes: the historical and archaeological evidence for the site; a review of carvel shipbuilding; the methodology of recording used; analyses of the ship remains; and results and discussion.

Christian Lemée's subject is the remains of eight derelicts uncovered during building works in the heart of Copenhagen and excavated under his direction in 1996 and 1997. The vessels had been built, repaired, sunk or scuttled in the merchant harbour of Grønnegaard. This area of Christianshavn was the scene of maritime activity for 400 years, latterly in the ownership of the Burmeister & Wain Company after which the wrecks were denominated 'B&W' and numbered in the order in which they were found. Six were built between 1580 and 1640, one at the end of the 17th or early 18th century and the last, a boat, in about 1738. B&W 1 was carvel-built (that is, flush-planked), about 26 × 6 m, rebuilt and extended by

7.7 m after it had been sawn in half. B&W 2 was about 27 × 7.5 m, rebuilt with an outer sheathing of planks and partly copper-plated. The poorly-preserved B&W 3 was clinker-built. B&W 4 was carvel-built, about 15 × 5 m and dendro-dated to 1582. B&W 5 was carvel-built, about 32 × 8 m and partially dismantled. B&W 6 represented fragments of a clinker-built ship. B&W 7 was also fragmentary, a carvel-built ship about 20 m long dendro-dated to c.1588. B&W 8 was a carvel-built boat.

Emergency excavation took place in difficult conditions calmly described in Chapter 3. Ship archaeologists will read between the lines here and relieve the stress that such situations entail. For multiple shipwrecks of size and complexity it was essential that the best method of survey was used; the B&W wrecks were not to be preserved. In the event the 'total-station' method used in the 1990s to record hundreds of artefacts in Nydam Mose was modified and used with a type SETB2 connected to a SDR33 data-logger to record and register the X and Y co-ordinates of a point in 2–3 seconds. The strategy was the visual separation of the different structural elements of the hulls as they were progressively dismantled in order to produce 2-dimensional excavation plans. Details of the procedures used are fully described. Reference lines made with total-station enabled conventionally-recorded cross-sections to be integrated together with the scantlings of individual elements. Four of the wrecks were also sampled by the removal of a 2–4 m section, the components of which were recorded at 1:10 scale. Finally, large timbers such as the keel and stem were recorded at 1:20. Figs 11–14 show the stages by which field survey points are used as a base on which details precisely measured on site can be superimposed.

The advantages and disadvantages of the two survey methods are tabulated. Testing for accuracy revealed a discrepancy of only 2 cm over a distance of 28 m measured by total-station and by tape-measure. Lemée cautions against non-specialists using the total-station survey method; 'the person taking the measurements on the wreck [should] possess a specific knowledge and understanding of ship's structure, as well as an understanding of the working process'. He found by trials that non-specialists tend to omit important features and spend too much time recording broken ends, not knowing exactly what is important to document.

Faced with the impossibility of preserving the great majority of ship-finds, archaeologists can be reassured that this methodology, rigorously employed, can produce enough information for the most penetrating post-excavation analysis. It is demonstrated in section 4 where each vessel is described and evidence adduced, not only for its original form, but also for the way in which it was built. B&W 4 is used as a case-study to show how the research agenda was fulfilled. A main aim was to investigate the specific shipbuilding techniques used in north-west Europe in a period of technological

change, examining contemporary shipbuilding treatises and records in the light of the archaeological evidence. Five of the wrecks were remains of large carvel-built vessels representing a unique collection of merchant shipping in Danish waters at a time when its kings, Frederik II and Christian IV, were instrumental in introducing carvel construction in the navy. What emerges from this study is confirmation that there was not one but a number of flush-planked traditions and adaptations of existing shipbuilding techniques in northern Europe and no clear-cut transfer of carvel technology. The simplistic distinction between shell and skeleton construction takes no account of a third, equally important, namely bottom-based construction.

An entry in the diary of Christian IV in May 1624 may relate to one of the wrecks, namely B&W 2; 'In the harbour of Copenhagen several large ships have been sunk. Amongst the ships ... there were two which made the first journey to the East Indies'. This narrows its identity to *Elephanten, David or Kobenhavn*. B&W 1 and 2 lie precisely where a careening wharf is shown in 1611. Within the hull of B&W 5 an 18th-century careening wharf and the lower ends of pilings for a crane were found. The site continued in shipbuilding use into the 20th century and construction of oil storage tanks incidentally destroyed parts of B&W 1 and 2 seven years before reporting of chance archaeological finds was made compulsory in 1969.

Christian Lemée pays a tribute to the team who took part in the excavation and to his many colleagues in Denmark's Institute of Maritime Archaeology and Centre for Maritime Archaeology. As a member of staff in the latter he had been engaged on the reconstruction of medieval and Renaissance ship-finds. Thus he was clearly the right person to tackle the huge challenge, which subsequently became the subject of his doctoral thesis. This book contains expert input on many levels and reflects the scholarly collaboration which characterises Danish maritime archaeology.

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Deutsches Schiffahrtsarchiv 28 (2005)

ERIK HOOPS, URSULA FELDKAMP, LARS U. SCHOLL

488 pp., 225 illustrations with 52 in colour

Deutsches Schiffahrtsmuseum, Bremerhaven and Convent Verlag GmbH, Hamburg, 2006, €23.50 (hbk), ISBN 3-933461-98-5

The latest annual volume from the Deutsches Schiffahrtsmuseum (German Maritime Museum) contains articles about a range of maritime themes, mostly concerning recent centuries. Of the 16 papers,

two deal with medieval and earlier maritime matters: these are, 'Seeschiffe im Binnenland als Zeichen der Kaufleute' ('Seagoing vessels used inland as merchants' symbols') by Detlev Ellmers, which includes material from around 1500 AD, and 'Maritime Cosmology and Archaeology' by Christer Westerdahl. The latter paper, being in English, has summaries in French and German; the others, in German, have English and French summaries.

Christer Westerdahl's article is the lead paper in this volume and it is probably the longest. It has 30 informative illustrations, four pages of notes, and a bibliography with around 200 entries, of which 20 are papers published by Westerdahl between 1985 and 2006. The evidence is almost all drawn from Scandinavia. In his introductory pages (pp.8–9), Westerdahl tells us that his text 'is an attempt to introduce something truly new', and that his aim is 'to present a model for the explanation of maritime cosmology'. The topics he deals with range from 'Cognition and the cognitive' and 'Taboo and *noa*'; through 'Superstition and magic', 'Gender' and 'Initiation rites'; to 'The liminal zone along the shores' and 'The sun—the foremost liminal agent?'. Bringing such a wide range of topics together in one article, and discussing numerous examples of each one, may well be 'truly new'. On the other hand, I am not sure that Westerdahl has achieved his aim of *presenting an explanation* of maritime cosmology—perhaps such an aim is unachievable when tackling an 8000-year, mostly prehistoric, time-span?

