

The Loss of the
Verenigde Oostindische
Compagnie Jacht
VERGULDE DRAECK,
Western Australia 1656

An historical background and
excavation report with an appendix
on similar loss of the *fluit*
LASTDRAGER

Part i

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with contributions by

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This book is dedicated
to the memory of
Andreas Cariolou
the man who found
the Kyrenia Wreck.

EDITOR'S FOREWARD

The purpose of this work is primarily to gather together all the available material on the historical and archaeological background to the loss of the VERGULDE DRAECK in 1656 on the Western Australian Coast. The ship belonged to the Dutch East India Company, the *Verenigde Oostindische Compagnie* or V.O.C. for short, and the latter abbreviation will be used henceforward.

Mr. Robert Sténuit has kindly provided Appendix One which deals with the loss of the V.O.C. ship LASTDRAGER and his excavation of the site, which provides interesting and important comparative historical and archaeological information (since the writing of this appendix a more detailed account has been published by Sténuit (19977ii)). Ms Lous Zuiderbaan has written the first part of the main text dealing with the historical background to the loss of the VERGULDE DRAECK. Mr. S.J. Wilson deals with the coins in the catalogue and Mr. M. Owens has kindly provided Appendix Two dealing with the corrosion of a candlestick from the site. Otherwise the remaining text is by this author.

All foreign words are italicised and ships' names are in capitals. Extensive use of Netherlands words is used, particularly as there is often no direct English equivalent or the equivalent is ambiguous. Contemporary references to documents in the Rijksarchief in 's-Gravenhage are listed separately in the references below under their respective *Koloniaal Archief* (K.A.) numbers.

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November, 1977.

PART ONE

THE VERGULDE DRAECK

HISTORICAL

BACKGROUND

by

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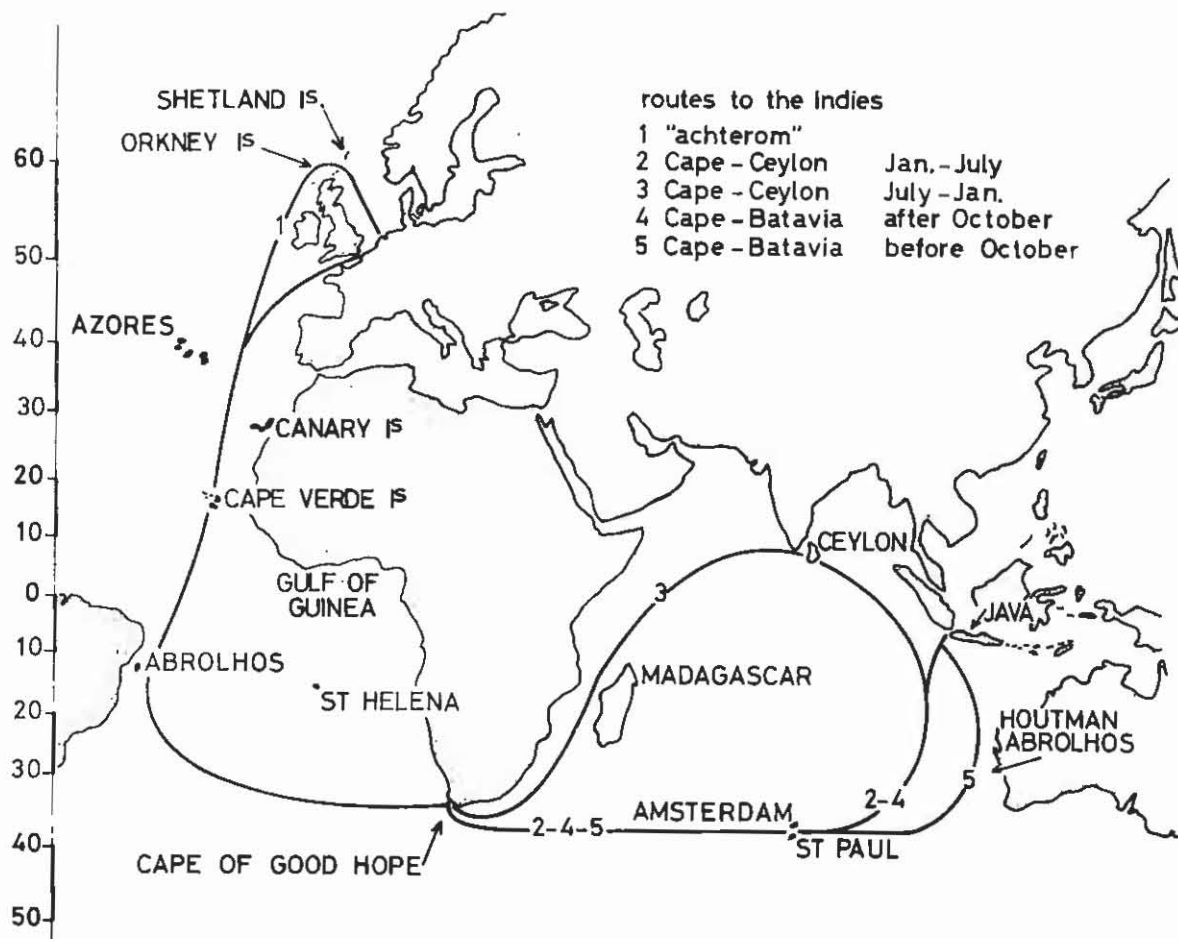
INTRODUCTION

The historical background to the VERGULDE DRAECK has been limited to the history of the ship itself, the events leading up to her loss in 1656, and attempts in the following years to save her people and salvage her goods.

Additional details of the voyage to the Indies have been drawn from the Journal of Gijsbert Heecq who sailed to the Indies in 1654 in the VEREENIGDE PROVINTIEN, narrowly missing the VERGULDE DRAECK at the Cape of Good Hope.

Since the Western Australian coast is far off the direct route from the Cape of Good Hope to the Indies, superficially it is perhaps surprising to find the VERGULDE DRAECK lost on this coast. However this related to the sailing instructions and navigation problems of the time which are dealt with briefly here.

No attempt, however, has been made to give a general history of the V.O.C. which is beyond the scope of this work. For further information on this see: Boxer (1965), Van Dam (1701), Davies (1961), De Klerk (1975), Sigmond and Zuiderbaan (1976), Stapel (1937), Valentijn (1724-26), etc.



(1) The sailing routes from Holland to the Indies after the introduction of Brouwer's route in 1611.

CHAPTER I

Route to the Indies

The basis for the V.O.C. was laid in the first half of the 17th century. Batavia, on the island of Java, was the centre of this immense trading company which spread out from Persia in the west to Japan in the east.

To maintain its operations the Company in the east required a regular supply of ships, men, money and goods. As the duration of the voyages to the Indies varied considerably, one could never be sure of a timely arrival of the ships from *Patria* - as the Republic of the Seven United Provinces, or the Northern Netherlands, was often called. In the first fifty years of its existence, the Company spent much effort on defining the quickest, safest and cheapest route to the Indies.

There were three difficult areas: the English Channel, the west coast of Africa and the crossing from the Cape of Good Hope to Sunda Strait. In the English Channel, the ships encountered many hazards, such as numerous sandbanks, westerly storms and pirates from Dunkirk. To avoid these hazards, the ships were allowed to sail *achterom* (i.e. north of Scotland, fig. 1-1). They did this only in summertime as the winter storms in the Scottish waters were considered even more dangerous than the pirates in Dunkirk. From 1652, however, with the beginning of the first Anglo-Dutch war, *achterom* was also allowed in wintertime.

The second difficult part was met in crossing the Equator. The ships could spend many weeks here waiting for a favourable wind. It was usual to head for the Brazilian coast, though this was a tricky business; if the ships crossed the Atlantic too far north, they could be driven back to Europe by the Southern Equatorial Current. If the crossing was made too far south, they could be driven into the Gulf of Guinea where the temperatures were extremely high and there was a danger of being becalmed. Here, the chance of disease was likely. The Company was aware of these problems and, in 1626, issued detailed instructions (the so-called *Seijnbrief*) to its captains to keep clear of the Gulf of Guinea and avoid coming too near the coast of Brazil. From about 1642, there even appeared a sort of road - the *Wagenspoor* - marked on the sea charts, which the skipper had to sail in order to avoid these dangers.

