EIGHTEENTH-CENTURY MERCHANT SHIP INTERIORS

A Thesis
by
MARY ANNE RENNER

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Approved as to style and content by:

Don L. Hamilton
(Chairman of Committee)

David L. Carlson
(Member)

Clark E. Adams
(Member)

Vaughn M. Bryant, Jr
(Head of Department)

December 1987
ABSTRACT

Eighteenth-Century Merchant Ship Interiors
(December 1987)
Mary Anne Renner, B.A., College of William and Mary
Chairman of Advisory Committee: Dr. D. L. Hamilton

Despite the importance of shipping in the
eighteenth century, little information is available
concerning the interior furnishings and fittings of
merchant vessels. However, from this study of ships’
plans, models, artwork and archaeology, details of
merchant ship interiors are emerging.

Because most shipwrecks are poorly preserved,
nautical archaeology has contributed little to the study
of ships’ interiors. However, the Yorktown Shipwreck
Archaeological Project (YSAP), a full-time research
project of the Virginia Division of Historic Landmarks,
is providing an extraordinary opportunity to study ship
interiors.

The YSAP has located nine shipwrecks from the
Battle of Yorktown, 1781, the last major battle of the
American Revolution. Seven of the wrecks are believed
to be merchant vessels scuttled by Cornwallis as a
defensive maneuver.

Two of the scuttled vessels, 44Y085 and 44Y012,
were test-excavated and provided some information on
interior construction, especially of storage areas. The
best preserved of the Yorktown shipwrecks, 44Y088, is currently being excavated. To alleviate hostile river conditions and thus improve the quality of excavation and recording, Y088 has been enclosed in a steel cofferdam.

Y088 is a merchant vessel measuring 75 x 23 feet and is believed to have been built as a collier. Excavation of the stern of Y088 is revealing stylish and well-made hardware, furniture, decorative features and interior components. Items such as tongue-and-groove paneling, a window and a china cupboard show the opulence of the officers' quarters. The cupboard, which has cut-out shelves, also illustrates how common commodities were adapted to shipboard use.

In the bow of Y088, a lack of artifacts related to crewmen reflects the low status afforded these men. Hundreds of barrel pieces have been excavated from the bow and midships areas and are providing details of stowage as well as a wealth of information on eighteenth-century cooperage. Storage information is also emerging from the bulkhead construction of Y088.

Although the excavation of Y088 is not yet complete, this study is revealing detailed information on the construction of ship interiors as well as the activities which took place there. Additionally, the work constitutes an important data base for future comparative studies.
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INTRODUCTION

Maritime activities played major roles in many aspects of eighteenth-century culture. Ships were not only used as vehicles of war, but were also essential for transportation and trade. Routes to the Far East provided Europeans with luxury items such as spices and silks while voyages to the New World supported young colonies and provided their mother countries a wide variety of raw materials and other necessary commodities.

The importance of shipping is illustrated by the large number of vessels entering and exiting the port of Yorktown, Virginia. In the five-year period between 1740 and 1744, a total of 279 ships arrived at Yorktown, 126 of which came from Europe (Costin 1973: 49). In the same time period, 255 vessels departed from Yorktown, with 152 of them bound for Europe (Costin 1973: 53).

Imports and exports carried by the vessels recorded at Yorktown are quite varied. The former include wine, rum, molasses, sugar, slaves, salt, clothing, household supplies, ceramics and foodstuffs (Costin 1973: 53-61). Food also comprised many of the exports from Yorktown,

This thesis utilizes Historical Archaeology as a model for style and format.
grains such as wheat and corn were quite common, as were
meat and vegetables. Other exports included fibers,
skins, dyes, tobacco, naval stores and wood products
such as staves and shingles (Costin 1973: 75-83).

This reliance on commercial shipping placed great
importance on professionals such as financial backers
and ships' officers. Additionally, activities such as
ship building, fitting, provisioning and repairing were
vital. The shipwright, in particular, had to be
talented and well-trained because the success of
commercial ventures depended on the seaworthiness of the
vessels.

Because merchant ships were so common in the
eighteenth century, plans for these vessels were rarely
made. The shipwright relied on his own experience and
expert craftsmanship to construct his vessels. Detailed
plans were commonly made for warships, but merchant
vessels were documented only occasionally when the ship
displayed atypical features or was to be re-fitted
(Chapelle 1987: 6).

A ship's plans generally include line drawings for
the hull as well as deck plans and, possibly,
construction details. Infrequently included on a ship's
plans are the locations and dimensions of the various
compartments and cabins and details of entranceways.
However, interior features of the compartments and
cabinas are rarely, if ever, depicted.

As a result, information on this aspect of naval architecture must be found elsewhere, possibly in archaeology. To date, however, nautical archaeology has revealed little information about interior details of eighteenth-century merchant vessels. This is primarily due to a lack of sufficiently preserved vessels rather than to any lack of interest by archaeologists. However, the Yorktown Shipwreck Archaeological Project (YSAP), a full-time research project of the Virginia Division of Historic Landmarks, is offering an opportunity to study, in detail, examples of the interiors of eighteenth-century ships.

The ships under study in the York River between Yorktown and Gloucester Point, Virginia, are believed to have played an active role in the Battle of Yorktown, 1781, the last major battle of the American Revolution.

During the Revolution, England relied on shipping for communication and to transport troops and supplies across the Atlantic. In addition to the regular navy, merchant vessels were leased by the Navy Board to provide tonnage necessary to support the war in North America. Crewmen as well as ships were precious commodities as "... the owners of transports were required to provide seven seamen for every hundred tons of the ship's burden. This requirement was lowered in
1781 to six seamen per hundred tons of the ship's burden" (Syrett 1970: 56).

Most of the ships at Yorktown under the command of Lieutenant General Charles Cornwallis were merchant vessels, many of which were probably leased in the above manner. The remains of two ships have been test-excavated and a third merchant vessel is currently being completely excavated. These sites are providing much-needed examples of furniture and fittings from ship interiors.

The data from the Shipwreck Project, combined with information from written sources, paintings, plans and ship models provides a unique but still incomplete picture of the compartment arrangement and furnishings and fittings of merchant vessels. These details reveal significant information on construction features as well as life on board ship.

Specific research questions are involved with two major areas: the arrangements of compartments within merchant ships and the furnishings and decorations of the ships' interiors. The basic questions are:

1. How much variety exists in compartment size and arrangement within a single ship and in general? To what are any differences attributable?

2. What is (are) the functional reason(s) for the placement of each compartment?
3. What alterations, if any, are made to furnishings to adapt to a shipboard function?

4. What do interior components and decorations reveal about shipboard activities?

5. What can be learned about status differentiations between crew members from the furniture and embellishments of ships?
METHODOLOGY

The five categories of information used in studying ships' interiors are written sources, ship models, ship plans, artwork and, equally important, archaeology.

Written Sources

A log was generally kept of a ship's voyage. However, the entries in such documents rarely mention details of the ship's interior. The main purpose of the log was to record the progress of the voyage, including ports visited, storms and other ships encountered.

Individuals often kept personal journals of their experiences on the voyage. However, journals recorded by officers rarely mention the furnishings or fittings of the ship, they tend to serve more as logs of shipboard activities. In speaking of John Paul Jones, for example, it has been said that "his journals . . . are strictly confined to professional affairs, and contain little that can either extend the range of knowledge or gratify a liberal curiosity" (Levy 1972: 243). The most useful diaries for information on ships' interiors are those kept by passengers.

Ships' Models

As an original part of this study, interiors of ship models were to be photographed using technology
borrowed from the medical field, perhaps flexible endoscopes. However, more indepth research into the possibility has revealed this phase of the project to be unfeasible. Flexible endoscopes are used in conjunction with video screens rather than still photography. Thus the equipment is neither readily available nor easily portable.