The *Shorter Oxford English Dictionary* offers two definitions of the term 'cosmology': 'the science of the evolution and structure of the universe', or 'the branch of philosophy or metaphysics which deals with the universe as a whole'. Westerdahl, who now teaches in the Institute of Archaeology and Religious Studies within the Norwegian University of Science and Technology at Trondheim, prefers to consider 'cosmology' as presenting 'the magico-religious aspect of cognition (p.8). Furthermore, he considers it to be 'an emotional and partly subconscious aspect'.

In his presentation, Westerdahl draws attention to the distinct contrast between the sea, an ambivalent element with unknown dangers, into which, or from which, early coastal man saw the sun setting or rising each day, and, on the other hand, the familiar land with its coastal rocks, cliffs and forests. He considers that this contrast must first have been recognized in the Mesolithic; by Neolithic times this concept became 'a fundamental antagonism between what would be considered as wild, savage [and] feral, and what is tame [and] domesticated'. The foreshore—the inter-tidal region—in this view of the world, becomes a transitional zone, a liminal area, threshold or boundary (pp.14, 35, 38, 39).

In the concluding section of his paper (p.40), Westerdahl states his belief that 'the location and the contents as well as the building patterns of ancient monuments, and finds such as rock carvings, burials

and sacrifices, reflect the opposition of sea and land and the qualities of the liminal zone'. He considers that such a dichotomy between the sea with its fishing, on the one hand, and the land with its hunting, on the other, has survived into our own times. Westerdahl's eclectic vocabulary (e.g. *polysemic* on pp.21, 35, 40; *psychopomp* on p.21), the juxtaposition of ideas, and the occasional feeling that the reader has missed some vital logical step in the argument, all make this a difficult paper to assimilate in a single reading. Nevertheless, the anthropologist and the prehistoric archaeologist should find it to be worth the effort.

The information in the other papers may well be more readily absorbed, providing one can read German. Seven of them are about the building or the use of 19th- and 20th-century seagoing sailing ships (authors: Feldkamp, Peters, Keitsch, Rabbel, Gondesén, Sawitzki and Allmeling). Other papers are: Keweloh on 20th-century German waterways and the rafting of timber; Hertzog on an aspect of World War 2 submarine warfare; Krause and Thiede on Alfred Wegener, the geophysicist who originated the idea of Continental Drift; ethnographer Wolfgang Rudolph on the urbanisation of Baltic fishing villages from the early-18th century; Scholl on the marine artist, Cornelius Wagner; J. W. Schmidt on a late-19th-century Turkish monitor; and Danker-Carstensen on a tug now in Rostock museum.

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Ships and Science: the Birth of Naval Architecture in the Scientific Revolution, 1600–1800

LARRIE D. FERREIRO

441 pp., 92 b&w illustrations

MIT Press, 55 Hayward Street, Cambridge, MA 02142, USA, 2007, \$29 (hbk), ISBN 0-262-06259-3

Larrie D. Ferreiro is an American naval architect who has worked for the American, British and French navies. Today he continues an international career as expert consultant on naval architecture. Ferreiro is also a maritime historian who, in 2004, brilliantly defended a Ph.D in History of Science and Technology from the famous Imperial College of London University. This book is an adapted version of his thesis. The volume contains 310 pages of text, dense, rich but always easy reading. It is supplemented by a useful 19-page appendix on the personages quoted in the text, invaluable and abundant notes on each chapter, 48 pages of sources and bibliography, and a general index.

The book is quite original—both in its subject and in importance. The subject's originality relates to the history of naval architecture and, in particular, the role of theory in the design of ships of war between 1600 and 1800. Its importance resides in the way this history relates to all European maritime nations of the period, and in particular that of France. In this broad perspective lies part of the originality of the book. In this field the exercise is always perilous, the main risk being of too great generalisation unmitigated by moderating specificities relevant in the technical and scientific fields. Ferreiro has remarkably avoided this risk through three principles: the problem is strictly defined and closely limited to matters of significance to the history of science and technology; there is a perfect knowledge of the manuscript and printed sources of European naval architecture; and, finally, a practical knowledge of contemporary naval architecture for war vessels. This professional experience is a great advantage in the study of such complex questions as the theory of the ship in comparison with 'classical' historians.

To take the historical problem. One of the central ideas of the book is, before building the warship, to envisage, with the use of mathematics and physics, its nautical characteristics and operational performance in support of an ambitious maritime policy for a navy at war. Ferreiro shows that, beyond the researches required to carry out this predetermination of a number of architectural parameters—the main priority—a secondary objective of contemporary royal power was to control or try to control the particular capacities of each shipbuilder or constructor. Very logically, the author presents three 'key' elements of naval architectural research before providing a thorough analysis. These are: manoeuvring and sail theory; ship resistance and hydrodynamics theory; and stability theory. In connection with stability theory, Ferreiro grants a central place to a man who played a major part in developing the theory of the ship, the French astronomer and mathematician Pierre Bouguer, author of the reference book published in 1746, *Traité du navire, de sa construction, et de ses manoeuvres* (*Treaty on the ship, its construction, and manoeuvring*) of which one gem is the definition of the metacentre-like measures of ship stability, the core of chapter 4 (pp.187–257).

Ferreiro's book continues with a critical appraisal of the authors of the 'great' treatises on naval architecture such as Paul Hoste, Pierre Bouguer of course, but also Leonhard Euler, Henri-Louis Duhamel, Jorge Juan y Santacilia, Frederik H. af Chapman. The author devotes the next chapter to the shipbuilder's trade. In a final chapter he speculates about the relationship between science, technology and naval architecture and considers how complex it is. If some passages punctuated by mathematical formulae may appear a little difficult in spite of numerous explicit figures—for instance, the discussion of 'drift'—the essence of the book concerns historical

thought made perfectly accessible through the author's total control of all the technical aspects of the subject.