From the Brazilian coast, where the Abrolhos Shoals (fig. 1) formed another hazard, ships sailed with the S.E. trade winds in a great circle to the Cape of Good Hope. There the ships came into the next problem area, the Indian Ocean. Sailing between Africa and Madagascar, as the Portuguese did, was quickly abandoned; first of all because the Portuguese were strong in these waters, and further the Dutch had to steer for Sunda Strait, while the Portuguese were heading for India. For these reasons, they kept to the coast of east Madagascar and looked for fresh victuals there and on other islands like Mauritius. However, even on this last stretch, many ships were often becalmed relatively near to their final port, and still lost a lot of men. The solution came in 1610 when Hendrik Brouwer mentioned to the *Heren XVII* the possibility of a quicker route from Cape of Good Hope to the Indies. It was decided to investigate this route immediately and Hendrik Brouwer, as commander of DE RODE LEEUW and GOUDA, set sail from Holland. After the Cape, he sailed southward until he reached the southern latitude of 36° , where he met steady westerly winds, Stapel (1937). With these winds he sailed east until he estimated to be south of Sunda Strait, where he headed north. It took less than six months to reach Bantam and only a few people had died en route. Brouwer wrote a report to the Netherlands advocating this route and, in the next few years, skippers were ordered to test the new course. The results were favourable and the Governor General, Jan Pieterszoon Coen, wrote enthusiastic letters to the *Heren XVII*. Finally, on August 4, 1616, it was resolved:

"that the merchant, the steersman and the other officers of the ships sailing to the Indies, would be ordered to sail the route, recommended by Jan Pieterszoon Coen in his latest letters, and by Brouwer in his report", Heeres (1899).

From the Cape, they had to sail 1,000 *mijlen* east before steering northward to Sunda Strait. For further details, see Sigmond (1974). The Dutch word *mijl* is used here purposely to indicate the difference from the nautical mile. The Dutch *mijl* was approximately four times the modern nautical mile. For a detailed research, see Green (1977).

CHAPTER II

Journey of DE VEREENIGDE PROVINTIËN (1654-1655)

Gijsbert Heecq, who sailed as upper surgeon on-board the ship VEREENIGDE PROVINTIËN (United Provinces) in 1654, gives an interesting description of the problems and dangers that ships encountered on their way to the Indies. Although sometimes extremely entertaining, this is not the place to give his daily notes in detail. This selection of excerpts has been restricted to the most relevant parts, to give some idea of the voyage that the VERGULDE DRAECK would have had, and the type of experiences its complement would have encountered, L'Honoré Naber (1910).

Note, in the following translations, the text in double brackets (()) is the author's parentheses and in single brackets () are the parentheses of Heecq, the author of the original work.

JOURNAL

OR

DAILY NOTES CONCERNING

The most notable events taken place and occurred
during the third voyage
of

GIJSBERT HEECQ

TO

EAST INDIES

As well as the things that (during his time) happened in other quarters of the same, always as made known to us by trustworthy persons.

"Starting in the month November A^o 1654 with the ship VEREENIGDE PROVINTIËN."

((Having left Rammekens on November 18 with 380 people aboard and with Mr. Sterthemius, *Extraordinaris Raad van India* (Extraordinary Councillor of the Indies), commander, and Pieter Matheusz Padt van der Vere, skipper, the ship met heavy weather in the Channel, and found shelter in Dover which it left on November 29)).

"29 D^o. In the morning, an easterly wind. We raised our main topmast and left the English pilot. Raised anchor and sailed with a fine breeze. Around midday, we met an English ship that cruised here. We had to lower our flag (as ordered by the *E. Heren* ((Noble Gentlemen)) *Staten*) and to fire a shot when he did and then raise the flag again; this being stipulated in a special Article of the peace agreement with England. The same they had to do meeting Dutch ships on our coast, thus we did so (to prevent trouble)."

((The VEREENIGDE PROVINTIËN sailed onwards and reached the Canaries in January 1655)).

"8 D^o. In the morning, we were still along the Isle of Fortaventura, the longest of the Canaries apart from Ilha

Madera. One says these are very fertile with wine, corn and that sort of victuals. They are inhabited by Castellians or Spaniards, who have built several towns, strong fortresses and beautiful castles. They pay a yearly tax to their king and live here in much wealth. These two islands lie mainly at 28°N latitude and about 20 *mijlen* from Cabo Baijadoor on the Coast of Barbary. In the beginning of this voyage, we planned to visit one of these islands or Tinarriffa to take on water and fresh victuals, but because this is now the most unfavourable season of the year, and thus everything very expensive, we changed our mind. It was agreed between the officers, because little illness of importance was evident among the crew and we had no shortage of water, to continue to Cabo de Verde, lying at about 15 degrees N. Latitude, where the Coast of Barbary meets the Coast of Guinea, hoping to find there more satisfaction of victuals, and also good water. Which being considered by the ship's Council, it was agreed upon; we plotted our course SW, mostly along the aforementioned mainland, keeping the islands ((Fortaventura)) starboard from us. We saw the island of Groot Canarien or Ilha Grand' Canaria of the Castellians, a high and mountainous island (like the others). Made good progress.

"9 D°. Today the wind mostly NE with fine weather. We guessed to have caught the trade wind that is always blowing here in the same way, year in year out, for several hundred *mijlen*; which seems strange to many (because this is unusual in our country) yes, nearly unbelievable, but is found, thus, by experience, not only here, but also in many places in the East and West Indies."

((On January 15, they reached Cape Verde Islands, where they took on fresh victuals and water)).

"19 D°. We are still busy fetching water. Also lowered some guns into the hold to make our ship more stable under sail, repairing nearly everything that was necessary. Receiving on board now each day abundant fish, wine de Palma, milk, eggs, hens, pumpkins, water-melons, tamarinds, bananas, and the same, although smaller amounts

of the fruit because this was not the season; otherwise also lemons, oranges and a lot of other fruit are plentiful here.

"21 D^O. Now we have received our last water, so we prepared to set sail again. As the aforementioned commander ((the representative of the West India Company, merchant Johannus Hacq)) is familiar with these villages, he sailed ashore in the *sloop* ((yawl)) (with one of our understeersmen) as late as tonight, going a bit southward to exchange some cows, he-goats and hens for us as provisions for our voyage. When he returned on-board tonight, he brought along a good number

"This river (Gambi), according to the map, joins inland with the famous river Sinegaël, making this land, Cabo Verde, into an island, named Cambaya. There in the south, it was (according to their stories) easier to get water than where we are lying, and more wine de Palma, a very sweet and pleasant drink when fresh, but sour and unpleasant after just one day. This they can very cleverly extract twice a day from palm trees that grow here abundantly. Hens, he-goats and cows could be exchanged there easily enough, and it was not more than one to two *mijlen* from this water place, which is worth keeping in mind

"At night, four sailors were missing and as we were ready to sail and planned to leave in the morning (the wind permitting), the Hon. Mr. Sterthemius sends the yawl well-manned with the third watch to look for them ashore. But they could only find two, lying asleep in the village, drunk from wine de Palma, and they picked them up. They said one of the others named Ide Auckes van de Biemster, *bosschiet* ((gunner)), was lying dead against a sand-hill outside the village, killed by the peasants for his mutiny. Our men dared not venture there during the night, as was suggested, and returned on-board with the other two. They didn't know where the other was named Johannus Witstadt from Amsterdam, *bootman* ((boatswain)). Our men spent the whole night by quarters stowing everything away, making preparations to weigh anchor.

"22 D^O. At daybreak, we set sail with a good wind and reasonable progress, having no sign yet from the two aforementioned sailors. We left letters with the men from the *fluit* WITTE RAVEN to hand to friends in the Fatherland. This ship was not due to leave here before May, because he did not expect to be loaded earlier. We raised our top-gallant-masts now approaching gradually the 'beautiful weather sea'. Plotted our course S.W. for the first time, intending to proceed on our journey. May the Only Almighty grant us happiness and prosperity to salvation. Amen.

"23 - 27 D^O. In this period I was very ill, however nothing much important happened anyway, the wind and weather usually being as wanted. Went mostly straight south hoping to get with this fresh breeze quickly through the *Linea Equinoctialis*, where one usually encounters very calm conditions, yes, sometimes lasting for months, resulting in much illness. During this time, the *E. Hr.* Sterthemius invited all the ship's officers to his cabin and treated them generously to the best of his ability.

"28 D^O Morning. Calm, got several squalls with rain, thunder and lightning which is quite common here because of the changing of the trade winds blowing in the N.N.E. and in the S.S.E. all through the year, which is strange."

((Following this is an interesting but too lengthy story about sharks)).

"29, 30 and 31 January. Generally calm, quiet; got occasionally some squalls but with light breeze and immediately gone. Advanced, therefore, little. Rain was not lacking so our men could collect enough water and therefore did not suffer thirst. The tremendous heat in this area is common but nevertheless a nearly unbearable torture, because their water ration is not sufficient for them, being normally a *flabkanne* ((can with lid)) of eight *mutsiens* ((8 *mutsiens* = 1.2 litres, Stapel (1927))). They sell everything they possess to quench their thirst and their situation worsens when the

ration is reduced to six and even four *mutsjes* each, as one has often seen happen with contrary winds, calms and such inconveniences on long and adverse voyages."

