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The East Indiaman "Amsterdam"

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ARTIKELEN

THE EAST INDIAMAN "AMSTERDAM"*

by Peter Marsden

Historic shipwrecks always have a special significance to archaeologists because their contents usually represent past life-styles and economy more completely than any sites on land. Each ship contained a self-sufficient community of the past, and the inaccessibility of the wreck on the sea bed has meant that most items in everyday and special use are to some extent preserved. Valuables such as silver coins and jewellery are found intermixed with human bones and chamber pots. On land archaeologists usually only find the bones and the broken chamber pots. Normally, however, most of the wood of submarine wrecks has been destroyed by currents and by marine creatures and the wreck is represented by a low mound of debris.

The Dutch East Indiaman "Amsterdam" is different, for in January 1749 a combination of unusual circumstances occurred which resulted in three-quarters of this very large ship being preserved. Inside her the stores, cargo, ballast, and many of the personal belongings of the people on board are apparently exactly where they were stowed away 223 years ago. No other large merchant ship of the 18th century or earlier is known to have survived in a comparable state anywhere else in the world; and in view of this a detailed modern scientific investigation of this ship will give us unique information about an important aspect of Dutch maritime history.

The "Amsterdam" now lies entombed in soft clay and sand in the beach about 3 kilometers west of Hastings, now a seaside holiday resort on the south coast of England. She has always been known to be lying there as when the tides are especially low, on just a few days each year, the upper part of the ship becomes visible for a few hours projecting out of the quicksand.

The wreck was unknown to archaeologists until August 1969 when some local treasure and souvenir hunters reported to the British Council for Nautical Archaeology that they had dug into the wreck at low tide using mechanical excavators, and had found a large number of antiquities which they thought might have some archaeological interest. At a meeting held in London the salvors briefly described what they had found, and it was clear that there seemed to be a good chance that a substantial part of the ship had survived, and in any case the huge quantity of objects constituted a major archaeological discovery which needed to be examined, recorded and published before they were dispersed through being sold. In September 1969, the archaeological investigation was started under my direction; and as government grants for archaeological work in the sea were impossible to obtain due to the most unsatisfactory state of the present law of salvage (Merchant Shipping Act 1894, Part IX), unlike archaeological grants for land sites, grateful thanks are extended to the individuals and companies who took part and sponsored the archaeological investigation. Special mention should be made here of the contribution towards the financing and organization of the investigation made by the B.B.C. "Chronicle" programme, through Mr. P. Johnstone and Mr. R. Sutcliffe whose assistance was a vital factor in the success of the investigation.

Documentary records

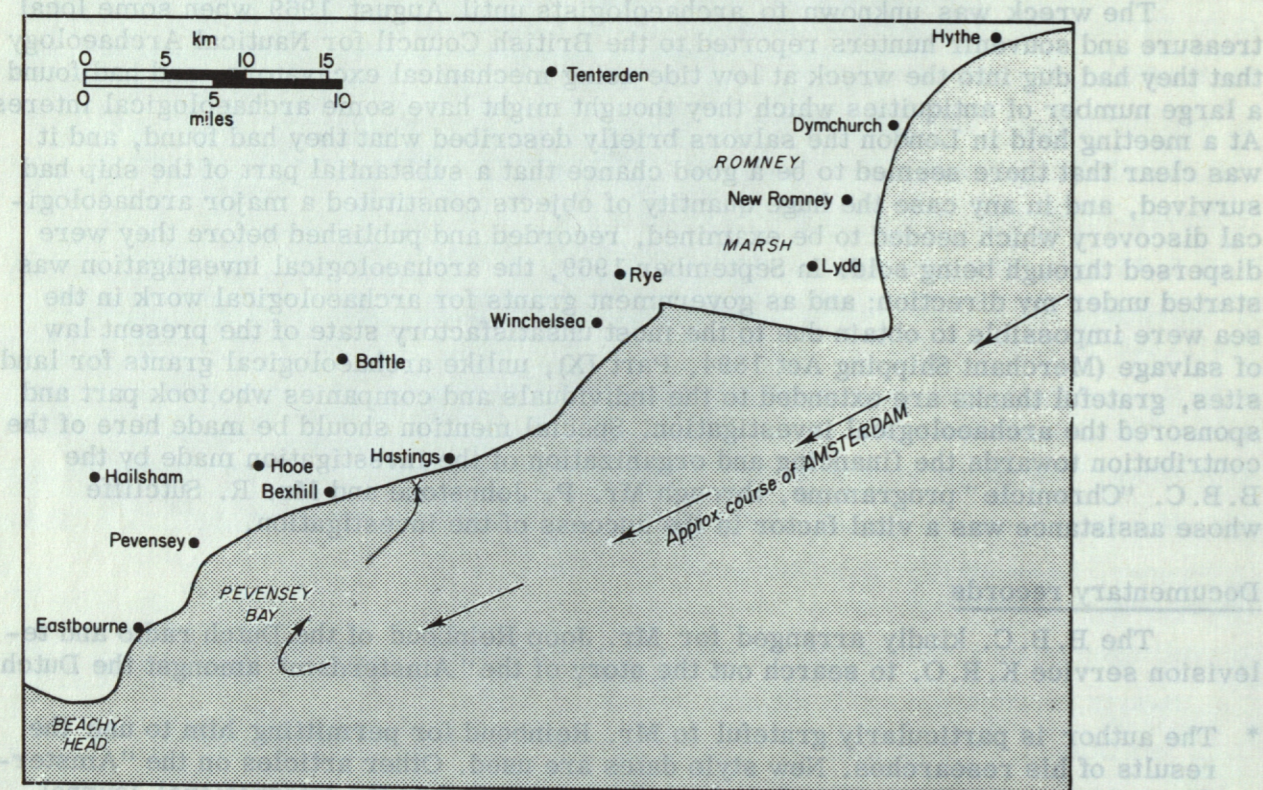
The B. B. C. kindly arranged for Mr. Joop Reinboud of the Dutch radio and television service K. R. O. to search out the story of the "Amsterdam" amongst the Dutch