Furthermore, the concensus of opinions from discussions with various historians and model builders is that little, if any, interior detail would be depicted in models. Perhaps some decking and bulkheads would be included, but the likelihood of furniture or finishing details being modeled is too remote to warrant the expense of photography.

Although complete ship models would be of little value for studying ship interiors, cutaway models are designed for just this purpose. Sands (1983: 48) illustrates a cutaway model of an eighteenth-century horse transport which has partial decks with stalls along the sides of the vessel to accomodate the animals.

**Artwork**

Ships under sail, in battle and at port were common motifs in eighteenth- and nineteenth-century art. However, of the numerous extant prints and paintings, very few show any interior features of vessels. Those
which do generally show the captain's or passengers' quarters, often in a humorous light.

The Mariners' Museum in Newport News, Virginia has a fairly extensive collection of ceramics decorated with nautical themes. Again, these tend to date to the nineteenth century and to depict passengers' activities.

The *Recueil de Planches de l'encyclopédie* (1787) is a volume of illustrations of eighteenth-century activities and implements, many of which are nautical. For example, Plate 82 of Volume 5, drawn by Benard Direxit, depicts longitudinal and transverse sections of an eighteenth-century ship. The bow and midships sections of the longitudinal view are shown in Figure 1.

**Ships' Plans**

As previously mentioned, plans for eighteenth-century ships are useful in studying both arrangements and sizes of the various compartments. Because plans for merchant ships are scarce, several small armed transports have been included in this study.

The nine eighteenth-century vessels for which plans with compartment arrangements were studied are the *William* (1740), the *Marquis* (n.d.), the *Dispatch* (1783), the *Adventure* (1772), the *Resolution* (1771), the *Endeavour* (1768), the *Chaleur* (1768), the *Halifax* (1768) and the *Bounty* (1787). The deck layouts for the
Dispatch are shown in Figure 2.

From each ship's plans, measurements for cabins and some storage areas have been determined. Table 1 lists the square footage of each compartment and the average size of each compartment type.

Archaeological Evidence

Numerous eighteenth-century Dutch East Indiamen have been located and studied. Two of the vessels, the Meresteyn and the Civic Centre Ship were discovered in South Africa. The latter appears to have run aground at Cape Town, so archaeologists believe that most goods were removed at the time of her demise (Lightly 1976: 305).

Like the Civic Centre Ship, the Meresteyn has no remaining interior structure. A brass chest fitting and two chest handles similar to those found on the Hollandia (Marsden 1976: 209) are indicative of the furnishings on board the vessel, but no actual structural features survived.

Sunk in the Scilly Isles in 1743, remains of the Hollandia extend over one-third kilometer (Cowan, et al 1982: 288). These scattered remains have revealed numerous navigational instruments and the aforementioned brass hardware (Cowan, et al 1975: 287-8) but nothing of the vessel's interior.
<table>
<thead>
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<th>Adventure 1772</th>
<th>Resolution 1771</th>
<th>Endeavour 1768</th>
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<td>285</td>
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<td>204</td>
<td>145</td>
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<td>39</td>
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<tr>
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<td>75</td>
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<td>86</td>
<td>75</td>
<td>64</td>
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*Marquis had four compartments along the sides of the vessels simply marked "cabin." Each was 22 square feet.
TABLE 1 (continued)

<table>
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<th></th>
<th>Bounty 1767</th>
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<tr>
<td>Carpenter's storeroom</td>
<td>56</td>
<td></td>
<td>x</td>
<td>58</td>
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</table>

²Plans for the Williams have no scale, so are used for layout only.
Another Dutch East Indiaman, the *Amsterdam*, sank near Hastings in 1749. A survey of the vessel in 1972 revealed that approximately three-quarters of the ship remains. Upper and lower decks are preserved, as are partitions below the upper deck (Marsden 1972: 85). The vessel is currently undergoing excavation.

An eighteenth-century merchant vessel was excavated and recovered from the Black River in Georgetown County, South Carolina. Known as the Brown's Ferry Vessel, the wreck contained brick cargo and a few personal items, but no interior structure (Albright 1979: 123-4).

A ship discovered during a construction project in New York City was designated the Ronson ship. Salvage of the eighteenth-century vessel revealed that it had been used as land fill so was virtually stripped of all interior features. Fragments of tongue-and-groove paneling in the stern are the only remnants from the officers' quarters (Warren Riess, Mariners' Museum, personal communication 1987). Although the vessel is providing much-needed information on hull construction, it is of little value for interior studies.

The Yorktown Shipwreck Archaeological Project

As shown by the above examples, archaeological data on ship interiors is scarce. Thus the sunken vessels at Yorktown being excavated by the Yorktown Shipwreck
Archaeological Project (YSAP) provide an extraordinary research opportunity. The YSAP is an ongoing research project of the Virginia Division of Historic Landmarks, an agency of the Department of Conservation and Historic Resources.

Under the direction of John D. Broadwater, the YSAP is studying a group of shipwrecks from the Battle of Yorktown, 1781, the last major engagement of the American Revolution. The nine vessels in the York River constitute the largest known group of associated shipwrecks from the Revolution.

To discourage intensive looting by sport divers in the early 1970's, the area of the York River between Yorktown and Gloucester Point was placed on the National Register of Historic Places (Figure 3), the first underwater site in Virginia to be so designated. The YSAP began in 1975 as an all-volunteer effort to survey the National Register district.

The project became full-time in 1978 with a grant from the National Endowment for the Humanities which provided for a comprehensive survey of the National Register district. This survey, a combination of remote sensing and diver search, resulted in the location of eight ships believed to be from Lieutenant General Charles Cornwallis' fleet (Broadwater 1979: 233). A ninth ship, also believed to be one of Cornwallis', was
FIGURE 3. National Register district and site locations.
located in 1980 (Figure 3, p. 17).

Historic Background

At the beginning of the American Revolution, the British believed that if the rebels in the northern colonies could be subdued, the war would be ended. It became apparent, however, that the rebellion was more widespread than originally believed, so the British were forced to change their approach. Around 1778, the British began focusing on the South, with the intention of cutting off exports from the South and thus supplies to the North (Sands 1983: 1-2).

Lord George Germain, British secretary of state for American affairs, and Lieutenant General Charles Cornwallis, second in command in the colonies under Sir Henry Clinton, were avid supporters of the plan to campaign in the South (Sands 1983: 7-8). As this campaign progressed, Germain "... urged that a post be established immediately in Virginia, in the expectation that this would have the effect of diverting the Virginia and Maryland militia, which had been sent south to oppose Cornwallis [in South Carolina]" (Sands 1983: 10). Under the command of Major General Leslie, a post was established in Portsmouth, Virginia, in October 1780 but was abandoned the following month.

Less than a year later, in July 1781, Cornwallis was ordered to choose an ice-free port which would allow
the British to "... establish a fortified harbor that would serve to protect the British fleet in North America and allow the necessary symbiosis between the army and the navy to continue through the winter months" (Sands 1983: 37). After considering Portsmouth, Old Point Comfort and Yorktown, Cornwallis deemed the latter the only defendable port of the three.

Cornwallis' fleet of 50-60 ships, mostly merchant vessels, arrived in Yorktown on August 1, 1781. Cornwallis promptly removed most of the cannon and men from his ships to reinforce the British troops already entrenched in Yorktown.

The main British fleet sailed from New York to join Cornwallis early in the autumn of 1781. The fleet was, however, met at the mouth of the Chesapeake Bay by a French fleet under the Admiral Comte de Grasse. On September 5, the Battle of the Capes ensued, a brief engagement which damaged the British fleet sufficiently to force its return to New York. This retreat in early September, 1781, left the French in control of the Chesapeake Bay, trapping Cornwallis in Yorktown.