((They met the VOGEL PHENICX on the February 1 and, on lowering its flag in acknowledgement of Sterthemius' higher rank, the PHENICX sailed in company for several days)).

"9 February. This morning skipper Root Haes and Snr. Agis ((of the VOGEL PHENICX)) came to ask our *E. Hr.* Commander to be allowed to run ahead because they thought they sailed faster than we did, which was granted. Therefore, they took leave quickly and, having returned to their ship, fired three shots for salute and goodbye which we (after sea-customs) answered with one, each doing his utmost to be first at Cabo de Bona Exprance, which nobody is allowed to pass now (unless forced by very bad weather) according to the order of the *E. Heren Bewinthebberen*

"10 D^o ... The S.E. trade wind is now gradually coming through which is extremely pleasant.

"11 - 15

"16 D^o. Today, on 11^o south of the *Linea Equinoctiael*, we passed the sun which is gradually going north again, there to warm the frozen and closely-locked earth, to bring to life the trees and herbs that have been dormant long enough and now, according to the old custom, will enjoy the heavenly warmth. Yes, even people, cattle and all that inhabits the earth feel this as a heavenly air bestowed upon us by the unique natural quality of the only Almighty Lord, principally to support this temporary life. Without this force, we and most of God's creatures could not exist, but would quickly die, dissolve and vanish completely."

((They met the CONINGH DAVID with skipper, Cornelis Rob)).

"20 February 1655. In the morning good weather with excellent progress, the *fluit* DE KONING DAVID about $\frac{1}{4}$ *mijl* behind us, not much difference in speed. Found today to have passed these perilous shoals, *Abrolhos* which is Portuguese for 'open your eyes'. For this (as sign of joy) every table was served a jug of wine, hoping to end the journey now safely with God's help, because the East Indiamen that sailed before and came out below this shoal ((i.e. north of them, those ships were carried back by the South Equatorial Current)), either returned or had a very long and difficult voyage.

"This aforesaid shoal lies mostly at 18 degrees S. Lat., not having its name in vain because it consists of only reefs, rocks, sand banks and lots of little islands, extending mainly east-west at about 60 *mijlen* from the Brazilian coast into sea; so all the ships that want to go to Rio Dengera ((de Janeiro)), Rio de Plato, or through Strait Magelanes to the South Sea ((Pacific)), are also forced to run above this shoal

"*Primo Martio*. At night, we got the long hoped-for westerly wind, gradually becoming stronger. Plotted, therefore our course already in the direction of the aforementioned Cabo, had (God be praised) very few sick people and the whole night made beautiful progress...

"8 D^o. Towards daylight, the wind came mostly N.W. with a good breeze, our course as before. In the afternoon, Christiaan Jansz van Coppenhage, soldier, fell overboard from the cat-head (near the *galjoen*) and, although he could swim, and despite all possible effort with planks and even throwing overboard the cabin door, putting into the wind and lowering the yawl, he drowned nevertheless, because the sea was rough and high so that the yawl had trouble enough keeping itself above water. We set sails again and sailed our course with an excellent progress

"11 D^o. In the morning, we found ourselves not far north of the most northern of the Ilhas Tristan da Cunha, a steep and very high island tapering towards the top but not very long, similar to the three of the southern ones I saw before this (during the second voyage

with the ship HENRIETTE LOYSA A^o 1641). These lie mainly at the southern latitude of 37 degrees and longitude of 10 degrees, about 340 *mijlen* from Cabo de Bona Exprance, steering E.by N. They say these are desolate and uninhabited and therefore nothing special is to be had there. We passed closely, keeping it ((the northern island)) to starboard so that we could see it perfectly because of the clear air. It seemed to be free of reefs and little islands all around; however we couldn't find any sand beaches. Around noon, gradually the wind got very strong with dark, rainy weather. Therefore, we took in the top-sails and the sprit-sail, letting it go N.E. (because of the head wind) with the lower sails. But at night, the weather worsening, we had to take in the foresail, lower the yard and the mizzen-yard, lying to all night with the mainsail

"25 D^o. In the morning, the wind still mainly northerly with a slight breeze and the weather as wanted, which greatly amazed us. At this sort of southern latitude, one isn't used to beautiful weather for such a long time, but rather to gales and thunderstorms. Daily, we now saw many big gulls (named Gannets) around our ship, some grey at their backs with long white beaks, others mainly very white with grey wings; but they didn't come to rest at the yards at night as do the ones I have seen before this near the coast of Java and elsewhere

"30 D^o. In the morning, we drifted still with the sails hoisted as yesterday. Saw a sail nearing from behind, lowered the yawl. Cleaned the ship in the meantime, which was very dirty and overgrown with all sorts of weed. At about noon, we got a little breeze from the north." ((They meet the MAAGD VAN ENCHUYSEN)).

"*Aprilis* Anno 1655....

"2 D^o. In the morning the wind still southerly with a stiff top-sail breeze, steered mainly east; the MAAGD VAN ENCHUYSEN was a long way back. Had now clear and bright weather. Before noon, we saw the land of Cabo de Bona Exprance and found ourselves right in front of the Table Bay, named thus after a very high mountain with a flat

top like a table, and, therefore, also extremely prominent among the other mountains, because there is nothing like it anywhere near here. We fired a shot and hoisted the flag at the stern to signal to the *jacht* (according to sea-custom) plotting our course next straight towards the roads with excellent progress. In the afternoon, we saw a ship leaving the Bay, taking its course (because of the wind) north of Robben Eiland ((Seals Island)), a small low island of two to three *mijl* in circumference. Is named thus after the multitude of seals that are there, is about two *mijl* from the mainland, completely barren and unfertile. During the first watch, it became calm so that we were forced to drop the anchor between Robben Eiland and the Leeuwen Berg ((Lions Mountain)) at 23 fathom rocky bottom. This mountain is called that because it looks a bit like a resting lion and also because there are a lot of lions on it.

"3 D^o. With dawn, we hoisted the sails again with a little breeze from the south; before noon we came to anchor at the roads in the Table Bay, firing five shots as a sign of a safe journey. Those on land from the fortress de Hoop answered properly. We immediately moored our ship head and stern with two anchors, lowering the yards and the top masts too because it can blow here sometimes extremely strongly with squalls, especially when the aforesaid Table Bay is overcast with clouds."

((After a list of all ships that are lying there or have just left, he continues:))

"In *somma*, here seems to be the Rendezvous, but this would not be so if the *E. Heren Bewindhebberen* had not strictly ordered it because, before this, each tried to make a fast journey in order to obtain the Premium or reward, a considerable amount of money, awarded by the *E. Heren* aforesaid. The one that sails in the shortest time gets the biggest amount, for which reason the skippers, steersmen and the others that gain from it, often (out of stinginess) do not want to put into land (resulting in lack of water and provisions) until the most extreme necessity forces them. And then it is usually (because of inconvenience)

too late, thus causing considerable privation and misery for themselves and the whole crew. Therefore then, now all the ships, whatever chamber they sail for, are obliged (as mentioned before) to call into this Cabo of Good Hope under penalty of the aforesaid Premium. Unless such was impossible in heavy weather or otherwise, as appearing from their recorded journals. However the time they are here is not counted in the journey"

((Van Heecq gives here a detailed description of the settlement at the Cape of Good Hope (fig. 2), which is especially interesting as it is the earliest known eye witness report, the settlement having been established only three years before. From this account we see that Van Riebecq had the place well organized; there was a good fortress and a flourishing market garden supplying the passing ships with fresh vegetables. The VEREENIGDE PROVINTIËN stayed on the Cape until the April 15))