* The author is particularly grateful to Mr. Reinboud for permitting him to use the results of his researches. New style dates are used. Other articles on the "Amsterdam", written by Peter Marsden, have been published in the International Journal of Nautical Archaeology, Vol. 1 (1972), pp. 73-96, and the Mariner's Mirror, Vol. 58 (1972), pp. 5-26.

archives at the Hague and in Amsterdam. In England the contemporary documentary records had already been examined; and as a whole the documents give us a remarkable insight into eighteenth-century life aboard a large merchant ship, and also into the workings of the Dutch East India Company (the "Verenigde Oost-Indische Compagnie", usually abbreviated to V.O.C.). In the Netherlands the primary sources of information are the Resolutions of the Heeren XVII (the "Seventeen Gentlemen"), the Resolutions of the directors of the Amsterdam Chamber or branch of the V.O.C., and in the "Payroll of the departing Fair (Autumn), - Christmas -, and Easter ships, 1748-'49". The last-mentioned document is a particularly important discovery, for of nearly two hundred annual payrolls which the V.O.C. had, only seven survived the dissolution of the Company in 1799, and the earliest of these is the 1748-'49 payroll. As a result we know the names of and some details about everyone who sailed in the "Amsterdam", and from these Mr. Reinboud has been able to compile short biographies of the leading individuals on board. Also although the ship's log is lost, he has been able to reconstruct something of the ship's voyage from contemporary Amsterdam newspapers.

English official records are unfortunately silent about the wreck of the "Amsterdam", so we are exceptionally fortunate in having the correspondence of a local official at Hastings, Mr. John Collier, which contain eyewitness accounts of the loss of the ship and the subsequent attempts to salvage her. Collier had had a stroke in 1748 and he spent the next winter convalescing in Bath, and it is the letters sent by his family and friends which survive. These "Collier letters" are preserved in the East Sussex Records Office at Lewes.

A summary account of the story of the "Amsterdam" is published here, and as a full account of the entire investigation is to be published as a book in due course, detailed references to sources have not been included. However, attention should be drawn to the publications by Prof. C.R. Boxer: "The Dutch Seaborne Empire" (1965, Hutchinson) and "The Dutch East-Indiamen: their Sailors, their Navigators, and life on Board, 1602-1795", in: *Mariner's Mirror*, Vol. 49 (1963), pp. 81-104, which give extremely important background information about the Dutch East India Company.



Map showing the course of "Amsterdam" and the wreck location

Historical

The decision to build the "Amsterdam" by the Heeren XVII, the senior directors of the V.O.C., was made on 2 April 1748, and it is recorded in the Resolutions of that day's meeting. They agreed that the Amsterdam Chamber or branch of the Company, should build two new 150 feet long "return ships" to be named "Amsterdam" and "Elswoedt"; and that from the unused timber a third ship, not more than 120 feet long, should also be built, to be called "Hartenkamp". Construction must have begun almost immediately for by 14 September 1748, both the "Amsterdam" and "Elswoedt" were listed as part of the Autumn (Kermis) fleet to sail to Batavia in Java. And by 19 November the "Hartenkamp", 120 feet long, had joined the list.

The Autumn fleet was to comprise twelve ships, the main cargo of which would be silver coins and ingots to the value of 3,200,000 florins. This was required in Batavia for the purchase of south-east Asian products like tea, spices, and porcelain for the European markets. The "Amsterdam's" quota of silver, valued at 300,104 florins, comprised four chests, bearing the numbers 91 to 94 inclusive, each containing twenty sacks of 200 ducatoons; in addition there were twenty-four chests, numbered 12 to 35 inclusive, each containing fifty wedge-shaped silver ingots. Also the "Amsterdam" carried a very full mixed cargo for the use of the European settlers and officials in Indonesia.

The Journal of the Chief Book-keeper of the Amsterdam Chamber survives and it gives a very detailed list of supplies for both the new ships and the fleet for that year. These supplies range from food and clothing to armament, but as the list covers more than three hundred pages its photocopying and translation is beyond the meagre resources of the present investigation. Mr. Reinboud has picked out one or two items as examples: the beef bought for the ships was from Westwoldinger oxen; the bulk of the butter used was cheap butter from Ireland; and more than 130 hogsheads of "New Bergeracque wine" were bought for the fleet, in which connection there is one entry recording that 56 cases of wine and 129 casks of beer were delivered to the "Amsterdam".