To prevent a possible French amphibious attack on the British troops entrenched at Yorktown, Cornwallis scuttled a line of his own ships parallel to the shore. With the exception of the warship Bonetta, the rest of his ships were either sunk during the battle or scuttled
by Cornwallis prior to his capitulation (for a complete history of the naval aspects of the Battle of Yorktown, see Sands, 1983).

After the battle, the French were given title to all British ships in Yorktown. For the next year, the French labored at salvaging the vessels, recovering "a fairly large, if indeterminate, number of wrecks" (Sands 1983: 115). During the next two centuries, sporadic efforts at salvaging the sunken ships or their contents were undertaken by local residents, sport divers and, for the sesquicentennial celebration of the Battle of Yorktown, the Mariners' Museum and the National Park Service. Of the 50-60 ships under Cornwallis' command, twenty-six are unaccounted for in historic records and presumably remain on the bottom of the York River (Broadwater, et al 1985: 301).

Archaeological Research

Of the nine ships located by the Yorktown Shipwreck Archaeological Project, two lie on the Gloucester side of the river, the other seven are roughly parallel to the Yorktown beach (Figure 3, p. 17). Because of their positions relative to the beach and to each other, these seven are believed to be part of the defensive line scuttled by Cornwallis prior to the battle.

In 1980, one of the ships on the Gloucester side,
44GL136, was the subject of an excavation undertaken by the Institute of Nautical Archaeology (INA) and the Virginia Division of Historic Landmarks (DHL). Through artifactual evidence and the scant remains of the hull, GL136 was identified as HMS Charon, Cornwallis' largest warship (Steffy 1981: 140). Because this study is concerned with merchant ships, GL136 will not be discussed.

An earlier field school conducted by INA and the DHL test excavated 44Y012, known as the Cornwallis Cave wreck. As Y012 had been substantially looted by sport divers, excavation was undertaken to "... confirm the date of the ship and its nationality, to fix its overall external dimensions and general state of preservation..." and to determine the research potential of the site (Johnston, et al 1978: 209).

The dimensions of Y012 were determined to be 118 feet in length and 32 feet across the beam. According to J. Richard Steffy, "... the Cornwallis Cave wreck was a large British merchant vessel or transport of the type used in the 18th century" (Johnston, et al 1978: 220). Despite activity by sport divers, the hull remains of Y012 provide significant information on storage areas in the bow.

44Y085 is located near the York River channel in an area of intense shellfishing activity. Because of
potential danger of damage to the site from channel erosion and oyster dredging, Y085 was chosen for test excavation in 1979 (Hassard 1982: 39). The hull was roughly defined by probing, then five trenches were excavated to confirm the locations of the bow, stern and a mast step (Figure 4). Y085 is approximately 85 feet in length with a beam of 25-30 feet. Although Y085 was only test-excavated and a small number of artifacts recovered, several of the objects are indicative of the ship's interior features.

The YSAP is currently excavating 44Y088, the best preserved of the Yorktown wrecks. Funding and other support for the project are provided by the National Endowment for the Humanities, the Commonwealth of Virginia, the National Geographic Society, York County, Gloucester County, the Ship Committee, and numerous private corporations and individuals. Volunteers participate in all phases of the project including excavation and recording, conservation and on-site public interpretation.

Previous archaeological excavations in the York River were hampered by swift currents, stinging jellyfish and near-zero visibility. To alleviate these conditions, a steel enclosure or cofferdam was constructed around Y088 in 1982 (Figure 5). Although cofferdams had been used in previous projects, such as
the excavation of five Viking ships in Roskilde, Denmark (Marx 1975: 49), the YSAP is the first to leave the water in the cofferdam, conducting the excavation underwater.

The cofferdam is constructed of three-quarter inch corrugated steel panels which extend 80 feet into the river bottom. Ten commercial pool filters were donated by the Purex Corporation and actual monitoring of the filtration system is provided by Ecolochem, Inc. A liner donated by Phillips Fibers, Inc. was installed inside the cofferdam in 1986 to hamper the exchange of water between the river and the interior of the cofferdam. The combination of the liner, the filtration system and chemical treatments provided an average of 20-30 feet of visibility in 1986.

The excavation of Y088 has concentrated in the stern and the bow and is being conducted in a stair-step pattern to avoid the collapse of unexcavated areas. Archaeologists utilize surface-supplied air to allow greater freedom of movement underwater and longer dive times. Airlifts are the primary excavation tools, but in areas of compact grey clay, the use of trowels is necessary.

Vertical control is achieved by a combination of zones and levels. Zones are defined by the natural stratigraphy of the site. The upper, disturbed layer of
unconsolidated silt mixed with oyster shells is
designated Zone A; other zones are defined by soil type
and location within the ship (Figure 6). Most of the
site is characterized by gray clay which is virtually
free of oyster shell (zones B, C, J and K). Excavation
in four-inch levels within each zone allows for even
stricter vertical control.

For horizontal proveniencing, the site has been
divided into five-foot squares. Each square has been
given a three digit designation beginning with 001 in
the southwest corner of the cofferdam (Figure 7). A
10 x 30 foot PVC grid is suspended over the site and
serves as a horizontal reference as well as scaffolding
to support divers at work. Locations of timbers and
other artifacts are triangulated from three fixed points
on the cofferdam wall and converted to X, Y, Z
coordinates by micro-computer.

Artifacts are given an excavation record number
which consists of site, square, zone, level and
catalogue number. The latter is a sequential number
beginning with "1" for each level. As an example, a
piece of crown molding from the stern of the ship is
designated Y088/404J6-4. Thus this object was recovered
from the sixth level (24-28 inches) of the grey clay
zone, J, in square 404. The molding is the fourth
artifact listed in the catalogue for that level.
FIGURE 6. YO88: Zone designations.
A scarcity of rigging items and other articles from the excavation which can be identified as ship's stores reinforces the supposition that Y088 is one of the ships scuttled by Cornwallis. Despite the scuttling, however, numerous artifacts recovered from the site reflect the furnishings and fittings of the vessel.

Because of the fullness of its body and the bluffness of both bow and stern, Y088 is believed to have been built for the coal trade, probably on the East Coast of England (David Lyon, formerly Keeper of Plans for the National Maritime Museum, Greenwich and David Syrett, Professor of History, City University of New York, personal communications 1986-7). The construction of the bow of Y088 conforms to a description of colliers by noted maritime historian Basil Lubbock, "... their bows were as round as an apple and stem piece often a square baulk of timber" (1922: 58).

As shown in the overall site plan (Figure 8), Y088 is a small merchant vessel, measuring 75 x 23 feet and 170 tons (Broadwater, et al 1985: 308). Although eighteenth-century merchant ships varied extensively in size, the locations of common compartments are relatively uniform. In speaking of merchant ship construction in the fourth quarter of the eighteenth century, MacGregor (1980: 5) speaks of "a general sameness in merchant ship design" which allows general
comparisons of interior features. The following discussion of interior arrangement and decoration is organized by compartment function, beginning with living quarters.
Captain’s Quarters

In the eighteenth century, serving as the captain of a merchant vessel was considered an honor. In the case of the East India Company, this privilege was not granted to just anyone, a man needed an influential friend or relative to be given command of a vessel (Jackson 1938: 14). For private ventures, however, the captain and other officers commonly worked their way up from seaman (Parkinson 1948: 103). Because a captain was allowed a portion of the cargo for his personal gain, he usually retired quite wealthy after only a few journeys.