This book is important in more than one way. It provides a mass of original new data on the history of naval architecture for the period 1600–1800 in its most fundamental theoretical aspects. Also, it clarifies the central contribution of Pierre Bouguer whose *Traité du navire, de sa construction, et de ses manoeuvres* truly constitutes an intellectual hinge between the two worlds of scientific and technical ideas and besides takes into account the practical applications.

Congratulations to Ferreiro for this masterly historical study of the role of theory in the processes of ship design.

ERIC RIETH

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Commodore John Rodgers: Paragon of the Early American Navy

JOHN SCHROEDER

320 pp., 14 b&w illustrations, 3 maps

University of Florida Press, 15 NW 15th St, Gainesville, FL 32611-2079, USA, 2006, \$59.95 (hbk), ISBN 0-8130-2963-5

Although he did not win a glorious battle with an enemy frigate, or achieve the public fame of his meteoric friend Stephen Decatur, Commodore John Rodgers USN (1773–1838) was the dominant influence on the development of the United States Navy between 1806 and 1838. A tall, powerfully-built man of simple and direct views and limited interests, Rodgers lacked both a sense of humour and the ability to relax. Yet he created the culture and character of an entire navy by his example and his longevity. He joined the infant navy after commercial service, and served as first lieutenant of the frigate USS *Constellation* when she captured the French frigate *l'Insurgente* in February 1799. Rodgers served with distinction and brought the prize home. He was rewarded with a captain's commission, and became the second ranking officer in the navy within a decade. His captain on the *Constellation*, Thomas Truxtun, a difficult and demanding man with the highest standards of duty, order, discipline and obedience, left a strong impression. Rodgers would follow his example for the rest of his career.

After a brief period out of the navy Rodgers was recalled for the Barbary Wars, where distinguished service, the failure of several of his seniors and a commanding personality made him the dominant American sea officer. The turning-point of his career came with the *Leopard–Chesapeake* incident of 1807,

when the British forcibly removed deserters from an American warship. Captain James Barron was court-martialled and disgraced, Rodgers sat in judgement, and acquired a passionate urge to avenge the insult. In 1811, while commanding the 44-gun frigate USS *President*, he engaged and damaged the British sloop *Lille Belt* one night off New York. This incident made him the most famous American officer—especially in Britain. After the *Lille Belt* incident both Captains claimed the other had fired first, but Rodgers was embarrassed by the claim that he mistook the petty sloop for a frigate. This raised another issue. Throughout his career he magnified the scale of hostile ships by at least one class, if not two, despite the opinion of younger men with better eyesight. It seems Rodgers was visually impaired, although neither John Schroeder nor his previous biographer Charles Paullin has raised the issue.

The War of 1812 proved to be a disappointment. Rodgers led a large American force, but failed to capture the one British frigate he chased, and suffered a broken leg for his pains when one of his guns blew up. Other officers reaped a harvest of glory and prize money, but Rodgers missed his chances. His operations distracted and diverted large British forces, but did little damage. Once again his eyesight seems to have let him down. In 1813 he ran away from a puny frigate with less than half his firepower and an armed schooner: he had identified them as a battleship and frigate. In 1814 he served ashore, his example and his energy proving critical in the defence of Baltimore. With war over he finally found his role. He took control of the newly-created Board of Navy Commissioners, a post he occupied for the rest of his life. The Commissioners transformed the chaotic situation of earlier years into a regular, orderly system. They imposed order, routine and discipline on a fractious service and Rodgers became the father of the service. His protégées dominated the next generation, none more so than Matthew Calbraith Perry, hero of the Mexican War and the man who 'opened' Japan to the west.

Rodgers never took political office, twice refusing the cabinet post of Secretary of the Navy. He kept politics out of naval administration, as far as he could, although his early career was entirely the product of political patronage. At the same time he gradually lost touch with the needs of a modern service, post-war ship designs lacked the inspiration and individuality that had made American naval design a byword for speed and power, and he displayed little interest in steam or new weapons. Between 1825 and 1827 Rodgers commanded the Mediterranean fleet during the Greek War of Independence with the same rigour, and imperious demeanour, that he employed on all duties. He proved a potent ambassador, and steered a fine line between support for the Greek cause, protecting American shipping from Greek pirates, and opening trade links with Ottoman Turkey.

Rodgers was a controversial figure. After the death of Stephen Decatur in 1820 he was the best-known American officer, and became the target for much of William James's violently anti-American writing. After his treatment as an enemy alien James loathed Americans, and did his utmost to deflate their claims of success in the War of 1812. Rodgers, with his curious record, was an easy target. A vital figure in the creation of American naval culture and tradition, John Rodgers was no meteor; he was the durable monolith around which the service was built. John Schroeder's excellent biography places the Captain in his context, reveals the other great passion of his life—his aptly-named wife Minerva—and brings this stern old man of the sea back to life.

ANDREW LAMBERT
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Arming the Fleet: The Development of the Royal Ordnance Yards 1770–1945

DAVID EVANS

272 pp., 353 b&w illustrations including 5 maps and many plans

Explosion! Museum of Naval Firepower in association with English Heritage, Priddy's Hard, Gosport, P012 4LE, UK, 2006, £19.95 (sbk), ISBN 0-9553632-0-9

Arming the Fleet is an outstanding and seminal book which complements Cocroft's *Dangerous Energy* (2000). The story of the Royal Navy cannot be told without telling the story of its ordnance. Informed by the same depth of research as *Building the Steam Navy* (2004), David Evans demonstrates the importance of naval ordnance infrastructure. Currently ignorance, lack of understanding and a multiplicity of stakeholders threaten the survival of many ordnance depots. This book, the product of a documentary survey undertaken by David Evans and Jeremy Lake of English Heritage, opens these intricate sites up to description and analysis. With the opening sentence of Chapter 1, Evans shows that he also writes well: it traces the evolution of 'the great strategic deposits of ordnance, where gunpowder and subsequent explosives were held in vast quantities.'

Evans explains why ordnance sites have not been studied comprehensively before, because of their 'physical complexity' and 'utilitarian architecture', their dispersed and partially-surviving archives, the security surrounding these necessarily-secretive sites, and restricted access. From 15th-century beginnings, chapters record chronologically solutions to the problems inherent within the development of propellants and projectiles, magazines, stores, laboratories and proof ranges through 18th-century wars, the French

and Napoleonic wars, 19th-century peace and the Russian War, the 1889 Naval Defence Act, the 1895 Naval Works Act and 20th-century wars. The difficulties of safe manufacture, storage, handling and transport were complex. Necessarily, development of shore infrastructures followed the sometimes rapidly-changing gunnery technology through increasing sophistication. He concludes with round-the-clock efforts to supply D-Day ships with the necessary ammunition and post-Cold War closures. Overseas developments are referred to in context. Chapters contain a blend of description, analysis and comment.