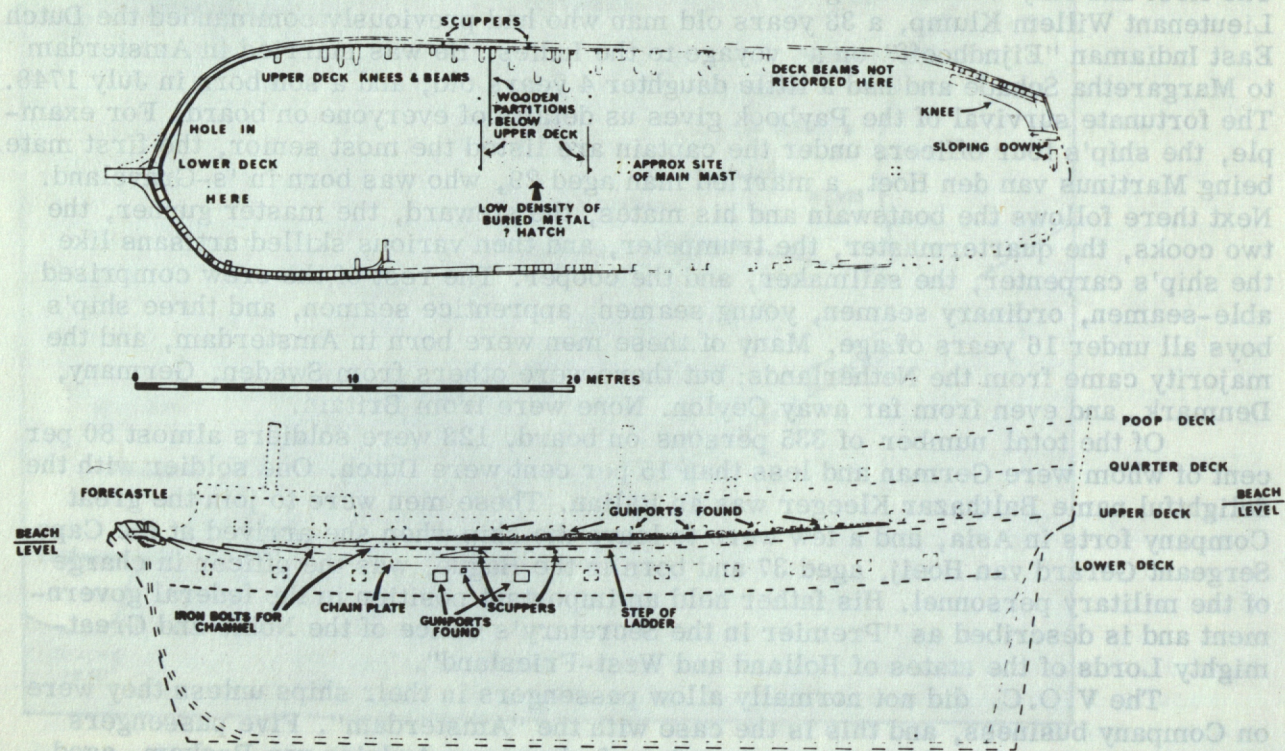
While the ships were being built in Amsterdam, the V.O.C. directors were deciding detailed manning of the ships, and assigning passengers to certain vessels. The first and only commanding officer the "Amsterdam" was to have was Captain Lieutenant Willem Klump, a 33 years old man who had previously commanded the Dutch East Indiaman "Eijndhoeff" on a voyage to the Indies. He was married in Amsterdam to Margaretha Schade and had a little daughter 4 years old, and a son born in July 1748. The fortunate survival of the Paybook gives us details of everyone on board. For example, the ship's four officers under the captain are listed the most senior, the first mate, being Martinus van den Hoet, a married man aged 29, who was born in 's-Graveland. Next there follows the boatswain and his mates, the steward, the master gunner, the two cooks, the quartermaster, the trumpeter, and then various skilled artisans like the ship's carpenter, the sailmaker, and the cooper. The rest of the crew comprised able-seamen, ordinary seamen, young seamen, apprentice seamen, and three ship's boys all under 16 years of age. Many of these men were born in Amsterdam, and the majority came from the Netherlands; but there were others from Sweden, Germany, Denmark, and even from far away Ceylon. None were from Britain.

Of the total number of 335 persons on board, 123 were soldiers almost 80 per cent of whom were German and less than 15 per cent were Dutch. One soldier with the delightful name Balthazar Kleeger was an Italian. These men were to join the great Company forts in Asia, and a few were to leave the ship when she arrived at the Cape. Sergeant Gerard van Hoeij, aged 37 and born in the Hague, was the officer in charge of the military personnel. His father held an important position in the federal government and is described as "Premier in the Secretary's Office of the Noble and Great-mighty Lords of the states of Holland and West-Friesland".

The V.O.C. did not normally allow passengers in their ships unless they were on Company business, and this is the case with the "Amsterdam". Five passengers were allocated to this ship, the most senior of whom was Andries van Bockom, aged 25 and born in Delft. He had studied theology at Leyden University, graduated as a



View of the bow showing the lean to the port side



Plan and side elevation of the "Amsterdam". Broken lines represent conjunctural features

lawyer, and finally decided to follow his father and become a merchant. Earlier in 1748 he had married Anna Pieterella Schoock, then aged 28, whose father was Fiscal of the Province of Guelderland. The newly married couple were bound for Batavia where van Bockom was to work as a Junior Merchant. Anna's 22 years old sister Catharina was to accompany them, and to get round company regulations she is officially listed as the married couple's "domestic". A little later, however, both sisters were described in England as "very fine women". A third woman passenger is mentioned by the Collier letters, and is pointedly excluded from the comment about "fine women". The Paybook identifies her as 33 years old Maria Monk, the illiterate wife of another passenger in Company service, the military lieutenant Jacob Hall. Like the van Bockoms they too were bound for Batavia.