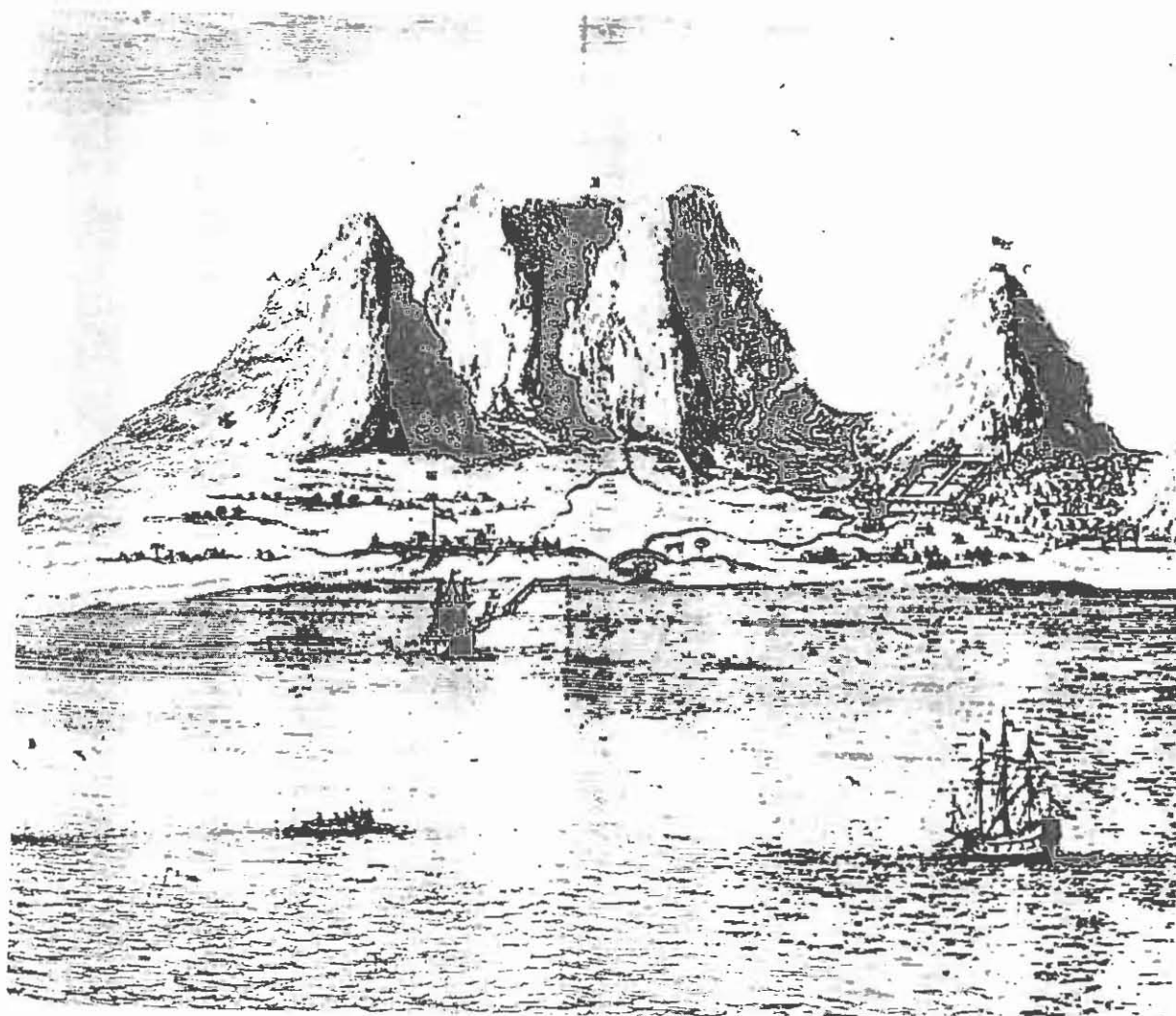
"14 D^O. In the morning, the boat sailed again to go fishing, but the catch was not nearly as good as yesterday although they still brought a good number, well worth the trouble.

"Today we also got the last provisions on-board consisting of several bags of cabbage, radish, carrots, and a large amount of water melons and melons that (after the cabin had taken their portion from it) was divided among the crew. But of animals, not more than two old cows and a delicate sheep were divided between the whole fleet (in all the time we were here), which was not much help among so many people.

"15 D^O. In the morning, calm, and the *E. Cmdr.* Riebeecq came aboard to say farewell. About midday, a little breeze but very variable. However, we set sail, namely we, as Admiral, in company of the ship PHENICX, the *jachten* COUKERKEN, MAAGD VAN ENCHUYSEN, BLOEMENDAL and CONINGH DAVID, all happily firing away as a farewell which those from the Fortress de Hoop de Bon Voyage answered. The ship PRINS WILLEM and the *jacht* DERGOES stayed there to supply themselves first with enough

water and other necessities, and to follow us as soon as possible. The *jacht* CABBELJAEW was also planning to leave shortly for its destination. We plotted our course initially along the north end of the Robben Eiland to meet as little calmness as possible, the wind still variable until the dogwatch, when we got a good breeze from the S.S.E. Therefore steered mainly S.W.

"26 D^o. In the morning, dark, rainy weather, the wind mostly southerly. And as we had now come to the wanted latitude, namely 40 degrees S. latitude, we steered dead E.; in the afternoon the wind shifted S.E. and so easterly that we had to steer below N.E. but at night it veered gradually more aft



(2) The Cape of Good Hope. Detail of a Dutch engraving from the second half of the 17th century.

"30 D^O ... About midday, the wind shifted westerly and started to blow so strongly that we had to take in the topsails. By evening it looked very turbulent. Took in the sprit-sail, the courses, and the mizzen just in time. Met a hard hail-storm, which changed gradually into rain with such horrifying lightning and terrible thunder that fire struck into the upperpart of our main mast, but (to everybody's luck) it extinguished itself under the wetness of the hail and rain before we could get the leather buckets with water above. Otherwise would have brought great distress. The mast was very little damaged, but that same strike shooting down like a flare, struck down several people (near the store-room) of whom one was left for dead, another one wounded in the breast and another in the leg; the one that was hit in the breast was also struck about a quarter of an hour before, in the side, as he was standing on the poop (being quarter-master) getting the lantern ready, and he fell from the bench on the cabin, the thunder lying (as he said) like a burning ball next to him but immediately disappearing again. Surely a clear sign of God's wrath for our many misdeeds. Outwardly we couldn't see anything on the dead man other than that he was very swollen. We let it ((the ship)) go *bratwart* ((probably before the wind)) with only the foresail, not yet daring to set any sails because of the turbulent and variable weather that caught us every time most unexpectedly.

"*Mayus* A^O 1655.

"1 *Mayus*. With dawn, reasonably good weather, the wind westerly. Set all sails again, got a little drizzle before midday, after that again sunshine. Went dead east with nice progress, however, the sea was hollow and very angry because of all these variable winds so that we were usually lurching a lot. Put overboard, according to sea-custom, the aforementioned man killed by the thunder, named Claes Volkertsz van Noortwoude, boatswain. Note, it is remarkable that this person has already had to stand before the mast twice for thieving (during this voyage), but he seemed not to be able to forego it, taking watchcoats, cheeses, bread, thread, Spanish soap, tobacco-boxes, knives and everything that he could secretly steal away. Had red hair, deep, dark eyes and a very sneaky character.

By evening (during prayers), Jan Janszen van Enchuysen, gunner, has died, having fallen by accident into the holds yesterday (during the lurching) and having been wounded very seriously internally and externally, being an old grey man of about 70 or more years. He was also given an honest burial at sea the next day

"7 D^o. In the morning, good weather, the wind northerly with a good breeze, and reasonable progress, were still at 40 degrees S. Latitude, but started today to steer E. by N. to avoid coming too near the S. (and through miscalculation as we daily found to be more southward than we thought)....

"10 D^o. In the morning the weather as wished, the ship PHENICX and the *jacht* COUKERKEN were still very fast sailing but nevertheless did not want to sail away from us to favour Mr. Sterthemius, because such senior officers (on reaching land) can easily credit them with a good or a bad voyage, when their emotions are roused. By midday, as we were now nearing the Islands of St. Paulo and Nieuw Amsterdam, our *E. Hr.* Cmdr. had a shot fired to windward and had a rolled, white flag displayed, the signal that we want to speak the other ships; and thus, the *jacht* COUKERKEN (coming to us), since he was the lightest and the best sailor and could be best got free from the shore (if we suddenly came too near), was ordered to sail in front and also to carry a fire at night to signal to us in time (with the usual sign) so we could be on the alert betimes (having heavy unwieldy ships). By evening, calm, wind variable, but at night again westerly with a good breeze

"15 D^o. In the morning, with dawn we saw the Island Nieuw Amsterdam at starboard, therefore, we fired a shot and carried the flag on the stern, as is the sea-custom. Today, two holdworkers were put into the chains for having taken some goods out of the hold; also, at night, till further occasion two soldiers (out of suspicion) for throwing a bullet at the uppersteersman

"17 D^o. The whole day it was calm and still, therefore, drifted with the sails clewed up. A lot of little black and white speckled sea-gulls are to be found here, not very big, of which we caught a few with bacon on little hooks. They were very hungry because

(as it seems) there is little prey for them here for we didn't see anything but tuna fish, *cachalots* ((spermwhales?)), whales and other big fish because it is winter here at this time of the year and also very cold, and most of the other fish move to the warmth. At night a light breeze, but variable