'This is a book about how buildings can develop in response to technological changes: from barrels of gunpowder stored in the driest room in the castle, to a vast network of depots, each with their own internal transport systems and reliant on the national transport infrastructure; from vulnerable storehouses to strongholds in the bowels of the earth'. It is also about the political networks directing strategic development, transport networks bringing together the raw materials and distributing the finished products, technological research and civilian experiences. Where there are no documents, surviving buildings exist as an archaeological record to be interpreted.

As the navy, rather than the army, historically has been England or Britain's dominant armed force requiring guns and ammunition, dockyards were the primary focus of ordnance depots. The three sites described most fully are Priddy's Hard (Portsmouth), Bull Point (Plymouth) and Upnor (Chatham), but there are also references to Tipner, Portsmouth, Chatham and Devonport gun-wharves; and facilities at Bandearth, Bedenham, Beith, Broughton Moor, Bull Point, Chattenden, Copperas Wood, Crombie, Dean Hill, Ernesettle, Fort Blockhouse, Frater, Great Yarmouth, Greenwich, Keyham Point, Little Horsea, Lodge Hill, Marchwood, Mount Batten, Pembroke Dock, Plumstead, Purfleet, Stamshaw, St Budeaux, St Nicholas' Island, Weedon Bec and Wrabness; and overseas sites at Corradino and St Clement's Bastion (both in Malta), Bermuda and Singapore. Maps show the strategic dockyards and naval bases around which the ordnance sites evolved.

The social history which runs through the book is an appealing aspect: these buildings were built by, inhabited by and employed men and women. Barracks housed the military; skilled civilian artisans and labourers worked in the laboratories, magazines and stores; and security was provided by soldiers, Royal Marine Light Infantry, Metropolitan Police, Royal Marine Police and dogs (particularly Airedales). Safety was paramount to prevent loss of life and destruction of buildings and stores. 'It is about places where if you made a mistake you were dead'. Protests against the explosive dangers made by inhabitants in Greenwich, Portsmouth and Woolwich ensured that removal to safer sites became a political necessity during the 18th century. Politics and local and

national patronage networks played an integral role in this spatial evolution.

Given the significant role played by women within ordnance and ammunition manufacture to release men for the front line during WW1, it is a shame that more about their work experience could not have been included here. Only five pages and one photograph cover their activities at Priddy's Hard, where they began working in 1915, and at Bedenham. By 1918 at Priddy's Hard there were 71 women as clerical staff and 781 as labour staff, making cartridges, filling cartridges and shells, and repairing, storing and issuing gun-barrels. By 1918 at Bedenham there were 695 women out of a total workforce of 2298. In WW2 women formed more than half the Priddy's Hard workforce of 3000.

The Appendix on 'The Legacy of the Ordnance Yards' provides a valuable focus on the conservation issues relating to ex-MOD sites. Amplification of the little-known ordnance-depot sector was effected by a documentary English Heritage survey of pre-1914 sites in the 1990s. Statutory protection or listing had been granted only to the most outstanding surviving individual buildings or most complete sites. Priddy's Hard (where only the Georgian magazine was listed), Upnor and Bull Point formed the focus of this study because they provided clear evidence of transition from the 19th to 20th centuries. Conservation strategies have been compromised by the need for decontamination and development of housing and employment within economically disadvantaged areas, which many ex-MOD sites have become since the end of the Cold War. Discussions may begin on the 'extent to which the most important fabric can be adaptively reused without compromising its historic importance, or even allowed to be demolished.' Sadly, at Priddy's Hard, possibly only the key buildings by the harbour will remain and the scale and complexity of the whole site will be swamped by a housing development.

The 'Legacy' is followed by a useful gazetteer of key sites and an Appendix of biographies of 18th- and 19th-century Royal Engineers. Superbly referenced, mapped and illustrated, this volume will appeal to a wide range of readers interested in the navy, ordnance, architecture, archaeology and social history. A rich provision of photographs adds immensely to understanding the enchantment and scale of these sites. A book of this size on this topic could not be comprehensive, but Evans has created an invaluable foundation for future research. Accurately researched, superbly designed and affordable, this book will appeal to both the academic and lay person. For those committed to the protection of our military, industrial and architectural heritage it is an invaluable source-book to combat further decay and destruction within the entirety of our naval heritage.

ANN COATS

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Whalers and Free Men: Life on Tasmania's Colonial Whaling Stations

SUSAN LAWRENCE

221 pp., 56 b&w illustrations, 1 map

Australian Scholarly Publishing Pty Ltd, 7 Little Lothian St North, N Melbourne, VIC 3051, Australia, 2006, \$A 34 (sbk), ISBN 1-74097-087-X

The author of this study, Susan Lawrence, is senior lecturer in archaeology at La Trobe University, Melbourne. She has worked in the field for close on 20 years, having earlier co-edited *The Archaeology of Whaling in Southern Australia and New Zealand* (Canberra, 1998). Here she crosses Bass Strait to Tasmania, that 'tight little island', in the words of the late Captain Harry O'May, once the penal colony of Van Diemen's Land. Her book *Whalers and Free Men* describes archaeological investigations at two shore-based colonial whaling stations: Adventure Bay on the east coast of Bruny Island, which operated continuously from the late 1820s until 1841, and Lagoon Bay, on the Forestier Peninsula, which operated intermittently from 1838 to about 1851. These two sites were chosen for excavation, from 45 others on the coast of Tasmania, because of their accessibility overland and because they were relatively undisturbed. The site on Adventure Bay was excavated in November 1997 and the one on the Forestier Peninsula (roughly east of Hobart) in February 1999. A sketch map among the introductory pages shows the sites in relation to the south-east of the island. Other sketch maps provide more detail of the sites themselves.

In her introduction, the author sets the colonial whaling of Van Diemen's Land into context, both historical and geographical. She points out that whaling has 'a special place' in Tasmania's colonial history, being the colony's first profitable export industry, which provided employment for free-born colonial youths. Its profits were ploughed into farming and colonial infrastructure. A number of prominent families, such as the Merediths (Mrs Louisa Anne Meredith's delightful books, especially *My Home in Tasmania*, 1852, are very special: the title page of her Vol. 1 bears an engraving of Adventure Bay), and the Crowthers (whose collection of whaling logs is now in the public domain), had links with whaling. Many of the fine honey-coloured stone houses and other buildings in Hobart were built by those who financed the industry.