The "Amsterdam"'s short maiden voyage must have been one of the most catastrophic in the history of the Dutch East India Company, for during the eighteen days she was at sea nearly one-third of her complement of men were incapacitated either through sickness or death, and when the ship was wrecked she was in such a situation that hardly any of her cargo could be recovered. The V.O.C. Sailing Book mentions that having arrived at Texel, at the mouth of the Zuyder Zee, the "Amsterdam" waited for a favourable easterly wind to carry her into the English Channel. On 15 November 1748, the wind blew from the east and she set sail, but about 17th it must have veered around to the south-west for on 19th the "Amsterdam" arrived back in Texel. On 21 November she sailed again, but due to a contrary wind she had to return to Texel where she arrived on 6 December. Christmas and the New Year came and went as she and other ships of the fleet waited for the easterly wind.

On 8 January 1749, the favourable wind blew and six giant Dutch East Indiamen set sail westwards into the southern North Sea. The ships were the "Amsterdam", "Elswoudt", "Sparenrijk", "'t Huys te Manpad", "Haarlem", and "Hartekamp". The "Haarlem" was bound for Ceylon, and the rest for Batavia. It was not long afterwards that the weather deteriorated, and southern England was struck by a series of violent storms, which forced the ships, with the exception of the "Haarlem", to take refuge in the Downs. It was here that the fleet was joined by another Dutch East Indiaman, "'t Hof de Uno", from Hoorn and bound for Batavia. The "Haarlem" decided to brave the storms and sailed on to Portsmouth where she arrived safely. Because the "Amsterdam"'s log is missing we do not know when she set sail from the Downs, but the logs of the other ships in the fleet, if they survive, could give most important information on the movements of the "Amsterdam". Anyway, the next we hear of the voyage is from the "Collier letters". Evidently she followed the Kent and Sussex coasts, for we next find her sailing into the haven of Pevensey Bay in the middle of more rough weather for her bottom struck a shoal and her rudder was torn off. The date on which this occurred is not recorded, but another Indiaman, the "Pasgeld", which was in the Channel at the same time reported especially bad weather on 16th and 17th January, and indeed she struck the sea bed several times, though thankfully her rudder remained in position. It is therefore quite likely that disaster struck the "Amsterdam" about that time.

With her rudder gone the "Amsterdam" was at the mercy of the wind which blew her north-eastwards towards the shore, until off the tiny village of Bexhill, Klump dropped anchor, in a desperate bid to save his ship and her extremely valuable cargo. Conditions in the ship, judging by the rapidly mounting number of sick and dead, must have been little short of hell for the crew and soldiers entombed on the ill-ventilated and poorly illuminated lower deck. This is undoubtedly the most crucial phase in the ship's story, and it is a great pity the ship's log is lost and with it precise details of the voyage. However, we know that by this time approximately a quarter of the men were either sick or dead; and that Captain Klump still felt he could save his ship for as soon as the wind and weather improved he intended to sail to Portsmouth for repairs. Meanwhile, there is little doubt that the ship's carpenter had made a jury rudder. Some men from nearby Hastings came out to the ship and offered to help get her to Portsmouth, an offer gladly accepted by Klump.

We next read in one of the "Collier letters" that the "Amsterdam" could "hold out no longer" than Sunday 26 January. The anchor was raised, or the cable cut to

release it, and the ship sailed north-east towards the shore. This must have happened after lunch about one or two o'clock in the afternoon for at 3 p.m. she ran ashore. The timing of this operation was critical and evidently carefully planned for there can be no doubt that Klump wanted the "Amsterdam" run ashore at high tide; his plan evidently being to use low tide to rescue his passengers, crew, and cargo.

As the ship neared a flat windswept shingle beach between Bexhill and Hastings she began firing her guns as a distress signal. People attending Evensong in Hastings' ancient stone churches three kilometers from the wreck site heard the guns and quietly left their seats. Good fortune smiled on Klump that day, for unknown to him and his men their ship had sailed through a gap in a jagged submarine rock outcrop, and had they sailed literally just a stone's throw to the east the rocks would have undoubtedly torn a large hole in the ship's bottom. These rocks are normally exposed at low spring tides.

Within living memory it was being recorded that the crew of the "Amsterdam" had mutinied, though there is no mention of this in the contemporary English and Dutch records. These records contain enough information, however, to show that Klump was far from in complete command of his ship when she was beached. For example, when she ran ashore an English observer standing on the beach said that all the Dutch crew were drunk. This means that during the most critical phase of the voyage, when the vessel was about to be beached and the cargo may have been lost, and when men were rapidly dying on her lower deck, the men had control of the liquor store - the last thing the captain would have wanted. Also there is some evidence to suggest that Klump had to bribe his men with excessive promises to carry the chests of silver to safety ashore. It is probably wrong to say that a mutiny occurred as Klump was evidently still in charge of the ship, but it is clear that discipline could not be enforced, and that some of the officers had sided with the men.

That evening the ship's treasure was carried to the safety of the local Custom House in Hastings, evidently amid a great deal of confusion for a group of Sussex men led by Anthony Watson, a smuggler, took the entire contents of 50 silver bars from chest No. 16. Some of the silver was later recovered in Hastings, but at the end 16 bars could not be accounted for. The crew were taken ashore, and the local Hastings people were somewhat surprised at the high death rate. One letter written two days after the ship came ashore records that 50 men had been lost, and that "several more have died since the ship has been ashore". Twenty-four hours after the ship was beached there were about 40 sick men still inside the "Amsterdam"; and although these men were removed to safety in Hastings at least one dead seaman was left behind on the lower deck, for amongst the objects dug out of the ship by the treasure hunters in 1969 were some human bones.