"22 D^O. In the morning, still quite calm with a dark overcast sky, therefore, clewed up the sails, fired a shot and flew the white flag to *pidtsjaren* ((Malay: *bitjara* = speak)), being the usual sea signal to order the skippers and merchants of the ships (sailing under the flag) aboard. When, in the afternoon, everything (concerning courses and reckoning) had been decided, everybody returned to his ship. Got a light breeze from the N.E. that gradually freshened

"26 D^O. In the morning, the wind S.E. and rather easterly with quite a breeze and good weather, saw another sail forward alee, flying the *Princevlagge* from the top and stern, waiting for us with lowered top-sails. Found that the ship that joined us yesterday is the *jacht* BLOMMENDAL which set sail from the Cape together with us. It was commanded by skipper Jan Cornelisz Joll, son of the very brave Commdr. Houtebeen and was in size and crew about the same as the MAAGD VAN ENCHUYSEN. Nearing, the aforementioned ship ((seen forward in the lee)) lowered the flag, firing five shots for welcome which we answered with three, lowered the yawl and the upper-merchant named Van Heyningen with the skipper Pieter Janszen Mund came aboard. Understood it to be the WAPEN VAN AMSTERDAM, that we had met when arriving on Cabo de Bona Exprance, as said before. Had few sick and eight dead. It accompanied us on the same course, the wind veered about midday a little aft. By evening, gradually backing again to the east, at night becoming even sharper, with gusts all the time

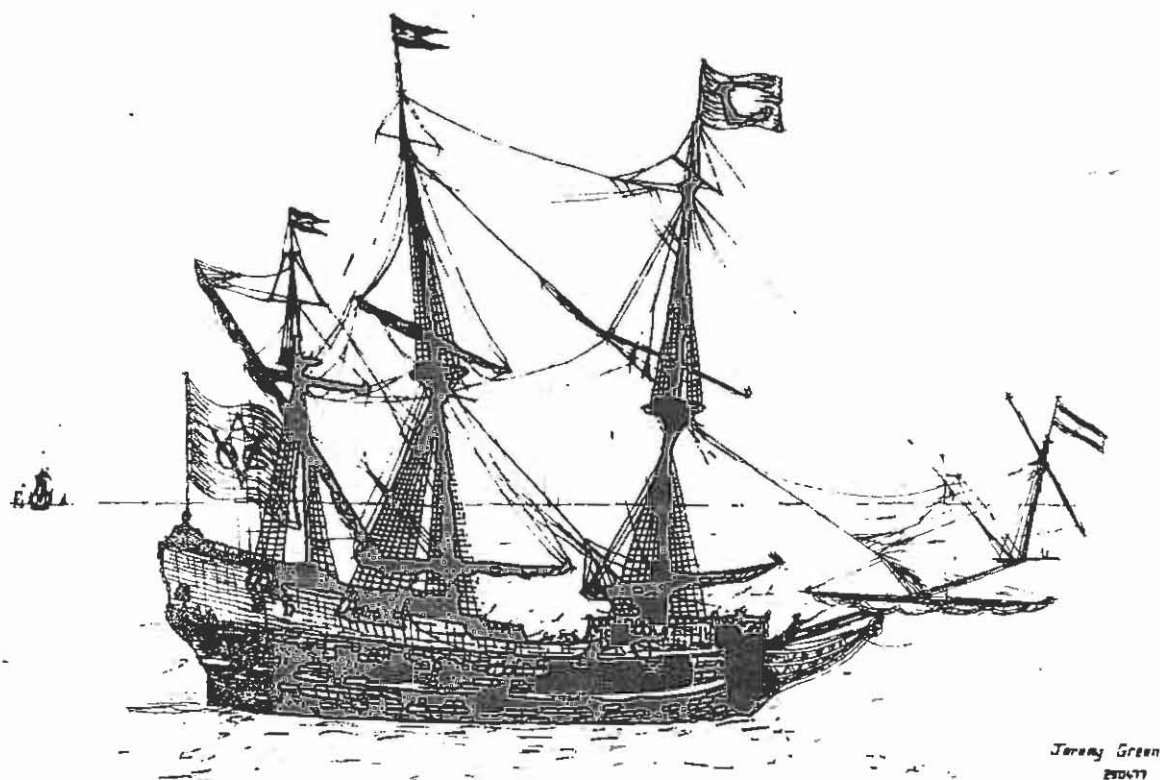
"28 D^O. In the morning, the wind E.N.E. sometimes even easterly. After everything was done, everybody returned aboard and Mr. Commdr. gave permission that from now everybody could do his best to try to reach Batavia first, as he supposed ((by this time)) the men on the ships had a great need ((to get there)). We gave each other,

therefore, several salutes, each hurrying to be first. By evening, the wind a bit more aft but calm.

"29 D^o. In the morning, the wind about E.S.E. with a good breeze and because we were now at the height of 25 degrees S. Latitude and we, therefore, reckoned to have mostly passed the bad weather, we raised the top-gallant masts. Had daily fine weather and have noticed since yesterday considerable warmth compared with what we have had now for a long time, so that with many the stockings and shoes got the sack. At night, the breeze started to freshen a bit."

((They reached Batavia June 18, 1655)).

The Jacht Vergulde Draeck 1656



- (3) An artist's impression of the VERGULDE DRAECK, taken from a contemporary illustration of the *straets-vaerder* the VERGULDE DOLPHIJN by Reinier Nooms (alias Zeeman) 1623-1664 (see Nooms 1970).

CHAPTER III

Origins of the VERGULDE DRAECK and the events prior to her sailing in 1653

At the meeting of the *Heren XVII* on January 21, 1653, the representatives of the Chamber of Amsterdam mentioned that a new ship had been offered for sale for 28,250 guilders, and that they had bought it, KA 186. The ship was 137 feet long, 32 feet wide, 13½ feet 'hollow' and at the top 7 feet. (It is not sure which foot is meant here, but most probably the Amsterdam *voet*, measuring 0.283m, Van Dale (1970).) The meeting decided that it should be fitted out by the Chamber of Amsterdam and would be sent to the Indies that spring in place of the ship DIAMANT, which had recently been wrecked. The Chamber of Amsterdam had sent two representatives to Sardam (Zaandam, just north of Amsterdam) to buy the ship; on January 24, the Chamber approved of the purchase and, on March 10, the ship recently bought in Sardam, was named the VERGULDEN DRAECK, KA 363. (She is sometimes referred to as a *jacht*. Originally the word *jacht* was used to indicate a fast ship, in which more emphasis was put on sailing ability than on cargo capacity. The word *jacht* does not indicate a completely different type of ship as, for example, *fluit* (see below, Appendix 1); the fact that the VERGULDE DRAECK is called both *jacht* and ship, illustrates this situation, see fig. 3). On September 16, 1653, she is mentioned in the list of ships equipped by the Chamber of Amsterdam, as having a cargo capacity of 130 *lasten* (approximately 260 tonnes), KA 186.

Usually the crews for the ships were appointed as close as possible to the date of departure. The Chamber of Amsterdam had one clerk especially assigned to write down the names, to keep a muster-roll, and to hand out the two months' pay which all crew members received when signing on, Van Dam (1701), 14. The skippers sailing for Zeeland and Amsterdam received three months' pay when they signed on, but this exceptional situation was abolished in 1678, and from then they got the usual amount of two months. Pay started as soon as the ships had put out to sea. The merchants had to give security for their proper account and administration. On their return from

the Indies, the merchants, the skippers and steersmen were paid only after the meeting of the *Heren XVII*, who thoroughly checked their behaviour and conduct during the trip, Van Dam (1701), 18. On Thursday April 17, 1653, the positions of skippers, undermerchants, and assistants, for the next fleet to the Indies, were advertised (apart from the DRAECK, this fleet consisted of the NAERDEN, VREDE, 'T LAM and 'T KALFF for Amsterdam, later joined by the BREDA for the Chamber of Hoorn). Applicants had a week to present their names and the following Monday they would be appointed. On Thursday May 8, the Chamber resolved to appoint a third steersman on the VERGULDE DRAECK and the NAERDEN and on May 14 the rest of the crew for the five ships was signed on. The fleet was to leave from het Vlie as had been decided on April 30, and it seemed then that nothing would prevent a speedy departure. The Chamber sent a representative to het Vlie to check on the loading and to keep a close watch on the seamen's chests, as these often exceeded the regulation size, enabling the men to hide away more private trade goods than was permitted, which was a constant worry to the Company. Article 52 of the *Artikelbrief* (the articles, in which the duties of the Company's servants are written down) set the limit of private trade. Nobody was allowed to bring from the Indies goods exceeding the value of three months' pay, valued at the price these goods would fetch when sold by the Company. If they exceeded this limit all goods would be confiscated by the Company, Van Dam (1701), 26.