After reminding the reader of the way 19th-century deep-sea whaling, through the books of Herman Melville in particular, has 'entered the cultural imagination', Susan Lawrence goes on to point out that the less-celebrated shore-based whaling laid the foundations for colonial prosperity (as it had with the Dutch and English in the Arctic during the 17th century). Sadly,

as with the slaughter of thousands of fur seals on the shores of the islands in the Southern Ocean, in the 1820s the right whale paid the price for this prosperity.

The methods and results of the excavations at Adventure Bay and on the Forestier Peninsula are described and illustrated in detail. The buildings are of course in ruins, but it has been possible to unearth their foundations and to discuss their role during the life of the two whaling stations, which were both built by James Kelly (born in 1791), a leading whaling entrepreneur whose business and shipping ventures are summarised. From Kelly's personal and business papers and other records, an attempt has been made to investigate the whaling crews (a few of whom were Aboriginals), together with their status, clothing and pay. Interestingly, the archaeologists made no attempt to delve deeper into the relics of Aboriginal life during the previous thousands of years.

There is a chapter on building a whaling station. From the 'whalers' rubbish', consisting of thousands of artefacts—nails, scrap iron, bottles, glass, clay tobacco pipes, animal bones, pottery, buttons, and souvenirs from other lands—it has been possible to describe what life was like on the whaling stations, in conjunction with the remains of the fireplaces, walls, windows, and try-pot areas where the whale blubber was rendered down. The illustrations in the form of views, portraits, and artefacts are well chosen and fairly comprehensive. Perhaps it should be explained here the difference between shore-based and deep-sea whaling. During the former, the dead whales harpooned at sea from boats launched from a 'mother-ship' were towed to the shore, where the carcasses were flensed (stripped of blubber) and the blubber rendered down in try-pots. With deep-sea whaling, these operations were carried out aboard ship.

Susan Lawrence's *Whalers and Free Men*, the result of painstaking archaeological and historical investigations, can be recommended to those interested in the history of whaling and in the history of Australia, particularly that of Tasmania.

ANN SAVOURS
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The Kraken and the Colossal Octopus: in the Wake of Sea-Monsters

BERNARD HEUVELMANS

xv + 332 pp., 149 b&w illustrations

Kegan Paul, PO Box 256, London WC1B 3SW, 2006,
£104.50 (hbk), ISBN 0-7103-0870-1

The student of an established discipline may become blasé and assume the ready availability of a large and coherent body of evidence, thus losing sight of the

origins of his study within the routine processes of research. This engaging book by the 'father of cryptozoology' provides a welcome corrective, as it summarises aspects of the study of marine wildlife in a historical account which indicates the disjointed nature of an emergent discipline for which primary material is only collected with difficulty. The sense of wonder is all-pervasive (being maintained by lengthy quotations from primary accounts) while simplistic analysis and technical jargon are commendably absent. This comprehensive body of detailed evidence indicates research of high quality over a lengthy period, made memorable by the wonderfully quirky quotations, exemplified by that from the American naturalist Henry Thoreau: 'Some circumstantial evidence carries a lot of weight, as when you find a trout in the milk'.

Although dated (at the end) to between 1954 and 1994, this book is apparently a reworking of earlier material, giving the impression that this is a work of the 18th century rather than the 21st. The continental system of references, the absence of an index, the textual citation in Roman numerals, and the frequently idiosyncratic spelling, page layout and punctuation present an impression of archaism. The frequent use of philosophical terms (*'a priori'*) and quotations from such men of letters as Montaigne, Thoreau and Cocteau hark back to the Enlightenment. The discursive and conversational style grates on occasion, while the presentation is below standard. The numerous illustrations are well-selected and generous in size but are reproduced (apparently by re-scanning) to a low standard, moiré-patterning being frequently apparent.

The vast range of this publication allows only a sketchy indication of the aspects that are of greatest interest to the reviewer. Part One ('Here, everything is possible') illustrates the variety and wonder of the subject, following the truism of the Greek poet Oppian that 'the sea hides many things'. The problems of marine exploration are considered at length, describing such recent discoveries as that of the Coelacanth ('A refugee from the Devonian'). Part Two ('Animals with feet on their head') opens with the classification of *Cephalopoda* (octopus, cuttle-fish and squid) before considering their 'aggressivity' in literature and reality.

Part Three ('The family tree of the fearsome kraken') summarises the evidence from antiquity, starting inevitably with the Scylla of the *Odyssey*, although this is transcribed in the German form, 'Skylia'. Consideration passes to the 'island-beasts' of many cultures, exemplified by the illustrated bestiaries of medieval French artists and the semi-mythical voyages of the Irish monk Saint Brendan and others, who commonly record the intervention of whales and turtles at times of danger. The extended consideration of ambergris is without parallel elsewhere in the standard archaeological literature. Another chapter ('Science looks at the kraken') considers the island-beast

from the point of view of the Age of Reason, detailing the achievements of the Northern European scholars Pontopiddan and von Bergen and noting the inclusion of the mythical sea-creature *Microcosmus* within the *Systema Naturae* of Linnaeus, the foundation of modern biology: 'It is said that it lives in the Norwegian Sea ... I have never seen this animal'. This attempt to assess doubtful evidence within scientific thought characterises the attitude of the Enlightenment.

Part Four ('The complete story of the supreme squid') continues this theme and transfers attention from mythological creatures to their fictional counterparts in the writings of Victor Hugo and Jules Verne, against the background of the increasing quantity of evidence available in the 19th century. Perhaps inevitably, recorded attacks by squid figure largely, as do the deaths of whales caught up in undersea cables. The voyages of Cook, Humboldt and Darwin are considered, as is the *Challenger* expedition. The work of the pioneer malacologist Pierre Denys de Montfort (to whose memory the book is dedicated) is detailed, as are the increasing numbers of sightings, strandings and 'suicides' in the later-19th century. In the absence of a formal conclusion, Part Five ('The shadow side') ends the work with further and later discoveries, returning with evident enthusiasm to the theme of squid attacks. The account by Thor Heyerdahl (in a letter to Rachel Carson, the early ecological campaigner) of the sighting of a squid from his raft *Kon-Tiki* links two iconic figures of the post-war period.