All the passengers managed to get ashore, and we know that Andries van Bockom and his wife and sister-in-law stayed at the Maidenhead Inn in Hastings. As soon as the treasure was locked away and the crew and passengers safely ashore, Captain Klump set out for London to contact the Dutch East India Company's representative, Gerard Bolwerk. From then on the story of the ship is one of repeatedly frustrated attempts to salvage the mixed cargo. The "Collier letters" describe how the cargo could not be reached as the ship began sinking into the clay of the beach. Two days after she was driven ashore she was described as "in appearance quite whole and may do for some months. But no possibility of getting her off. I believe they will save everything that is worth saving". Nine days after the wreck she "still sits whole, and the plunderers speed but very indifferently, neither do the owners save any quantity of goods for the ship is so much swerved (sunk) in the sand, that it is impossible to get at the cargo, the ship always being full of water". Sixteen days after the ship was beached we are told that "the ship is really a melancholy sight to behold, for she lyes on shore, on boggy sand, that she is swerved almost as high as her upper deck, and notwithstanding all the contrivances imagineable, the main hatches can't be open'd, so it is feared most part of the cargo in the main hold will perish in the sand". Thirty-eight days after she was beached "the ship is so swerved in the sand, that at high water the sea covers her, and at low, her lower deck in underwater". Judging by the present level of water above the beach at low tide, it is clear that by the 38th day the ship had already

sunk at least 20 feet into the beach, giving a rate of sinking of about 6 inches per day. If this sinkage rate is constant then by about the 56th day the ship must have stopped sinking, for her keel now lies approximately 28 feet (8.5 m) below the beach. On 11 March, just 45 days after the ship was beached, the directors of the Amsterdam Chamber decided that nothing more could be salvaged from the ship. All that had been recovered, apart from the treasure, were three chests of merchandise, and "a chest with gold and silver facings". They therefore agreed to instruct Gerard Bolwerk in London "to dismiss as soon as possible the folk that were employed to salvage the goods from the abovementioned perished ship "Amsterdam", as it seems unlikely that anything more can be salvaged".

And so she lies to this day entombed in the beach, and apart from the destruction by treasure hunters in 1827 and 1969 the ship's cargo, stores, and even many of the personal belongings of the people on board, apparently lie where they were abandoned nearly two and a quarter centuries ago.

Archaeological

From the start of the archaeological investigation in September 1969 it was clear that a very considerable amount of the ship had survived, and that deep inside her was probably a huge and extremely valuable collection of antiquities. Quite apart from determining her completeness and state of preservation, it was imperative that the "Amsterdam" should be protected from further damage by treasure and souvenir hunters as soon as possible. From the beginning it was clear that she was nearly as well preserved as the "Wasa", and quite unique in this respect. In fact, by the time the investigation finished in 1971 it had been established that 75 per cent of the ship was intact.

Protecting the wreck was especially urgent as the valuable discoveries made in 1969 had been publicized in the national press and had aroused an unhealthy interest in the wreck. At first the Ancient Monuments Department of the Ministry of Public Building & Works was approached with a request to "schedule" the wreck; but they were unable to do this because the "Amsterdam" was considered to have been originally a chattel, and chattels are in no way protected by the British Ancient Monuments Acts. The fact that the ship was so large and was to be the home of over 300 people for up to nine months made no difference to its modern legal status. Only those structures always intended to be static can be scheduled. The Ministry of Housing was next asked to "list" the wreck, but for the same reason this was impossible. Both Ministries are now amalgamated and comprise the Department of the Environment. Finally the Board of Trade, now the Department of Trade and Industry, was asked if it could protect the "Amsterdam", but once again this was impossible as wrecks in situ were not their responsibility, and it was only when "wreck" was brought ashore that their legal responsibilities began. All Ministries were extremely sympathetic but were bound by the law. Likewise the Ministries had no provision for grants to help finance the archaeological investigation, and any grants of the type normally allocated to land excavations would work in direct opposition to the salvage section of the Merchant Shipping Act, 1894, which insists that all "wreck" is sold. The crux of the problem is that the salvage law puts any archaeological work on wrecks below high tide on a commercial basis which simply cripples true archaeological exploration and museum collection of antiquities.

This situation meant that until a responsible owner for the "Amsterdam" was found the wreck was very vulnerable. Eventually, the Dutch Government, as inheritors of the assets and liabilities of the Dutch East India Company, which went bankrupt in 1799, was accepted as the rightful owner of the ship by the Department of Trade and Industry. This, however, was more than two years after the start of the archaeological investigation.

In view of this difficult and highly confused situation the Council of Nautical Archaeology deliberately decided to make the results of the archaeological work public through the press, not only to arouse public interest and concern for the "Amsterdam", but also so that public pressure would help to ensure that the wreck was safeguarded. In early 1970 an expected attack of vandalism occurred, and within three hours C.N.A.

members had been informed, and a previously arranged plan to safeguard the wreck had been successfully implemented, so that the miscreant was dealt with successfully before the next low tide occurred and he could do more damage with his mechanical excavator.

In view of the unparalleled importance of the "Amsterdam" it was decided that the investigation would not be an excavation, but an assessment of the archaeological significance and potential of the ship. The contents of the ship should be excavated properly or not at all, and to do it properly required an organization like that working on the "Wasa". In fact a little excavation was necessary but this was mostly kept to small areas outside the ship.