In the meantime, another representative had joined the first and together they inspected the ships in het Vlie. On the DRAECK, they discovered a box containing letters and a piece of goldcloth. The letters were read in the Chamber (unfortunately their contents were not important enough to be mentioned) and the goldcloth was confiscated. Later more letters, dealing with private trade, were discovered.

During this time, the Republic of the Seven United Provinces was in the middle of the first Anglo-Dutch war (1652-1654). The Company contributed to this war in many ways, for example by supplying ships to the State fleet and in some cases having them especially built. In return for this assistance, the States General

(the body of representatives of the Seven Provinces) was more lenient in renewing the contract by which the V.O.C. secured its monopoly of trade.

In the summer of 1653 the English fleet was in the North Sea, blockading the northern seaways of Holland. The State's main fleet was lying in the Wielingen near Vlissingen (Flushing) under Admiral Tromp. Due to the English blockade, the second fleet which lay in het Vlie under command of Vice-Admiral Witte de With, was unable to join Tromp.

At the time when the East Indiamen were ready to leave for the Indies, the States General was investigating to what extent it could enlarge its fleet and was advised about the five East Indiamen in het Vlie. On May 6, through the Amsterdam Admiralty, they inquired if the Company could contribute any ships to the State fleet. The Company answered that the only ships they had were the ones about to sail for the Indies and that they could only supply a *jacht* which would be ready on June 20. They would await advice concerning this *jacht* (the MARS) from their delegates in The Hague.

Meanwhile the preparations for the departure of the East Indiamen continued. However, on Thursday May 29 the delegates in het Vlie were ordered to postpone the departure until further news from The Hague was received, KA 363. Rumours of the presence of the English fleet in the North Sea made the Amsterdam Chamber hesitant to despatch the five ships.

On June 16, a decision was made to authorise the delegates to despatch the fleet:

"... with the first fair wind, provided there is no sign of danger from the English and that no contrary order is received from this table", KA 363.

If no sign of the English was reported, the delegate was to be allowed:

"... to dispatch some *galliodts* or other vessels from there to investigate. If any English ship was sighted this should be reported in het Vlie, but if there was no obvious danger, then the five ships could put to sea", KA 363, June 17, 1653.

Two days later, these orders were repealed, a meeting of the *XVII* was called to look into the dangers of the situation and the delegates were told to wait for further instructions, KA 363, June 19, 1653.

On Monday June 30, four gentlemen, representing Their High Mightinesses the States General in The Hague, appeared before the meeting of the Chamber of Amsterdam and explained the State fleet's great need for ships. They asked if it would be possible to unload the six East Indiamen (the *BREDA* had joined the five other ships), and to second them for a short period to the State fleet. In return the States would protect and convoy the Company's fleet, due in that year from the Indies, KA 363.

The Company refused this request, stating that even if they unloaded the ships, it would be of no service to the country, since the crews were unwilling to serve in the war, particularly as they had not been employed to do so. Furthermore, of the six ships, two were only small vessels and one, the *BREDA*, was provided with very poor cannon, KA 363, June 30, 1653.

On the following Thursday, the States General tried again to secure the use of the Indiamen, this time with a more urgent request, pointing out that if the Company did not co-operate, the States would force them to. Nevertheless the Chamber abided by its original decision, KA 363, July 3, 1653. When the States General persisted with a third request, this time through their representatives of the Provinces of Holland and West Friesland, the Amsterdam Chamber decided to send a delegation to the Burgomasters of Amsterdam. These Burgomasters, who benefited highly from the prosperous trade of the V.O.C., were asked to plead with the States General and to point out that the Company had already done a lot for the country.

If, however, the Burgomasters agreed with the States, then it should be considered what effect this unloading would have on profit and then a suitable compensation should be provided, KA 363, July 13, 1653. The Burgomasters of Amsterdam answered that, considering the troubled state of the country and the State fleet, it would be proper to unload the ships, provided that any damage was compensated, and that the men's pay dealt with accordingly, KA 363, July 15, 1653.

Finally, a compromise was reached in a resolution passed by the States General on August 1, 1653. The ships would be made ready for battle and their half-decks cleared. As soon as Admiral Tromp appeared off het Vlie, they were to join him and to stay with him until he granted leave for them to continue their voyage to the Indies. If the enemy was encountered while they were in company with Tromp, they must assist him in the fighting in every way possible. To encourage the crews, a premium was provided for gallant behaviour, KA 363, August 3, 1653.

After some bargaining and a few changes in the wording of the resolution, the Company agreed. They unloaded the money from the ships and the skippers of the six vessels were ordered to act according to the resolution, KA 363, August 5 and 9, 1653.

Tromp, however, never appeared, because De With and his fleet had managed to slip through the blockade and join Tromp and the main fleet. On August 10 the combined fleet met the English near Ter Heide (south of The Hague) and, in the ensuing battle, Admiral Tromp died. When De With returned with his battered fleet to het Vlie, the six East Indiamen were still lying there, Elias (1916-30). Many other merchant vessels were waiting to set sail with these ships, they were mainly bound for the Baltic. The States General had decided to convoy all the ships north on August 26 (the East-Indiamen would go *achterom*, i.e. north of Scotland).

However, by August 23, the Company had dispatched the East Indiamen on their own. The States were furious and the Company was asked to explain its action. On September 6 three directors were questioned and, on September 9, they were severely reprimanded and told: "... to act in future with better circumspection, following the intention of the Government and Their High Mightinesses' order", Elias (1916-30).

CHAPTER IV

The DRAECK's First Journey (1653-1654)

To some extent, we can follow Gijsbert Heecq's journal for the first journey of the DRAECK. Of course Heecq left from Zeeland, so he did not make the detour of going north of Scotland, but for the rest there could not have been much difference. Jan Camphuijs, the former junior bookkeeper of the LASTDRAGER, which ship had been wrecked off Shetland on March 2, 1653, was one of the people on-board the DRAECK. After he had safely returned to Amsterdam he now tried once again to reach the Indies (see below, Appendix 1). It took the DRAECK a long time, nearly seven months, to reach the Cape of Good Hope. The NAERDEN, BREDA and 'T LAM had arrived there by the end of December and the VREEDE followed on January 6, 1654, but all through the remainder of that month there was no sign of 'T KALFF nor of the DRAECK. The inhabitants of the fortress of Good Hope were getting worried about the fate of these ships when finally, on February 9, the secretary of the Company could write in the Day Register:

"... Tonight arrived here safely on the roads from Patria, God be praised, the *pinnacle* 'T CALFF, which left together with the VREEDE, DRAECK, NAERDEN and 'T LAM, but had called into St. Jago ((one of the Cape Verde Islands)). Eight people have died on the voyage and at present more than 20 are sick in their bunks. ((They say that)) on-board the DRAECK (whom they had been with last Friday) 20 people had died and nearly everybody else was lying sick including the skipper who was in such a bad way that he was helpless, and we fear that his poor health will make him nearly incapable of steering the ship or bringing it here. However, we hope that God our Lord will assist them and help them to arrive soon at this place; therefore, we will keep a constant lookout and, if possible, send them as much help as we can, either with the boats ((*sloepen*)) or the *galjoot*.

"11 February. Again kept a lookout from the mountain for the DRAECK which cannot be far from shore and should appear with this westerly breeze, but is not yet sighted.

"12 D^o. In the afternoon, it became calmer and the look-outs brought the news that they had seen a ship behind the Leeuwenbergh and, because we supposed it to be the DRAECK, we sent the skipper of the *galjoot* thither to assist them with our Biscay boat ((*sloop*)) full of men and to pilot them into the Bay, as we had done with 'T CALFF. But as soon as they arrived on-board, a strong wind came up from the S.S.E. so that they dropped anchor under Robben Eiland, in order to get into the Bay early tomorrow morning with a north-westerly breeze (blowing here often as day approaches).

"13 D^o" ((Still a strong S.S.E. so they cannot get here)).

"14 D^o" ((DRAECK still unable to arrive)).