In short, it does not serve to under-rate this book, which has much to engage the reader with general maritime interests. Although not intended as a standard account, its style should not be allowed to obscure its ample substance. Only the high price (in itself a mystery) will deter many from buying a book which has much to offer them.

ROBERT J. C. MOWAT
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Resolute: the Epic Search for the Northwest Passage and John Franklin and the Discovery of the Queen's Ghost Ship

MARTIN W. SANDLER

320 pp., 20 colour and 30 b&w illustrations, 2 maps

Stirling Publishing Co. Inc., 387 Park Avenue South, New York, NY 10016, 2006, \$29.95 (hbk), ISBN 1-4027-4085-9

The many searches for Sir John Franklin's expedition and information on its fate have continually captured

the imagination. As Sandler's lucidly-written book proves, this interest has not subsided. In this well-illustrated work (including colour plates), the author provides the context to the Franklin Expedition of 1845, discussing the earlier Arctic voyages under Ross and Parry, and Franklin's previous experiences in northern Canada. He goes on to describe the subsequent searches for Franklin and the Northwest Passage, although some of them are only mentioned in a cursory fashion (for example *Resolute's* first Arctic voyage in 1851 under Austin). The beginning of the book provides a description of personalities that feature in the narrative. At the end of the book is a brief biography of each of the main participants who survived, partially satisfying our curiosity to know what happened to them after the expeditions had finished.

All the interconnected narratives are held together by the story of one ship: the *Resolute*. The book opens with the sighting and recovery of *Resolute* by the US whaler *George Henry*, a story that is continued later with the purchasing of the *Resolute* by the US Government and her refitting and return to Britain as a gesture of goodwill between the two nations. Finally, the author uses the gift of the President's desk made from the timbers of *Resolute* to discuss the enduring mysteries behind the fate of the Franklin expedition, although in his list of *Resolute*-related material and the President's desk he forgets to mention that the National Maritime Museum holds the proposal plans for the desk and secretaire, dated 1879, as well as what is thought to be the ship's figurehead.

One error to be corrected is that *Resolute* had not been constructed for Arctic duty (p.100). Originally launched as the merchant vessel *Ptarmigan* in 1848, she was then purchased by the Admiralty, renamed *Refuge* before being called *Resolute* and fitted at Blackwall in 1850 as an Arctic discovery barque. Moreover, the claim that she was 'massive' is not true when compared to other ships in the Arctic. She was similar in size to *Assistance* (1835) and *Investigator* (1848), and smaller than *Enterprise* (1848).

The reviewer feels that there was an opportunity missed by not using *Resolute* to discuss in depth how an Arctic ship was fitted and victualled, what life on board was like during the voyage and in the Arctic, and the contact with the Danes and Inuit of Greenland, as well as the various activities and expeditions, which are described in journals such as Dr W. Domville's in 1852-3 (NMM, JOD/67). This would have provided a picture of what life was like through personal testimony, and given the reader a better understanding of the planning and effort required to get a ship ready for polar regions, as well as the issues that the officers had to deal with in keeping the ship's company occupied while out there.

The maps on the endpapers are useful in providing a general overview of the theatre of operation, but

would have been better had more of the place-names in the book been included. Similarly, while the maps embedded in the text were helpful, they only cover a few of the many expeditions sent to the Arctic, making a full appreciation of the level of activity, and level of success or failure, difficult.

The subject of Franklin and the Northwest Passage still deserves greater attention—to re-evaluate the role of Lady Franklin, the attitude of the Admiralty, especially towards the whaler captain William Penny, and of Sir John Ross, and the influence of Sir John Barrow on all the expeditions. However, while the book may not add much that is particularly new to the general knowledge of the expeditions to search for Franklin and the Northwest Passage, it is a good introduction to a fascinating subject.

JEREMY MICHEL

Ship's Plans, National Maritime Museum, Greenwich, UK

The Officers of the CSS *Shenandoah*

ANGUS CURRY

429 pp. 18 b&w illustrations, 3 maps

University of Florida Press, 15 NW 15th St, Gainesville, FL 32611-2079, USA, 2006, \$55.00 (hbk), ISBN 0-8130-2943-0

The Confederate States Ship *Shenandoah* was the last commerce raider of the American Civil War. *Shenandoah* began life as the British merchant steamship *Sea King*, built in 1862 by Alexander Stephen of Linthouse for the China trade. Among the first true composite-built vessels, her iron frames were clad in teak planking. This system of construction permitted the use of copper sheathing, the only satisfactory anti-fouling treatment for ocean-going vessels. Iron-hulled ships travelling to China would suffer unacceptable loss of performance from marine fouling. Furthermore wooden planking could be repaired in many locations, iron hulls in very few. The 1000-ton, 220-foot-long *Sea King* was a fully-rigged screw steam auxiliary, with a 400-horsepower engine and a hoisting propeller for oceanic sailing. This combination of sail-power for cruising and steam for the tactical phase of commerce raiding against sailing ships had proved ideal in the cruises of the CSS *Florida* and the *Alabama*.

In September 1864 the Confederate naval agent in Europe managed to purchase the ship, sending her on a putative voyage to Bombay. Unlike the purpose-built *Alabama* the *Sea King* had not been designed for heavy artillery, or the large crew of a commerce raider. Suitable stores and equipment were loaded on another ship, for a rendezvous at Funchal, where *Sea King*

became *Shenandoah*. The new warship had been purchased for a specific mission; the destruction of the Northern Pacific whaling fleet inside the Bering Straits, where they had recently discovered rich fishing-grounds amidst the ice-floes. The whalers were largely owned in New England, the hotbed of abolition, which the Southerners blamed for their present predicament. Their product lubricated the machinery of Northern industry, which was turning out implements of war to crush the Confederacy.

Once commissioned the *Shenandoah* headed south, and began to collect prizes. These were part of the mission, and the main source of manpower. The commission began with a handful of British seamen, and gradually recruited more from the polyglot crews of destroyed American merchant vessels. These men helped convert the ship into a cruiser, the heavy rifled guns were not mounted for many weeks, and only after a lengthy stay at Melbourne—where vital repairs to the screw were completed, the ship overhauled and another 50 men taken on board—was she ready to operate effectively. On 27 May 1865 the *Shenandoah* began her assault on the American whale ships, in the Sea of Okhotsk, and continued to strike until the 27th of June, when the last prize was burnt.