The quarters of the commander of the vessel were always in the stern, generally on the upper deck. A description of the American-built sloop Ferrett (1711) provides an excellent picture of the vessel’s stern:

In the stern there was a short raised quarterdeck, formed by the roof of the “great cabbin.” The entrance to the cabin was through a doorway in the bulkhead at the fore end of the quarterdeck, opening on the main deck, and covered by a domed hatch. The floor of the “great cabbin” was sunk below the level of the main deck so that the quarterdeck would not be excessively high (Chapelle 1935: 26).

Placing the captain’s cabin in this location allowed the stern windows of the ship to be included in this
compartment. Furthermore, skylights were often placed in the roof of the cabin. Thus the captain's cabin would have been light and airy.

The captain of a vessel spent the majority of his time in his quarters (Knyveton 1751-2: 159). All business was conducted in his cabin, other officers were summoned for consultations and instructions. Additionally, the captain either ate in his cabin or had a separate compartment for his dining.

A separate sleeping chamber for the commander of the vessel was also not uncommon. Of the ships for which plans were studied (Table 1, pp. 13-14), only the Dispatch shows one compartment for the captain. Three of the vessels had three rooms for the commander and five show two areas.

The plans also graphically show the amount of space allocated for the comfort of the commander. Square footage ranges from 87.5 (Bounty) to 365 (Adventure) and averages 202. Of the different compartment types, the bed chamber is the smallest. On the available plans, bed chambers are, at most, half the square footage of the cabins.

Of the compartments of a ship, the captain's quarters are the most described in diaries and journals. Descriptions are rarely provided by the captain himself but more often by passengers and lesser officers.
William Hickey, an attorney who made numerous voyages, describes the ship **Plassey** which he visited in 1768:

The ship certainly was in a sad plight, but Mr. Douglas’s cabin was an exception to the general filth, being neatness itself, and most elegantly fitted up. It was painted of a light pea green, with gold beading; the bed and curtains of the richest Madras chintz, one of the most complete dressing-tables I ever saw, having every useful article in it; a beautiful bureau and book-case stored with the best books and three neat mahogany chairs, formed the furniture (I: 121).

In 1722, a well-known house carpenter, John Drew, was requested by a Captain Warren to finish the interior of the cabin of a new ship. As described by Millar (1978: 13, from the New Hampshire Historical Society), Warren asked for:

... "Sashes and Lockers," "a hansom beaufait"... "& raised Arched pannels" similar to those [Drew] has recently installed in the east parlor of the MacPhaedris House. The cabin was also to have "Mouldings" and "Collums"... a canopied bed, a table, and a chest. Captain Warren’s cabin was painted in contrasting colors: "the Mouldings done with vermillion the sides or mergents with green & the Collums with blew."

This is a rare reference to the actual finishing of a vessel’s interior.
Lesser Officers' Cabins

The officers of a merchant vessel who were generally allotted individual cabins included masters, lieutenants, surgeons, carpenters and boatswains. The quarters of the lesser officers were generally on a lower deck, along the sides of the ship. The compartments of the boatswain and the carpenter were located in the bow, the rest astern and amidship.

The size of the cabin depended somewhat on the rank which the officer held. Hickey (I: 146-7) relates an instance where the company demoted the second officer in favor of a man who had never sailed on the vessel. The captain of the vessel was incensed, so he assigned the officer a "... much larger space than he was entitled to for his cabin."

Officers' cabins on the ships' plans (Table 1, pp. 13-14) range from 56 square feet for the master of the Endeavor to 18.75 square feet for the steward of the Dispatch. The range of averages is less extreme, from 25 square feet for stewards' cabins to 38 square feet for boatswains' quarters. Most of the cabins measure six feet out from the side of the ship but vary in length.

A valuable source of information on officers' quarters is a journal kept by John Knyveton, a doctor who was appointed a ship's surgeon's assistant.
Knyveton (1751-52: 161) reports that the surgeon "... has a fine Cabbinn towards the after end of the ship, near the Officer’s Quarters ...". He describes his own cabin in detail:

... the Mast driving down to the bowels of the ship right through my cabin [sic], its bulk forming as support for the door and a shelf on which was placed, inside a wooden rack, a large wood chest. There was a bunk inside it, and a swivel chair, and that was all the furnishing, the room being small so that I could scarce stand up in it (1751-52: 149).

Clearly the emphasis in the surgeon’s assistant’s quarters was on function, not decoration.

The detailed descriptions found in journals show that the commander and perhaps some lesser officers of a vessel appointed their cabins luxuriously as well as functionally. The excavation of 44YO88 confirms these descriptions.

**Archaeological Evidence**

Although the upper and lower decks of the YO88 are not preserved, portions of the upper structures collapsed into the lower hull. Thus examples of furnishings and interior finishings believed to be associated with the captain’s cabin have been found in the stern of the vessel.

For discussion, artifacts have been classified
into four functional categories: hardware, furniture, decorative finishes and interior components. Locations of artifacts described in this section are shown in Figures 9 and 10.

Hardware

Four brass keyhole escutcheons (Figure 11) were found aft of the aft bulkhead, one with wood still attached. Three of the escutcheons are of a plain oval style which became popular in the 1760's (Noël Hume 1976: 231). These three may have come from doors or furniture pieces. Because the grain of the wood runs horizontally rather than vertically, the latter possibility is more likely.

The fourth escutcheon (Figure 11b, p. 40), which has a smaller keyhole than the others, is of the rococo style. This style, characterized by ornate floral and faunal forms, originated in France in the early eighteenth century, then spread to the rest of Europe (Aronson 1938: 159). This escutcheon most likely decorated a chest or drawer.

A small brass object (Figure 12c) also found in the stern may be a drawer pull. However, most drawer pulls have a round shaft for attachment to the wood, whereas the shaft of the object from Y086 is square. For this reason, Ivor Noël Hume, Resident Archaeologist for the Colonial Williamsburg Foundation, alternatively suggests
FIGURE 9. YO88: Stern artifact locations, hardware and furniture.
FIGURE 10. Y088: Stern artifact locations, interior components and decoration
FIGURE 11. Y088: Keyhole escutcheons.
FIGURE 12. YO88: Brass hardware.
that the artifact may be the decorative top to a
decanter cork (personal communication 1985).

Two other brass objects also show the richness of
the captain's cabin. They are small hooks with holes in
the flat end for attachment to a bulkhead (Figure 13a,
b). These may have been cloak or, more likely because
of their small size, drapery hooks. Noël Hume (1976:
228) dates this style of hook to between 1745 and 1775.
Based on its size, a larger rococo hook found on Y085
(Figure 13c, p. 43) is thought to be a cloak hook.

One complete brass hinge and half of another, both
located fore of the rear bulkhead, are too small and
lightweight to have supported large doors (Figure 12
a,b, p. 41). They were, more likely, furniture
hardware, either for cabinet doors, a trunk or a crate.

Furniture

Eight fragments of one-half inch pine planking were
found as much as fifteen feet apart in the stern.
Based primarily on the distinctive saucer shape of two
cut-outs on one of the largest planks (Figure 14a),
these pieces were identified by David Salisbury,
Supervisor of Cabinetmaking for the Colonial
Williamsburg Foundation, as shelves to a china cupboard
(personal communication 1983). The cut-outs would have
prevented the dishes from falling off the shelves in
rough seas while allowing them to be displayed.
FIGURE 14. YO88: China cupboard shelves.
Further examination of the shelves revealed small holes with iron corrosion products spaced evenly along the curved edges of the planks. These holes were determined to be results of small tacks which would have held the shelves into the cabinet. The front edges of the shelves are cut into an ornate scalloped pattern; thus the shelves were not only functional but also decorative.