The ship

The first step was to make a detailed plan of the visible part of the wreck during the last week of September 1969, and since then other parts have been added to the plan. The method used was to stretch a long base-line, graduated in half-metre sections, along the axis of the ship from a nail on the stempost to another nail at the stern. At metre intervals measurements to the sides of the ship were taken from the base-line, to give an outline plan of the ship; and to this the details were added, such as the thickness of the inner and outer skins of planking, and the positions of some of the frames which formed a solid wall of timber between the skins. From the beginning it was clear that the ship is not lying horizontally in the beach, but that she is heeling to her port side (west). On the starboard side the knees and beams of one deck are visible, and on the other side most of the deck beams are buried and much of the side is exposed up to the lower parts of a series of gun ports. All of these features were carefully measured to complete the plan of the visible structure of the ship, but as time was extremely limited at each low tide all this work had to be backed up with a comprehensive photographic coverage.

This could not be done at one group of low tides only, and measurements and photographs of the ship's structure continued to be taken until the survey was terminated in March 1971. From the beach level it is impossible to get a general view of the ship as a whole; but it was only when Hy-mac Ltd offered to assist the survey that it was decided that this particular problem could be solved. This company made not only mechanical excavators, but also mobile high-level platforms which are frequently used for repairing street lights. During the very low Spring tides of March 1970 two mobile platforms, one 50 feet high and another 30 feet high were assembled at Hastings. Hy-mac also provided a mechanical excavator on wide caterpillar tracks whose prime job was to drag the other vehicles through the deep shingle at high-water mark, and also to pull them out of the quicksand around the ship should they get stuck. Another company, Itt Flygt Ltd, which made submersible pumps, also agreed to help free of charge. They agreed to pump all of the sea water out of the hollow scoured in and around the ship to expose details of the vessel's structure not normally seen. This meant that not only had great lengths of hose and the pumps to be taken down to the wreck in a lorry, but also a powerful generator had to be dragged down, and once again the excavator proved invaluable as a crane to lower the pumps into position in the ship. In about half an hour these pumps drained an estimated 80,000 gallons of water from the hollow, thus enabling a very full photographic record to be made of the normally obscured upper part of the ship's interior. As a result the true nature of the transverse partitions amidships could be defined more precisely.

The investigations as a whole showed that the remains of a deck lay at beach level, and the next problem was to identify the deck. The lower parts of several gun-ports, visible on the port side above the deck, showed that it must be either the upper or lower deck where the main armament was situated; but the only way of definitely solving the problem was to dig a hole immediately outside the ship to look for a lower row of gun ports. If none was present then the visible deck must be the lower deck, but if there was a lower row of gunports then it must be the upper deck.

The excavation was carried out during an especially long low tide one night in September 1969, by a mechanical excavator, and soon two closed gunports were revealed

on the port side, thus showing that the visible deck must be the upper deck. The inward slope or "tumble-home" of the side was carefully measured, as were all other features revealed, such as the iron bolts which once secured the foremast channel; the bottom of a foremast chain-plate; and the one rung of a ladder up the ship's side. These were very important details which made it possible for a side elevation of the ship to be reconstructed with a reasonable degree of certainty.

A second hole was dug next morning on the east or starboard side of the ship, but unfortunately here the outside of the hull was found to be coated with a layer of iron-pan which completely obscured the outside of the hull. This hole was about 3 metres deep, and its presence revealed one unexpected feature about the ship - that the iron bolts fastening the "Amsterdam"'s frames and planks together had corroded away. The rising tide filled the interior of the ship before it filled the hole and, for a few seconds before the hole was filled, the increased pressure inside the ship began pushing the planks into the hole, but when the hole filled up this movement was stopped. Although it is regrettable that this happened the extent of the distortion to the hull is very localized and not very great; and we did learn that any total excavation of the ship must take into consideration the corrosion of the iron bolts. Another very important feature is the iron pan, which has not only formed on the outside of the starboard side, but also, as far as one can judge, at the junction of most timbers. As a result it would seem that at present probably the most practical way to raise and preserve the ship would be to take it apart, clean and preserve each timber and put the vessel together again elsewhere. If the ship was bolted together again in situ and raised as a whole the conservation problems would be enormous. The argument for taking the ship apart as its excavation proceeds is strengthened by the discovery from the probing in 1971 that the starboard side has been almost certainly considerably distorted probably due to the pressure of sand and clay outside the ship long ago.

The investigation of the structure of the ship was further aided by the use of a metal rod to probe into the sand filling the interior of the ship. Four transverse sections were probed across the ship, and a further probed section was made across the stern along the ship's long axis. These have shown that the lower deck is undoubtedly present, but that it seems to have been damaged on the starboard half. It seems likely that parts of it may have collapsed into the hold below.

Messrs. William Press had recovered hundreds of objects from within the ship, and part of our job was to try to establish whether or not there were many more. The eighteenth-century English records tell of the impossibility of being able to recover the cargo as the ship was quickly filling with sand; and the Dutch records specifically mention that apart from the treasure of silver, only three cases containing merchandise were recovered and returned to the Netherlands. It was decided not to dig down inside the ship as this would disturb objects lying on the lower deck. Of the many objects of pottery, glass, wood, leather and metal, only the presence of those made of metal could be detected by highly sensitive instruments. The presence and density of the metal objects would therefore be a valuable indicator of the presence and density of other objects. A request for assistance was sent to Dr. E. T. Hall, Director of the Research Laboratory for Art and Archaeology, and he kindly replied by allowing Mr. Jermy Green to carry out the survey free of charge. Firstly, a metal detector was used and showed that there was a scatter of objects on the lower deck, and an interesting absence of objects amidships which must be due to the presence of the main hatch to the hold.