The commerce-raiding side of the voyage was remarkably pedestrian; only a small blank charge was required to stop and capture the prey, merchant sailing ships unable to escape or resist. The captures were stripped of useful supplies, valuable instruments, charts and stores, the crew offered terms to serve their captors, and then the ship was burnt. Far more interesting, as Curry realised, was the nature of the voyage. The officers, the central focus of the study, were a fractious lot. Lieutenant James Waddell was in command, an older officer without the rank, or it seems the natural authority to keep his team of proud rebels under control. From the start Waddell struck his officers as irresolute, indecisive, and overly cautious. His seamanship was old-fashioned, and unimaginative. After the war the officers kept silent, and when Waddell's posthumous memoirs appeared his juniors allowed a polite consensus to emerge, to join the growing myth of the 'lost cause' of the Southern Confederacy, in which old-fashioned manners and standards had been upheld to the last. Appearing with 'New Perspectives on the History of the South' rather than University of Florida's 'Maritime History and Nautical Archaeology', much of the book relates to 'Southern' rather than 'maritime' issues, notably the construction of officer identities, and the impact of southern culture on the operations of the ship. Curry has produced a fine study of naval officers at war and the dynamics of long sea voyages.

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Sea Charts of the British Isles: A Voyage of Discovery around Britain and Ireland's Coastline

JOHN BLAKE

128 pp., 80 colour pages

Conway Maritime Press, Chrysalis Building, Bramley Road, London W10 6SP, 2005, £20 (hbk), ISBN 1-84486-024-8

Remarkable Maps: 100 Examples of how Cartography Defined, Changed and Stole the World

JOHN O. E. CLARK (ed.)

256 pp., 156 maps in colour

Conway Maritime Press (as above), 2005, £25 (hbk), ISBN 1-84486-027-2

Sea Charts of the British Isles is the second recent book on charts by John Blake, a former naval officer. His earlier work, *The Sea Chart* (2004), was assessed by Owain Roberts (*IJNA* 34: 359) as 'a large picture-book interspersed with short commentaries'. It was generally welcomed as an introduction to the history of sea charts, although there was some comment on Blake's uncritical acceptance of another former naval officer's ill-founded claim that Chinese admiral Zheng He circumnavigated the world in the early-15th century (G. Menzies, 2002, *1421: the year China discovered America*. See Susan Rose, *Mariner's Mirror* 92: 369–70; and W. Richardson, *IMCoS Journal* Autumn 2004: 23–32).

In his 'Acknowledgements', Blake tells us that this second book 'is intended to appeal to the interested public at large, rather than the academic'. There is no glossary, but technical terms such as 'rhumb line' and 'seamark' are defined in captions to certain illustrations; and, rather than specific references in the text or an annotated list of 'Further Reading', there is a bibliography listing Admiralty publications, coastline guides, general histories, and texts on navigation and cartography. Lacking in that list is Professor E. G. R. Taylor's name as the author of the pioneering and seminal 1956/1971 publication, *The Haven-Finding Art*.

The introductory chapter summarises the geology and the coastal geography of the British Isles, describes the development and duties of Trinity House, and gives a brief history of British cartography and chart-makers culminating in the work of the British Hydrographic Office from its inception in 1795. There is also a dash of political history and the author is at pains to describe the political division of Ireland. Indeed, Blake seems to have a problem with

Ireland's status and with Irish seagoing capabilities: in his 'Introduction' he assures the reader that the term 'British Isles', bears no implication that Ireland is subordinate to Britain. However, in chapter 5, curiously titled 'Eire and Northern Ireland', he not only states that Rosslare's Europort 'serves ... the British mainland', with the underlying implication that Northern Ireland is part of Britain, but also refers to the British and Irish archipelago as 'the Isles of Great Britain'. Furthermore, he asserts that 'the Irish have traditionally been more landsmen than seafarers'. Clearly he has not read John de Courcy Ireland's 1986 book, *Ireland and the Irish in Maritime History*.

Chapters 2 to 7 each deal with a stretch of coast, starting with the Thames estuary and working clockwise around the archipelago. Each chapter has a short introduction to the history and geography of the coastal lands with comments on the greater rivers and on specific harbours, and in them one learns, for example, that, at 147 feet, the light on Fastnet Rock, off west Cork, is the highest in the archipelago; the last group of corncrakes in these islands survives on the Inishowen peninsula in Donegal; and the city of Derry 'still sends 12 free shirts annually to the US President'. The maritime maps and sea charts featured in each chapter range in date from the 16th to the 19th century and they each have a lengthy caption. Blake is in his element with these captions, giving specific information about the compilation and publication of each chart, together with useful comments on the features shown. History also features: in the caption to a late-18th century plan of Berwick-upon-Tweed we learn that the 1853 declaration of war (the Crimean War) on Russia was made 'in the name of Great Britain, Ireland and Berwick-upon-Tweed'—presumably because of Berwick's uncertain status at that time. The 1856 peace treaty omitted Berwick and consequently that town theoretically remained at war with Russia until 1966!

If you want to read interesting facts about, and study reproductions of, selected and important old charts and maritime maps—such as the 1768 map of Rochester and Chatham 'drawn up from the notes of French spies', or the 1587 plan of Portsmouth featuring the 'landing places generally used by smugglers'—this is your book.

Remarkable Maps is a heavy, coffee-table size of book edited by 'author, encyclopedist and publisher' J. O. E. Clark, with an introduction by Jeremy Black, Professor of History in the University of Exeter. Other authors include Martin Marix Evans (named on the back cover flap), and five others listed in small print at the bottom of the last page: Martin Cowper, David Day, Chet Hearn, Gillian Hutchinson (Curator of the History of Cartography at the National Maritime Museum, Greenwich) and Peter Lewis. None of the volume's 66 sections, each 2–6 pages in length, is attributed to a particular author.

In his introduction, Jeremy Black tells us that this book is a selection of 'remarkable' maps, and 'not a

complete history of maps', nor is it 'an academic treatise', rather it was 'written for the non-expert'. The editor (presumably), in an essay on 'The Choice of Maps', explains that they were chosen for one of four reasons: to illustrate specific cartographic themes; because their creators were important figures in the history of cartography; as examples of mapping techniques; or to symbolise or encapsulate an entire cosmology.