One complete plank has no cut-outs or decorative edge, so is believed to have been the lowest shelf. If the cupboard had an enclosed cabinet on the bottom, this shelf would also have served as the top of the console.

Although no examples of such a cupboard have been located, a sketch made in 1786 (Latrobe 1785-87: Plate 7) shows a captain’s breakfast table with cross bars and cut-outs, one of which holds a pepper box (Figure 15). The idea of setting objects into supporting cavities would certainly have been common, for no ship could avoid the sea’s motion.

A complete chair arm was recovered from the stern of Y088. Made of beech or possibly oak (Salisbury, personal communication 1987), the arm is slightly "S"-shaped then curves downward at the end (Figure 16). This style was extremely popular in the second half of the eighteenth century (Nutting 1954). Because of the shape of the arm and the lapped end, Salisbury believes
the arm belonged to a corner chair (personal communication 1987). Lack of tack holes indicates that the chair was not upholstered.

Three rungs which appear to be too short for chair backs were excavated from Y088. Two of the rungs are circular in cross section, the third is square. Perhaps these rungs served the arms of chairs or stools' legs, unfortunately, none of the rungs fits the "S"-shaped chair arm.

A thin, clear glass base section, rim piece and several body sherds excavated from the stern were identified by Noël Hume as fragments of an hour glass (personal communication 1987). One of the rungs discussed above may represent the support for this delicate instrument.

Twenty-one pieces of one-quarter inch pine fragments, some of which are quite small, show evidence of strap marks. Unfortunately, no remnants of the straps have been located, so it is not known of what material they were made. Presumably, leather or brass straps would have survived to some degree. The straps may have been iron, but no iron stains, other than those from the tacks which held the straps, are evident. These pieces were probably part of a small trunk or box.
Decorative Features

In addition to furniture pieces, Y088 has provided details of the decorative finishes afforded the officers’ cabins. A typology of molding from the ship is being developed as excavation continues. The typology as of the beginning of the 1987 season is given in Appendix A.

Examples of various shapes of molding found in the stern are shown in Figures 17 and 18. One of the most interesting of these is the curved piece in Figure 17a (p. 50). The curved side was apparently designed to fit against the ship’s interior or ceiling planking, the flat side against a bulkhead.

Three small triangular molding pieces (Figure 18, p. 51) would have formed corners of either furniture pieces or architectural features. Numerous strips of molding of the type shown in Figure 17b (p. 50) were certainly architectural.

Six tapered and curved wooden objects (Figure 19) have been excavated from the stern of Y088. Two of these pieces were found connected by thin veneer. Assumed to be furniture- or decoration-related, their function has yet to be definitively determined.

A domed skylight taken from a modern pleasure ship on display in the research library of the Mariners’ Museum has wooden ribs shaped very much like the curved
FIGURE 17. Y088: Molding.
FIGURE 13. YO88: Triangular molding.
FIGURE 19. Y088: Curved wooden piece.
objects from Y088. Perhaps these artifacts formed a small decorative dome. More likely, the pieces are a half dome which would have formed the top of the aforementioned china cupboard. Cupboards with such a dome were quite common in the latter half of the eighteenth century (cf Nutting 1954: illustrations 534 and 542).

Two additional examples of decoration or furnishings for which definite functions have yet to be determined are depicted in Figures 20 and 21. One piece (Figure 20, p. 54) is extremely well made with scalloped molding up the side and intricate molding across the top. Although incomplete, this piece appears to have formed a frame, perhaps for a doorway or the china cupboard. Nutting (1954) shows numerous example of such framing on eighteenth-century cupboards.

The wooden piece in Figure 21 (p. 55) consists of two parts: a sloped base with crown molding attached. Because of the crown molding, this artifact is believed to have been decorative.

The most significant evidence of the finery with which the commander of Y088 appointed his cabin is several pieces of tongue-and-groove paneling (Figure 22) with decorative molding attached (Figure 17c, p. 50). The quality workmanship of the paneling and the possible frame discussed above suggests that much time and effort
FIGURE 20. YO88: Possible frame for china cupboard.
FIGURE 21. YO88: Unidentified decorative or furnishing piece.
FIGURE 22. Y088: Paneling
were expended in the fabrication of decorative pieces.

As previously mentioned, excavation of the Ronson ship also yielded tongue-and-groove paneling. Unlike that from Y088, the paneling from the Ronson ship did not sport decorative molding (Riess, personal communication 1987).

A ceramic monkey, believed to have enhanced an officer's cabin, was located fore of the aft bulkhead. The monkey is of Whieldon ware, an earthenware dating to 1750-75 (Noël Hume 1976: 124), the glaze of which is mottled brown and green. A spur on the side of the piece indicates that the figurine is incomplete, but the monkey is thought to have been attached to an organ grinder.

Interior Components

A plank with two bevelled edges and nail holes across the back and a semi-circular bevelled shape in the center (Figure 23) found in the stern of Y088 may be part of a privy seat. Boudriot (1977 (3): 149) depicts the commander of an eighteenth-century naval vessel seated on a locker containing a "vase de nuit" or chamber pot. While the captain generally had private facilities, the crew members made use of an open area in the bow of the ship, from which the term "head" originated.

In addition to the possible privy seat, five
fragments of a chamber pot were excavated from the grey clay outside the hull of Y088 and may represent sanitary facilities on board the ship. These sherds are of red-bodied earthenware with both interior and exterior dark-brown glazing. The exterior glaze was allowed to drip near the base of the vessel to provide a decorative touch. Although the handle is missing, the dimensions and glazing technique are identical to a complete chamber pot excavated from the Drummond site near Jamestown, Virginia (Merry Outlaw, personal communication 1982), which made identification possible.

Three sherds, also of red-bodied earthenware with a dark brown glaze but thinner than the above vessel, were recovered from the interior of the ship’s stern. One large shard includes a complete handle, so this vessel is also believed to be a chamber pot.

Spacing between decks in the stern was determined from a ladder found just aft of the aft bulkhead. By measuring the vertical height of the ladder with the treads placed horizontally, a maximum distance of 5' 6" was determined. Because the height revealed by the Y088 ladder is generous and the edges of the treads are quite ornate, the ladder is believed to have been located between the upper and lower decks, or from upper to quarterdeck if the lower deck was not continuous. This ladder may have been used exclusively by the captain and
perhaps a few other select officers.

Just beneath the ladder was a window with a brass latch and two intact panes. The panes were held in place by a lead-based caulking and brass glazier's points. An unusual construction detail is that of the mullions, the short one is made of a continuous piece of wood while the long is of two (Figure 24). In house construction, the opposite is true; perhaps this feature gave the window added strength to endure the side-to-side rocking of the ship. Alternatively, the window may have been set with the short side as the vertical.

Because the window was found closely associated with other interior features fairly deep in the hull, it is believed to have been an interior component of the vessel. Wear marks indicate that the window was opened and closed.

Near the end of the 1986 dive season, a wooden door was partially uncovered in the stern. Time did not permit excavation of surrounding squares down to the level of the door, so it was covered and left for the beginning of the 1987 season. Underwater examination of the exposed portions of the door revealed that it is approximately 2.5 feet wide and two inches thick. The door appears to be paneled rather than flat and no hardware is yet visible. The narrow width of the door suggests that it is an interior component of the vessel,
FIGURE 24. Y088: Window
but length will be a better indicator of this.