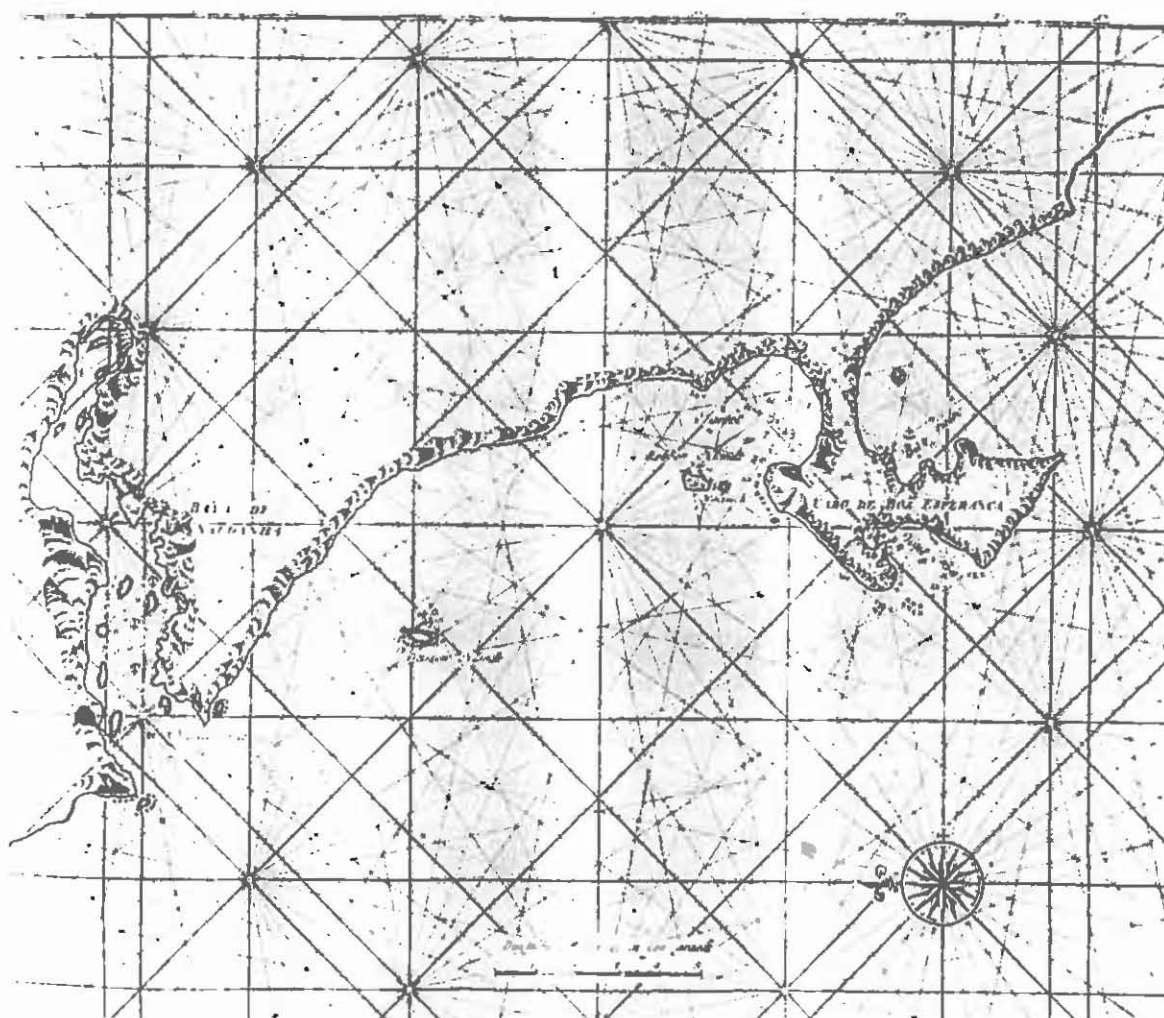
"15 D^o Sunday, variable breeze. In the afternoon, the ship, the DRAECK, our Lord be praised, arrived safely on the roads, full of sick and people suffering from scurvy and almost incapable of handling the sails. From information of the skipper of the *galjoot* (whom we had sent to him as said before) we learned that while anchored there, they had fetched some eggs and penguins from Robben Eiland. He reported, too, that the sheep, that we had put there last season, had increased their number to eleven and that one was in lamb.

"16 D^o. Weather and wind as yesterday. The DRAECK came a bit closer to shore as they had not been able to come close enough yesterday because of the lack of wind", KA 3967, fol. 107.

The DRAECK and 'T KALFF were not the first ships to take such a long time. Van Riebeeck wrote about this to the *Heren XVII*; he remarked that a delay often occurred in the very last lap of the journey,

where the ships were unable to get into Table Bay. In a detailed instruction for the skippers of the ships sailing to the Cape of Good Hope, they are advised if they cannot first make Table Bay, to go to Robben Eiland or to Dassen Eiland or to Saldanha Bay (see fig. 5); the *Heren XVII* wrote:

"... in short, at all times of the year, the ships that arrive too far to the north, can anchor there quite easily and after waiting for two, three or four days, they can sail into Table Bay with a westerly wind. This is much better than to get out to sea again each time and thus be deprived of these roads and



(5) Tablebay and Saldanha Bay with Robben and Dassen Islands.
Engraving from *Oud en Nieuw Oost-Indien* (Valentijn 1724-26).

refreshments for months, as has happened before to many ships through lack of this knowledge. Just lately, in the beginning of the year 1654, the DRAECK and 'T KALFF, having been set back on to Dassen Eiland and the bay of Saldanha, spent nearly a whole month trying to get into Table Bay which, as said before, can be done in two, three, four and five days at the most", KA 187, April 7, 1655.

The cattle situation at the Cape was bad at this time, as we have seen in Van Heecq's Journal. He complains that they can only get two cows and a sheep for the whole fleet. Van Riebeeck complained that the Hottentots would only sell cows for copper sheets and occasionally a sheep for copper-thread. But, he writes in a letter of April 14, 1654:

"Cabbage and other vegetables cooked with bacon serve as perfectly for refreshments as freshly slaughtered meat. We noticed this clearly on the ships BREDa, NAERDEN, 'T LAM, VREEDE, 'T CALFF and the DRAECK: their crews were refreshed so perfectly that all scurvy and illness vanished completely", KA 3967, fol. 9.

While the crew recuperated, the cargo for the Cape was unloaded. We have no records of this for the DRAECK, but every ship carried at least a few items intended for the new settlement.

We read in the Day Register on February 24:

"... the ROODE VOS returned from Dassen Eiland with 2,000 seal skins and five barrels of trainoil, of which we could have got more, but we cannot keep it in the old barrels. So we really need some cement and bricks from home in order to build containers buried in the soil. There are plenty of such bricks in the cargo of the two ships, the DRAECK and 'T CALFF, but as they are lying on the keel under all the cargo, we did not proceed to unload them. The ships would then need to have other ballast instead and to be completely unloaded which would cause considerable delay", KA 3967, fol. 109.

While the ships were lying at anchor in Table Bay various business usually took place. From one such dealing, a court case against the uppersteersman of 'T KALFF on February 2, we finally discover the name of the DRAECK's skipper: Aris Janz Dul, KA 3967, fol. 189. Another business was the provisional confirmation of several promotions on-board the ships. On the DRAECK, and 'T KALFF, several people had died on the long journey and those who had held some sort of responsible position had been replaced by others.

After a long delay at the Cape, due to the poor condition of the crew of the DRAECK, it is recorded in the Day Register on March 9:

"Fine, calm, sunny weather. Today the skippers of the ships, DRAECK and 'T CALFF, took their leave to set sail with the first good wind that God may grant and to proceed on their voyage to Batavia. We have handed them our letters and other papers for the *E. Heren* Governor General and Councillors of the Indies and we have supplied them sufficiently with provisions for their trip.

"10 D^o. Still calm weather which prevented the mentioned ships from sailing today

"11 D^o Idem.

"12 D^o Idem, till shortly after noon when it cleared and started to blow from the S.S.E. The ships DRAECK and 'T CALFF, set sail and managed to clear the Bay. By night, this south-southeasterly strengthened considerably, coming down from the Table Mountain with strong gusts.

"13 D^o. In the morning, this continued, but before noon it became very calm. The look-out then reported that the DRAECK was still close under the shore, drifting along in the calm, while 'T CALFF was already out of sight. When we had a look ourselves, we found this to be true. What is the use of them waiting so long for each other here in the Bay, if, as soon as they are out to sea they lose sight of each other?