And secondly the ship and its surrounding area was surveyed by using a proton magnetometer with very important results. It revealed the presence of a number of ferrous objects in and around the ship, especially beyond its west side. It also revealed two buried "linear features" west of the ship, one of which was undoubtedly the fallen mainmast the end of which is visible projecting up out of the sand. The other feature may be the foremast or the bowsprit. It also revealed the presence of two separate masses of iron ballast in the bottom of the ship, each of the order of perhaps 50 tons. Finally the wreck site has been examined geologically, and in this a survey using Sonar has been carried out by Mr. I. Bowyer and Mr. A. Cameron, of E. G. & G. Geophysical Ltd. The wreck is situated in a heavily faulted area in which clay overlies hard

sandstone, and it seems that the weight of this heavily laden ship on the clay caused her to sink into the beach. The south-westerly gales of 1749 scoured a hollow in the clay on the west side of the ship, and the vessel heeled over a little towards the hollow, and therefore sank into the beach at that angle, which is clearly visible nowadays in the exposed part of the ship. As the upper part of the ship broke up, masts collapsed and decks were smashed by the early salvors and the heavy seas and many loose parts of the ship fell into the hollow.

The Sonar record not only showed many objects in the ship, but also geological formations around the wreck. What it did not show clearly was the vessel itself. The two sides of the ship are certainly visible on the sonar graph, but the lower deck is only possibly visible. As there was only 20 feet of water over the ship when the record was made, the penetration of the Sonar was only 20 feet into the beach.

Fortunately Dutch East Indiamen of the eighteenth century were built to a standard size and pattern, and as contemporary side elevations, dimensions and even models of them exist we have a reasonably accurate idea of what the main layout of the "Amsterdam" must have been; and the discovery of some of these features during the site investigation has made it possible to determine how much of the ship had survived, and to reconstruct those parts which either have not survived, or which are too deeply buried, with a fair degree of confidence.

The objects

The first view of the objects found in 1969 was staggering - green glass bottles still corked and full of reddish-brown wine, bronze candlesticks and smoothing irons, pewter spoons, sticks of red sealing-wax, a flute, shoes, and hundreds of other items all of which had been unfortunately torn out of their archaeological context in the ship. Their variety and excellent state of preservation show how well preserved the remaining objects still in the ship should be. It is a pity that no record was made of whereabouts in the ship most of the objects were found, for it would have been easier to interpret their significance, and help us to reconstruct life on board. On closer examination, however, a disturbing aspect became apparent - that some of the objects were rapidly deteriorating through a total lack of laboratory attention. As nobody owned the objects and as there was no museum laboratory which could be approached to deal with this situation, the condition of the objects became increasingly desperate during the months that followed.

The British government awareness of this and allied problems resulted in the Department of Trade and Industry setting up a committee in 1970 to study the whole problem of salvage, and both the Department for the Environment and the Council for Nautical Archaeology have representatives on it; and it is hoped that the government Committee will not take too long in assessing the situation and making recommendations on law changes to the government.

The objects seem to fall into five categories:

1, parts of the ship and her armament; 2, the ship's stores; 3, equipment officially issued by the East India Company for use on board; 4, the personal belongings of individuals on board; and 5, the cargo.

1. Parts of the ship and her armament

Under the heading of parts of the ship should be mentioned the bricks found on the lower deck in the after half of the ship which presumably come from the galley hearth lining. Green window glass fragments found in the stern on the lower deck probably come from the stern windows of the upper or quarter decks, and when those decks were destroyed the glass fragments fell on to the lower deck. Deadeyes and chain-plate fragments were also found which were originally connected with the foremast shrouds on the port side.

The ship's armament is represented by 12 lb and 8 lb cannon balls, bronze reamers for clearing the touch holes of the guns, cannon ball gauges, and a gun carriage wheel. Dutch documentary records of 1749 show that an attempt was made to sell the

salvaged cannons, but there is reason to believe that one or two of the ship's main armament may survive on the lower deck. It seems most likely that many of the wooden gun carriages will have survived as these will have had little or no value to the salvors.

2. The ship's stores

These are represented by the finds recovered from the orlop deck just inside the bow and include a fine collection of pulley blocks of different sizes and forms. Fragments of barrels of different sizes were dug out of the ship by the mechanical excavator, and one contained tallow, while on the inside of another the contents had left. A brown deposit which analyses indicates was partly due to beer. These barrels presumably contained mostly food, but the nineteenth-century discovery of a barrel on the orlop deck containing a thousand knives shows they were used for other purposes. An ox skull and vertebrae must be remnant of the ship's food supply. A shoe last and three heather brushes indicate the repairing and cleaning activities and duties of some of the crew during the long voyage to Batavia.

3. Equipment for use on board the ship

It is difficult to judge which of the objects were issued officially by the Company, but it seems fairly certain that these items from the lower deck should be included: an assortment of earthenware cooking pots, a bronze cauldron, and a bronze kettle were all connected with the cooking and serving of food. Several Delft-ware drug jars were probably part of the stock of the ship's surgeon, Hendrik Brumleij. A simple bronze candlestick, designed to be nailed to a wooden surface like a table, must have helped with illuminating the interior of the ship at night. Used sticks of sealing wax were undoubtedly part of the official equipment of the captain or of his officers. And finally several 3 and 5 lbs iron weights with lead tops were used for the many varied purposes for which they could be needed in a confined and self-sufficient community like that in the "Amsterdam".