Excavation is providing exciting and important information on the officers' quarters of Y088. The 1987 season will complete the interior excavation of the stern and the starboard midships of the vessel. Artifacts such as a large rectangular table top, a second door and additional hardware have already been recovered for study. Thus this work will reveal additional and clarifying information on the captain's quarters and hopefully on the lesser officers' cabins which may have been more amidships.
CREW ACCOMODATIONS

The crew of a merchant vessel slept virtually anywhere in the bow that space could be found. A crew member was not given an individual compartment, but was assigned specific space in which he not only slept, but also stowed his gear and, on some trading vessels, the portion of the cargo to which he was entitled (Davis 1962: 147).

A report given to the Royal Commission in 1853 is said by historian Basil Lubbock to have been equally true of the previous century:

In British ships the men are not treated as they ought to be. I have taken particular notice of their place of abode, which is in almost every ship of small size a small dark cave, without light or warmth, and not such a kind of place within which they may rest and repose themselves; and in point of size it is sometimes six or seven feet square, for six or seven men, stowed half full of rope and sails, damp and wet (Lubbock 1940: 119).

Bedding consisted of either bunks covered with a straw mattress and blankets or hammocks slung in nooks and crannies. One armed merchantman described by Syrett (1970: 185) had wooden tiers on which six men slept and which tended to collapse when the ship rolled. John Shipp recalls that "men literally slept upon one another and on the orlop deck the standing beds were three tiers high, besides those slinging" (Cotton 1949: 59).
Written records attest to the deplorable conditions which arose from this arrangement. When speaking of sailors, Samuel Johnson noted that "... when you look down from the quarter-deck to the space below, you see the utmost extremity of human misery: such crouding [sic], such filth, such stench!" (Hill 1934: 286).

The excavation of Y088 has revealed no evidence of the crew's living accommodations. The bow of the vessel, which was completely excavated in 1985 and 1986, contained cordage, casks and items associated with the bosun's activities. Locations of artifacts from the bow which are discussed in this and the following sections are shown in Figure 25.

Buttons and work shoes attest to the presence of crew members, but no items such as hammocks, hooks for hammocks or bunk remains which could reveal specific crew conditions on Y088 have been identified. Bits of straw were dispersed throughout the bow. Although these may be remnants of a seaman's bed, they could also have served numerous other functions such as packing or even food for livestock.

The brass piece in Figure 12d (p. 41) was originally thought to be a hinge plate. However, no example of a hinge plate with so many holes has been located. Other possibilities are being explored for the function of the artifact, including gun hardware. Noël
Hume (personal communication 1987) has suggested the plate may have held the handle for something heavy, such as an iron pot, which would account for the large number of holes.

A long slender timber (Figure 26) found in the bow is believed to be a decorative rail. The back and bottom were left plain while the top and front were nicely molded. Because of the fine finishing, the object is thought to have been a feature of the upper deck rather than below decks. The narrow size suggests that this object was a hand rail rather than a cap rail which would have been much wider.
Although more prevalent in the nineteenth century, passengers were not unknown on merchant vessels in earlier centuries. William Hickey's *Memoirs* contain numerous references to his and his wife's shipboard accommodations. Hickey was often given his choice of cabins in the stern and on one voyage was fortunately housed in the stateroom:

By two in the afternoon every bulkhead between decks, except that of my cabin, had fallen from the violent labouring of the ship. . . . The reason of my cabin standing when every other yielded was that being the state room it partook of the general strength of the vessel, being erected at the time of her building and as firmly fixed as her decks, but the folding door that opened into the great cabin was soon torn off its hinges . . . (3: 21-22).

This description contains a valuable reference to the construction of interior features or living areas of a ship. Of the numerous manuals of ship construction consulted, none contains any instructions on installation of interior components. However, this and other statements by Hickey reveal that major interior components were included at the time of the vessel's construction while temporary bulkheads and curtains were used when necessary to sub-divide permanent compartments.

Hickey also speaks of arranging for furniture for
his cabin on board the Castle Eden:

Having had made four large and strong teak-wood chests, a bureau with writing desk and apparatus attached to it, a capital cot for sleeping on, a table, and a few other articles of furniture for my cabin, by a European carpenter, . . . I determined to take a trip down to the ship with my baggage and arrange the same in proper order in my cabin so as to make it quite ready for my sleeping in it (4: 370).

Other passengers were not content with such accommodations. Sir Evan Cotton (1949: 72) provides a detailed description of what one of his ancestors considered necessary for his children’s comfort:

I will suppose, my dear children, that you are properly supplied with every necessary for the voyage and provided with a comfortable cabin: half the roundhouse of a regular Indiamen of not less than 800 tons, wherein will be abundance of room for your piano, harp, etc., hanging lamp and candles, 2 or 3 small bureaus with bookshelves on them, 2 or 3 sea couches with drawers to convert into sofas in the daytime, a wash-hand stand with two pewter goglets and two pewter basons, foot tub and three chairs, all well cleated and secured before you proceed on board . . . .

Perhaps the children described above took their shipboard belongings with them when they reached their destination, a not uncommon practice of passengers.

As the Yorktown shipwrecks were involved in a naval function, non-military passengers were unlikely to have been aboard.
NON-LIVING COMPARTMENTS

Discussion of the non-living compartments of a sailing merchant vessel is complicated by the fact that every inch of available space would have been utilized for some purpose. However, areas were delineated for certain functions such as cooking and storage of specific commodities.

The Yorktown shipwrecks provide quite a bit of information on non-living compartments, especially storage areas. The discussion of these compartments is divided into three sections by location within a vessel: bow, midships and stern.

Bow

A ship’s galley would most likely have been located on a lower deck, in or near the bow. In the aforementioned Ferrett (1711), a short deck or “platform” was constructed specifically to accommodate the galley stove (Chapelle 1935: 25). Placing the galley in the bow assures that the officers will not be disturbed by smoke and activity.

Only one object, a pewter spoon, associated with galley activities has been recovered from Y088. Cooking implements or the stove itself have not been located. Two loose bricks, each with one glazed face, may have formed part of the stove. Although the galley may have
been located more amidships on Y088 and will thus be
encountered in the 1987 season, the stove and the
implements were probably removed from the vessel.

The boatswain’s and the carpenter’s storerooms were
to be found in the very bow of the vessel, on a lower
deck or in the hold. As previously discussed, the
cabins of the boatswain and the carpenter would also
have been located here. Thus the quarters of these two
very active functions were placed away from the higher
officers, the dry storage rooms and in a location easily
accessible and convenient to the crew. The ship’s plans
(Table 1, pp. 13-14) reveal that these compartments were
usually quite large, averaging 63 square feet for
boatswain’s stowage and 58 square for the carpenter’s
storeroom.

Both Y012 and Y088 have bulkhead remains which
delineate lower compartments. In the bow of Y012
(Figure 27), bulkheads "... defined the limits of two
compartment and suggested the existence of others"
(Johnston, et al 1978: 218). From the remaining planks,
dimensions of the compartments were determined:

... we could define the starboard
compartment as being 7 ft 9 in wide along its
after end and 7 ft along its forward side. Its
length was 6 ft 6 in. The middle compartment
was at least 6 ft wide and probably originally
7 ft wide. Although its length cannot
FIGURE 27. Y012: Bow plan.
presently be determined, we know it exceeded 6 ft 6 in. No openings for access were evident; entrance may have been gained through hatches above (Johnston, et al 1978: 218).

These dimensions reveal compartments only slightly smaller than the average given above for boatswains' and carpenters' storerooms.

Because most of the artifacts recovered in the bow of YO12 are associated with rigging, the middle compartments and perhaps the starboard as well are considered boatswain's stores.

A bulkhead just aft of the foremost on YO88 runs from the starboard side to five feet from the port ceiling as measured at the level of the top of the keel (Figure 8, p. 30). Although the port planks are displaced, a stanchion is still in place, indicating that the bulkhead would originally have spanned the ship. An opening just to port of the mast may have provided access to this forward compartment. Loose planks in the bow may have formed additional bulkheads, but no solid evidence of fore-and-aft dividers is present.