The 66 sections are grouped under six headings: *Earliest Maps* includes such topics as: 'ancient clay maps', 'Chinese cartography', and 'the nine worlds of the Norsemen'; *Cartographic Breakthroughs*: 'Ptolemy', 'Edmund Halley', 'the 1933 London underground map', 'surveying Venus' and 'mapping the tsunami'; *The Age of Exploration*: 'portolan sea-charts', 'Columbus', 'the first accurate North American maps', and 'the Royal Navy "conquers" Antarctica'; *Military Maps*: 'Da Vinci', 'Passchendaele', 'Omaha beach'; *Drawing The Line*: 'Anglo-French Map Wars', 'India', and 'maps of Israel'; *Fantasies, Follies and Fabrications*: 'Atlantis', 'propaganda maps', 'the Vinland map', and a criticism of Gavin Menzies' claims about early Chinese circumnavigation.

In a footnote on the last page, the editor, noting that there are 156 maps in this book, states his hope and intention that '100 maps are of sufficient size and difference to be examined more closely'. Some of the maps, the few charts, and the other illustrations are indeed too small to appreciate the detail, but all are well reproduced, and, overall, the book is a pleasure to handle and to enter where you will. In comparison with John Blake's book, however, it is of much less direct interest to an international maritime readership.

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Maritime Archaeology and Social Relations: British Action in the Southern Hemisphere

(Springer Series in Underwater Archaeology)

VIRGINIA E. DELLINO-MUSGRAVE

197 pp., 17 b&w figures

Springer Science, 233 Spring St, New York, NY 10013, USA, 2006, \$79.95 (hbk), ISBN 0-387-33598-6

Springer Press has added yet another fine piece of scholarship to its growing series in underwater archaeology. Virginia Dellino-Musgrave's book contributes to the quality and calibre of this series as the eleventh monograph. Although not without faults (poor-quality image reproduction, minor editing errors), this work is an improvement on Springer's previous design and

editing, and with future works the series should continue to improve.

Maritime Archaeology and Social Relations is an apt title for Dellino-Musgrave's research as it explores 18th-century British social relations within the context of maritime archaeology and history. The author uses archaeological assemblages from two Royal Navy shipwrecks, HMS *Swift* and HMS *Sirius*, to investigate British colonial maritime activities through the social processes of capitalism, colonialism and consumption. She draws on a variety of studies and disciplines including history, archaeology, material-culture studies, and social theory to move seamlessly from the particular to the general. Until recently these types of studies have been missing from the field of maritime archaeology, but a growing group of scholars, this author included, are pushing the field in new directions away from the stigmatized particularistic past. This book can be compared with works such as Mark Staniforth's *Material Culture and Consumer Society* (2003).

Dellino-Musgrave candidly admits that the book is based on her postgraduate thesis, and readers will not be surprised as it follows the style of such a work with its list of abbreviations, conversions and historical and maritime archaeology overviews. The monograph is divided into eight sections followed by references and an index. The first chapter is an introduction which defines clearly her research design, its process and its end results. Chapter 1 also introduces many of the key concepts and vocabulary to be used throughout the work. However, at times, here and further on, it seems as if the author's use of complex vocabulary begins to take control of the research and writing rather than clarifying and explaining the issues. Finally, this chapter places the investigations of the two shipwrecks into broader historical and geographic settings.

Chapter 2 outlines the development of historical and maritime archaeology and the argument that there is, or is not, a distinction between the two areas of study. Dellino-Musgrave states that this section 'is not intended to be a comprehensive review of works dealing with historical archaeology' (p.18); however, the reader cannot help but feel as though he or she is reading a literature review or an abbreviated version of a textbook. Certainly it is not a simple task deciding how much background information to include, but this author would have benefited from either omitting this section or integrating background material into other sections.

Dellino-Musgrave provides a much-needed survey of the political and social environment in which the fields of maritime and historical archaeology have developed in South America and more specifically Argentina. A less-inclusive review of Australia's historical and maritime archaeology follows before the author addresses the archaeological pedigree of *Swift* and *Sirius*. Comparisons between these two projects provide useful background information as well as examples of archaeological projects conducted within the previously-reviewed political and social climates.

Two chapters are devoted to exploring many of the theoretical ideas used in this research, drawing on a number of social theories addressing time, space, place, landscape and *praxis*. The notion of *praxis* is investigated further and defined as 'practical action' (p.66). The author uses *praxis* further to substantiate her material-culture studies by advancing that material culture is essentially the physical manifestation of *praxis*. In this way material culture reflects the social action of those who created, bought, sold, used and discarded these objects. Furthermore, these actions and objects can only be understood through the social processes of capitalism, colonialism and consumption during the 18th century. Although the language can be onerous, tables beautifully illustrate some of the author's more complex ideas. Dellino-Musgrave examines the historical context of the 18th century within which these two ships operated and wrecked, and addresses the environmental conditions and features, proposing that they must be considered fully to understand British action, and arriving at the conclusion that the British selected areas of use and settlement based on access, availability and control.

Chapter 7 finally brings the archaeology of British colonial ships back into focus with an evaluation of the material-culture assemblage (ceramics) recovered from *Swift* and *Sirius*. The assemblage from *Swift* is the focus of the author's research and dominates the results. She admits that the *Sirius* assemblage is problematic because the sample is so small. This limitation is translated throughout the work as *Sirius* is sidestepped and treated more as an afterthought than an original component of the research. Nevertheless, this does not detract from the sound research conducted on the *Swift* assemblage.

Dellino-Musgrave operates on the idea that British identity was created through a differentiation of themselves from others. She identifies this social differentiation both within the ships' social structure (officers versus others) and among other non-British peoples (Europeans, natives) through production and consumption practices on board the ship. She also identifies the use of material culture to reproduce memory and shorten the physical distance to home, thereby increasing security. Security is further strengthened through habit and routine and power relations and discipline, all of which are expressed in the material culture.

In the final chapter the author pulls the focus out to examine British activities on a global scale, highlighting their intentions and motivations during the 18th century by examining the use of landscape including trade-routes, settlement-patterns and competition with others. In the final pages of her work, Dellino-Musgrave highlights the usefulness and innovation of her research. She has a keen sense of what her research contributes to the field, which includes the introduction of more social theory to maritime archaeology, the investigation of shipwrecks on multiple levels of analysis from local to global, and a better understanding of British maritime social action during the 18th century as expressed through material culture.

Despite the occasional reservations expressed above, this book is an excellent piece of scholarship. Dellino-Musgrave should be commended for her contributions to maritime archaeology. This work can certainly be classified as a 'must read by all' in current literature.

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