There were more than one hundred soldiers on board the "Amsterdam" whose job was to relieve the garrison in the Indies. A collection of leather cartridge-case belts to contain bronze cartridge cases, lead musket balls, and a sword belt are all likely to have been part of their issue of equipment.

4. The personal belongings of the people on board

Some of the items found on the lower deck in the stern must have been owned by the people on board, and most of them are of sufficiently good quality to have probably been beyond the meagre income of the crew members. Fine European salt-glazed pottery and Chinese porcelain table ware from the stern area almost certainly graced Captain Klump's table, as did a group of wine glasses, decorated glass cups, and a pewter tankard.

A number of the pewter spoons were found near the stern, some of which bear the owner's initials. Spoons belonging to Andries van Bockom, to his wife, and to Christoffel Jasper, an able-seaman, have been identified. Several Flemish chamber pots were a luxury which would not be expected amongst the crew, and again these probably came from the officers' quarters. A horn comb, two wooden needle dollies, three bronze smoothing irons, two knife sheaths (one of which is decorated with tulips and dated ANNO 1744), shoes, a flute, and a number of gaming marbles were also probably personal belongings but not necessarily of the officers. The decoration on a fine bronze tobacco box found in the ship many years ago refers to an unfaithful wife and must reflect the uncertainty and worry of a man who is away at sea for several years. Likewise the reference to a brothel on the tobacco box is equally significant for brothels were a feature of Amsterdam's life.

There can be little doubt that a few items recovered in 1969 belonged to the two sisters on board. The objects are some horn combs, fragments of leather shoes, a beautifully decorated ivory fan, two small glass beads, and the silk bow probably from a petticoat.



Wine glass, and two glass cups from the "Amsterdam"

5. The cargo

About the time the "Amsterdam" was beached and before she was flooded an attempt was evidently made to salvage the cargo of the ship. Unfortunately for the salvors they not only had to abandon the cargo in the hold, but also it seems that they had to abandon some of the items actually raised on to the lower deck next to the hatch. These include dozens of bottles of red table wine, and five small cannons each bearing the A-VOC insignia of the Company. Broken clay pipes found outside the ship with their packing material of buckwheat suggests that the cargo also included pipes. Other objects which may have been part of the cargo include many hundreds of corks, and several stoneware jugs which possibly contained gin, also from the main hatch area; and probably a group of brass candlesticks. It is curious, however, that one of the "Collier letters", written 11 February 1749, refers to the impossibility of opening the main hatches.

A final significant feature of the wreck is that already it has provided archaeologists with one of the largest recorded group of precisely dated post-medieval antiquities so far recovered in the British Isles. Well dated objects in ordinary every-day use even as late as the eighteenth century have not been properly studied, for, until recently, it has been only the fine works of art which have been collected. The precise dating of the contents from the "Amsterdam" will enable archaeologists to date similar items found elsewhere in less definite contexts.

Significance of the ship

Because about three-quarters of the "Amsterdam" has survived, this ship is unique as no other large ocean-going sailing merchant ship of the eighteenth century or earlier is known to be in such an excellent state of preservation. This fact alone

sets the "Amsterdam" apart as something quite special and worthy of very careful archaeological investigation. It is true that the eighteenth-century documentary records tell us much about these ships, but this is a poor substitute for the modern scientific study of one well-preserved vessel. Also there must be very many details of construction and life on board these ships, which are not known. An example of this was found in the "Amsterdam", for the purpose of the transverse partitions on the lower deck both fore and aft of the main hatch cannot be satisfactorily explained at present.

It is true that two other large ships also survive, the "Wasa" in Stockholm and H.M.S. "Victory" in Portsmouth. The former was completed in 1628 and the latter launched in 1765. Neither is a merchantman, however, and the "Wasa" is so much earlier than the "Amsterdam" in date that many constructional and design changes occurred between the dates when the two ships were built.

The "Victory" is a different matter, however, for she has been so drastically altered, in successive efforts to bring her up to date in her active service, that she cannot be considered as a good example of eighteenth-century shipbuilding. Her present appearance as a magnificent example of a ship of the early nineteenth century is the result of extremely skilled and careful historical research.

The "Amsterdam" therefore stands alone as an unaltered example of large shipbuilding of the eighteenth century. She was completed in 1748, and lost in January 1749. Amongst the contemporary Dutch records of the eighteenth century there are few detailed drawings of East Indiamen, though the manuscript records of the Rotterdam shipbuilder Pieter van Zwijndregt in the Maritime Museum "Prins Hendrik", Rotterdam, and in the Scheepvaart Museum, Amsterdam, are an important source. The "Amsterdam" was a typical example of the largest class of Dutch East Indiamen, and her total investigation would fill considerable gaps in our knowledge of these ships. It is particularly important that it is just those interior parts, which are so poorly recorded in drawings, paintings and models, which survive in the "Amsterdam". The destroyed upper, quarter and poop decks, and the forecabin, are all well represented in models of similar ships.

The results of the archaeological investigation have been communicated to the Dutch government which has set up an Anglo-Dutch Commission to study the feasibility of totally excavating and raising the ship.