No evidence of a lower deck is present fore of this bulkhead on YO88. From the extensive cordage remains in this area, current interpretation favors this area as an open rope locker. Numerous barrel staves were also found in this area, but are believed to have fallen
forward and downward from the lower deck (Figure 28).

As with Y012, many artifacts found in the forward section of Y088 are related to boatswain's stores. However, the few rigging items present in the bow of Y088 are damaged. Presumably, the usable supplies which the boatswain would have kept in the forward area were removed prior to scuttling the vessel (Broadwater and Renner 1986: 12).

A slightly beveled semi-circular plank with a tongue on the straight edge found aft of the fore bulkhead on Y088 is part of a tabletop. Because no evidence of leg attachments is present, the table was probably oval rather than round with this piece being one of the drop leaves.

A second, more finely made table piece with a rule joint was found below the other. This piece has screw holes and hinge mortises, so was certainly a drop leaf. Compass marks for forming the oval of the piece are still evident. Both tabletops appear to be walnut but may also be mahogany (Salisbury, personal communication 1987).

The first table piece may have belonged to the bosun or the carpenter or may have been a feature of the galley. Below-deck storage is also a possibility. The second is so finely made that the latter conclusion is most certainly true.
A bevel, a tool handle and an adze found in the bow of Y088 may represent the carpenter’s supplies. However, no specific compartment for carpenter’s stores has been identified.

Midships

The hold of a vessel is defined as “the whole interior cavity or belly of a ship, or all that part of her inside, which is comprehended between the floor and the lower deck, throughout her whole length” (Falconer 1780: 155). As seen by the cutaway model of the horse transport in Yorktown’s Captive Fleet (Sands 1983:48) and the drawing of the ship’s cross section in Figure 1 (p. 10), stacks of barrels occupied much of the hold. Casks, especially those which constituted the ship’s stores rather than cargo, would also have been kept on the lower deck.

Excavation of Y088 has produced 30 complete casks, two wooden buckets, several hundred additional staves and head pieces, and 22 barrel chocks. The latter are wedge-shaped chunks of wood used to prevent casks from rolling when placed on their sides.

Two large casks were encountered five feet aft of the fore bulkhead. These containers, the only two believed to be in their original positions, were set on-end in the sand ballast. The reason for this
seemingly unusual placement has yet to be determined. Five other complete barrels were encountered in close proximity to the two on-end casks and are also believed to have been stored in the hold.

Loose staves and head pieces in the bow and midship areas are thought to represent ship's stores from the lower deck. As the pine deck collapsed, the casks were broken and their component pieces scattered.

Although the casks from Y088 are providing a plethora of information on eighteenth-century cooperage and the crew's shipboard diet (cf. Shackelford, Smith and Brown 1986), determination of any stacking pattern is unlikely. Few of the casks had both heads in place, so most were probably in use or already empty at the time of the sinking. Because food is a precious commodity in wartime, any full casks would presumably have been removed before the ship was scuttled.

Several of the ship's plans show a separate compartment for the sail room, either in the bow or midships. Although numerous fragments of canvas, including two large folded pieces which are currently undergoing conservation, have been recovered from Y088, no specific compartment for sail storage has been delineated.

A sailing vessel required an astronomical amount of cordage. Besides spare line for standing and running
rigging, several anchor cables were necessary. Much of this line was stowed in the midship hold of the vessel (see Figure 1, p. 10). As previously discussed, a rope locker is thought to have occupied the bow of Y088. Additional rope remains, including a coil of approximately 150 feet, indicate that line was also stored amidships.

Stern

Ship's plans reveal that the bread room, the magazine (on armed ships) and the map room were generally found in the stern of the vessel, either on the same deck as the lesser officers' quarters or on a deck or partial deck below the cabins. This placement kept these commodities in a relatively dry location and away from active areas such as the boatswain's storeroom.

Although most of the lower portions of the stern of Y088 remains to be excavated, some information on storage in the stern is emerging. As in the bow, an athwartships bulkhead is located in the stern of Y088. Although the planks on the port side were disheveled, the bulkhead spanned the width of the ship. A gap roughly to port of center of the bulkhead may have provided access to the compartment(s).

Unlike the forward bulkhead which was formed of
horizontal planking, the aft bulkhead consisted of vertical planks. Wood identification of the aft bulkhead (Marshall S. White, Virginia Polytechnic and State University, personal communication 1984) revealed that it was made of southern pine. Because this species is not found in England, the bulkhead is believed to have been added when the vessel reached North America.

The area aft of this bulkhead has been completely excavated. Several artifacts which may be part of the captain’s private stowage were recovered. These included six bottles, the contents of which are being analyzed. A sample from one bottle revealed grape pollen, indicating that wine was stored in that bottle (Eri Weinstein, Texas A&M University, personal communication 1987). Also, two small casks were encountered in the stern. The first is complete and bears the letters "EA" on two of the staves. The smaller cask is represented by only a single stave.

Completion of the interior excavation of the stern and midships of Y088 will provide additional information on the non-living areas of the vessel. Hopefully the unexcavated portions of the hold will reveal more about the cargo of the vessel and thus her role as a supply vessel for the British fleet.
CONCLUSION

Despite the importance of merchant shipping to eighteenth-century society, construction of the vessels, especially their interiors, is scantily documented. It is, ironically, the very commonness of the vessels which accounts for this lack of information: why document an everyday commodity with which all are familiar? However, from what information is available from contemporary sources, combined with archaeological evidence, details of construction and embellishment of vessel interiors are emerging.

Throughout the heyday of the sailing vessel, the eighteenth and early-nineteenth centuries, the basic designs of merchant ships changed very little. However, in one aspect, size, quite a bit of change occurred. The trend was for larger ships with better sailing ability. Thus more cargo could be carried without a substantial increase in the number of crewmen required to operate the vessel.

Although cabin dimensions vary somewhat in proportion to vessel size, the basic layout of compartments is fairly uniform. The forward part of the vessel, which would have experienced the most turbulence and taken on the most water, contained active areas such as the galley and the boatswain’s and carpenter’s cabins and storerooms. The breadroom, magazine and maproom
were located in the stern where they would have remained relatively dry.

Also located in the sanctity of the stern were the captain’s quarters. These compartments, consisting of a cabin, a bed chamber and/or a dining room, occupied the lightest and airiest area of the ship, that which included the stern windows and access to fresh air via skylights.

That sea captains enjoyed plush surroundings is revealed in surviving descriptions and is being substantiated by the excavation of Y088. The detailed moldings and stylish furnishings recovered to date were made of high quality materials by expert craftsmen.

Many of the furnishings and decorations from Y088 are similar to those found on land. Several objects, such as the china cupboard shelves and perhaps the window have been adapted for shipboard use. For instance, although corner cupboards were common in the eighteenth century, one in which the shelves have dish-shaped cut-outs appears to be unique. Numerous artifacts from Y088 have yet to be identified, presumably because they were made for or adapted to a shipboard function and thus are not readily recognizable.

Several diaries make mention of shipboard furnishings being fastened to the decks. Although no
archaeological evidence of this has yet been found, the practice was most certainly a common one.

That the captain conducted all business as well as entertainment in his quarters accounts for the large amount of space allocated for his use. This isolation from the crew and the everyday activities of sailing the vessel led John Knyveton, a surgeon’s assistant, to comment of the commander “... for as the Jove of this Aquatic Olympus he lives the most of his sea life in his Great Cabbinn in the stern” (1751-2: 159).

The extravagance of the captain’s quarters were befitting a man of his social standing. His office was held in high esteem in the eighteenth century, in direct contrast to the status of the common seaman. Although the social standings of officers and crewmen were disparate, seaman could improve their lot by hard work:

Nevertheless, the captains and officers of all merchant ships (except those in the employ of the Honourable East India Company) had risen from the fo’c’sle; the common expression for the successful seaman’s life being: “in at the hawse hole and out of the cabin window” (Lubbock 1948: 103).

Those who began as crewman were, quite frequently, men or boys who went to sea to escape poverty, punishment or both on land. Davis (1962: 151) believes that this escape to the sea provided a man chances for promotion and to make extra money. These opportunities
were not present on land, so he was better off at sea. Samuel Johnson, however, gave an entirely different opinion in 1759:

No man will be a sailor who has contrivance enough to get himself into a jail; for being in a ship is being in jail with the chance of being drowned . . . . A man in jail has more room, better food, and commonly better company (Hill 1934 (1): 348).

The lack of accommodations for seamen reveals the lowness of their shipboard status. They were not given individual cabins, and their living areas were located in the most unpleasant part of the ship: below decks in the bow. Being located in the bow, the crew's area experienced the most turbulence and took on the most water. These conditions were aggravated during stormy seasons, "... the mountainous seas of the north Atlantic in winter frequently kept the crew wet and their bedding damp for much of the voyage. It was impossible to cook hot meals" (Crowhurst 1977: 126).

Lack of ventilation below decks offered no reprieve from the damp and prevented fresh air from entering. Parkinson (1948: 119) notes that "the need for light and pure air was not recognised aboard ship until the nineteenth century was drawing to its close, and the atmosphere was often so foul below decks that a purser's dip would not keep alight." That the seamen had no specific cabins and furnishings may explain the
lack of archaeological evidence concerning crew accomodations on Y088.

Officers other than the captain, the boatswain and the carpenter occupied private cabins along the sides of the vessel in the stern and midships area. These compartments varied somewhat in size according to the rank of the occupants. Even between vessels, the sizes of the officers' cabins did not vary extensively. Because of the importance of their positions and the space needed for their activities, the boatswain and carpenter had relatively large cabins, albeit in the bow.

The lesser officers' cabins on Y088 have yet to be identified. These compartments were probably located on the lower deck in the area slated for excavation during the 1987 season. Because of scattering as the ship collapsed, it may prove impossible to distinguish between the captain's goods and those of the lesser officers.

The excavation of Y088 will be completed by the end of the 1987 season. Unfortunately too late to be included in this study, the results from this final season will augment and hopefully clarify the data from the previous years. Completion of the excavation will allow a reconstruction of the decking of Y088 to be developed. This reconstruction, along with recovered
artifacts will reveal a very vivid picture of the interior of YO88. These results will not only aid in the interpretation of YO88, but will also form a substantial comparative data base for future archaeological investigations.
REFERENCES

Albright, A. B. and J. R. Steffy

Aronson

Boudriot, Jean
1977 *Le Vaisseau de 74 Canons.* 4 vols. Published by Boudriot for the Collection Archéologie Navale, Paris

Broadwater, J.D.

Broadwater, J.D., R.M. Adams and M. Renner

Broadwater, J.D. and M. Renner
1986 Evidence of Ship's Stores and Rigging from Shipwreck 44Y088. Submitted for publication to the *Proceedings of the 17th Annual Conference on Underwater Archaeology*.

Chapelle, Howard I.


Costin, June M.
Cotton, Sir Evan

Cowan, R., Z. Cowan, P. Marsden

Cowan, R., S. B. Engelsman and W. F. J. Mörzer-Bruyns

Crowhurst, Patrick

Davis, Ralph

Falconer, William

Hazzard, D. K.

Hickey, William

Hill, G. B. (ed)

Jackson, G. G.

Johnston, P. F., J. O. Sands and J. R. Steffy
Knyveton, John
1751- The Diary of a Surgeon in the Year

Latrobe, Benjamin H.
1795- The Virginia Journals of Benjamin Henry
Carter,II, ed. Yale University Press,
New Haven.

Levy, Leonard (ed)
1972 Memoirs of Rear-Admiral Paul Jones. Da Capo
Press, N.Y.

Lightly, R. A.
1976 An Eighteenth Century Dutch East Indiaman
found at Cape Town, 1971. International
Journal of Nautical Archaeology and
Underwater Exploration 5.4: 305-316.

Lubbock, Basil
1922 The Blackwall Frigates. James Brown & Sons
Ltd., Glasgow.

1948 Seamen. The Trade Winds. C. Northgate
Parkinson, ed. George Allen and Unwin Ltd.,
London.

MacGregor, David R.
1980 Merchant Sailing Ships 1775-1815: Their
Design and Construction. Naval Institute,
Annapolis.

Marsden, Peter
1972 The Wreck of the Dutch East Indiaman
Amsterdam near Hastings 1749. International
Journal of Nautical Archaeology and
Underwater Exploration 1: 73-96.

1976 The Merestein, Wrecked in 1702, near Cape
Town South Africa. International Journal of
Nautical Archaeology and Underwater
Exploration 5.3 201-219.

Marx, Robert F.
1975 The Underwater Dig. Henry Z. Walck,
New York.
Millar, John F.

Noël Hume, I.

Nutting, Wallace

Parkinson, C. N.

Recueil de Planches de l’encyclopédie.

Sands, J.O.
1983 *Yorktown’s Captive Fleet.* University Press of Virginia, Charlottesville.

Shackelford, K., S. Smith and L. Brown

Steffy, J.R.

Syrett, David
APPENDIX A
44Y088 MOLDING TYPOLOGY

Molding from Y088 has been divided into two categories: architectural (A) and furnishing/finishing (F). Any type for which a classification is not definite is considered architectural.

This appendix gives the molding typology as of the beginning of the 1987 excavation season. The typology includes a description of each type, its designation, a drawing of the molding (generally a cross-section), and a list of the excavation record numbers (ER #'s) of objects from Y088 which fall into that type. All drawings are full-scale unless otherwise noted.
FURNITURE MOLDING (F)

Type F1:

Used as decorative molding for tongue-and-groove paneling.

ER #'s: 304C8-1  404D6-1  403C3-7

Profile:

Type F2:

Small triangular corner pieces.

ER #'s: F2a: 504E5-1  F2b: 504D4-7 (2 pieces)

Drawings:

F2a

F2b
Type F3:

Large triangular molding, may have been a corner piece.

ER #: 504D4-6

Profile:

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Type F4:

Molded frame for china cupboard.

ER #: 403C7-2

Drawing:
ARCHITECTURAL MOLDING (A)

Type A1:

Floor molding, often in long strips.

ER #'s: 304C6-1  304E1-4  403C3-7

Profile:

Type A2:

Molding with curved side, probably to fit against the side of the ship.

ER #: 604A-8

Drawings:
**Type A3:**
Quarter-round molding.

ER #: 404A-7

Profile:

**Type A4:**
Molding with one beveled side, one decorative side.

Function unknown.

ER #: 504E1-1

Profile:

**Type A5:**
Curved molding with crown molding attached.

ER #: 404J6-4

Drawings:
VITA
Mary Anne Renner

Mailing Address:

127 Wichita Ln.
Williamsburg, Va. 23185

Educational Background:

B.A. 1980: The College of William and Mary,
Williamsburg, Va. Major fields:
Classical Studies and Anthropology

Professional Experience:

1982-Present: Assistant Director for Conservation
and Curation, Yorktown Shipwreck
Archaeological Project

Summer 1981: Laboratory Assistant, Black Mesa
Archaeological Project

Summer 1980: Laboratory Director, William and
Mary Field School