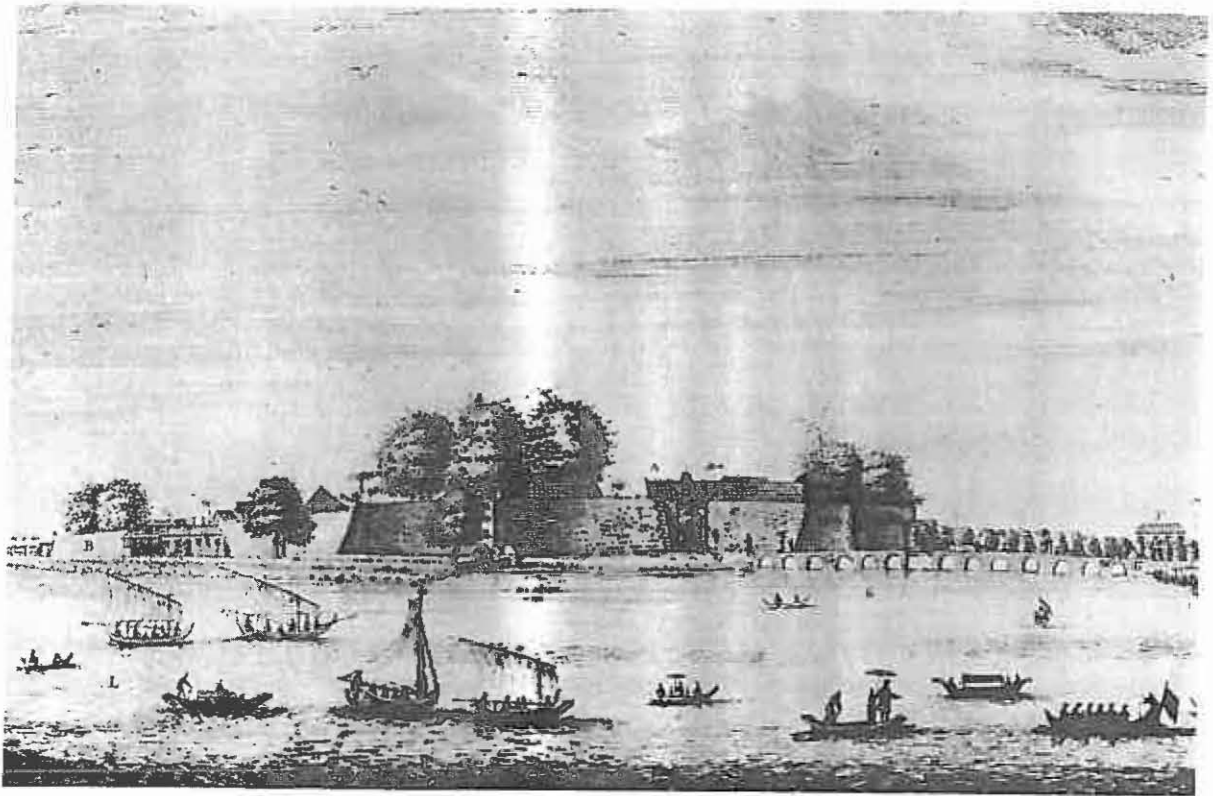
"By evening the DRAECK returned, reporting to the skipper of the *galjoot* (sent thither to enquire after the cause of their trouble) that they had drifted all night near a rock between Robben Eiland and here, running great risk of foundering thereon. And because they were coming down dangerously close upon the shore because of no wind and the heavy swell of the sea, they had decided to tow the ship with the boat and to return to this Bay.

"At night a very strong wind came up from the S.S.E. with heavy gusts coming down from the Table Mountain.

"14 D^O. In the morning, they were still continuing and although this was a good wind for the DRAECK to proceed far out to sea, she remained nevertheless at anchor without anybody coming ashore. We, therefore, fired a cannon shot from the fortress to tell them that with this good wind they should set sail. About two hours later, they left these roads and were soon out of sight. May the Almighty grant her and 'T CALFF a safe arrival in Batavia, amen", KA 3967, fol. 111.

Batavia, the town for which the DRAECK was headed, had by the 1650s grown into a prosperous city. All over the city were fine houses, swamps were filled in, irrigation canals had been dug, bridges had been built and several warehouses now stood along the riverfront. It was clear that trade had brought prosperity. Gijsbert Heecq comments in his journal on the change in Batavia since he was last there in 1644:

"In *somma*, one sees here that times have changed, in the old days all the bridges were made out of wood, even the one to the fortress (over the Malle Gat) which now consists of 13 arches with a wooden drawbridge to let the vessels through (fig. 6). Yes, everything seems to have changed. The inhabitants are now much better clothed; before, their clothing consisted mainly of cheap chinese silk, stitched or inlaid with rushes without any gold or silver, but one should see them now! It is all Dutch velvets, brocades, satins and the such, with gold



(6) The Castle of Batavia with the new stone bridge.
Engraving from *Oud en Nieuw Oost-Indiën* (Valentijn
1724-26).

and silver lace, finely decorated with buttons and other gall-
oons, glittering with spangles and their hats, stockings, shoes,
garters all with long gold or silver laces: likewise swords,
their hilts massive silver or sometimes pure gold, silver
spurs, massive gold buttons and lots of suchlike apparel to
cover the naked body. In this the women excel the men by far,
being inclined that way by nature (to dress up and to deck out)
but I will leave them aside and I will attribute it to their
weakness so as not to lose the favour of these pleasant persons,
since I'd rather see them nice and beautiful than ugly and
sluttish. One final thing I will say: O Batavia, Batavia,
formerly Jacatra, how much have you changed (in everything)!",
L'Honoré Naber (1910-1911).

It was to this flourishing city, the centre of the V.O.C. operations
in the Indies, that the DRAECK arrived on May 24, 1654.



(7) Pepper climbing up along
high reeds on the isle of
Banda. Engraving (detail)
from *Begin ende Voortgangh*
(Commelin 1646).

CHAPTER V

Back to Patria

The G.G. and Councillors decided not to send her back immediately with the next return fleet. They wrote to the *Heren XVII*, November 7, 1654:

"It is true that when we sent this fleet, some good *jachten* have stayed behind on these roads, such as the DRAECK, ERASMUS, ZIRCKZEE and NAERDEN. But because we are unsure how the situation with the English will eventuate, and whether they will send any naval power to the Indies to attack our ships, dispersed over these waters, which could cause the company considerable damage, we decided not to send these war-*jachten* home", Coolhaas (1964).

On Friday August 28, the G.G. and Councillors decided:

"From the *jacht* VLISSINGEN from the Chamber Zeeland, we have learned that the *Heren XVII* would like us to equip some *jachten* or *fluiten* seven to eight weeks earlier than usual. They want us to load them with raw goods like pepper and sugar, as these are at the moment much in demand at home and fetch a high price. So, to meet these requests, it has been decided that the *jachten*, DE GULDE DRAECK and WESOP, which have a reasonable cargo capacity will be loaded with pepper and sugar for the Chamber of Amsterdam. The *jacht* AVENHORN will go to Persia instead of the WEESP", KA 577.

The following summary of the decisions made by the G.G. and Councillors, before these ships finally sailed on November 7, 1654, gives an interesting view of the management of the V.O.C. in Batavia:

"Tuesday September 8. As the next shipment for home is being prepared, we will affix the usual placards at the usual place to warn those leaving for home and to make

known the contents of these placards. Firstly, concerning those that presume any demands or claims upon the Company, that they make themselves known or otherwise they will lose their claim. The same for those who want to send their private goods or slaves with the Company's ships and for those who want to send letter. Further concerning the regulations of transport and costs to be paid by free persons and Company servants who will leave for home. Finally for the buyers and sellers concerning the accounts of their monthly payments.

"Friday September 25. Decided to send the fleet on the last day of October and to try to equip a third ship for this first fleet.

"Thursday October 1. As the *jacht* SCHELLINGEN, God be thanked, has arrived from home from the Chamber of Amsterdam and as the first fleet still lacks one ship, it has been decided that, as soon as its goods from home are unloaded, it will be used as a return ship with the first fleet, since it has a reasonable cargo capacity.

"Friday October 9. We have at this time a large quantity of pepper and sugar in stock, which is lying here quite fruitlessly, causing great damage to the Company. We have also been ordered by the *Heren XVII* to send home two or three ships or *jachten* this year with those goods which fetch a high price at the moment. Thus we had intended to use three *jachten*, however, the MUYDEN appeared on these roads from Japara and as we hope that the danger of the English is no longer imminent we cannot miss the opportunity to send this *jacht*, which has a reasonable cargo capacity. We have, therefore, decided to use it as a fourth return *jacht* for this first fleet - we trust this will be considered proper by our principals.

"Tuesday October 28. Last year, we did not send a return for the Chamber of Enckhuijsen and we cannot be sure that the ships expected from that Chamber will be here in time to be used as return ships this year, the sea being full of perils. If we fail to do so again, this will be the second year that we have not sent a return there, by which that Chamber will be very much in arrears with her return goods. Considering the fact that we have many ships of the Chamber

of Amsterdam here and that we can expect some more from that Chamber shortly, we have decided to send the *jacht* DEN DRAECK with its contents this year to the Chamber Enckhuijsen so that Chamber will receive its consignment...

"The time is approaching that the *jachten* MUIJDEN, DEN DRAECK, WESOP and SCHELLINGEN, intended for the first shipment home, will leave and they will have to be provided with a good commander who will keep order and will take proper care of the Company's valuable goods. Looking around for a capable person as head for the aforementioned ships, we have found the uppermerchant, Hubert de Laresse, formerly First Person in Amadabath. It is decided to appoint him as head for the first ships for home this year, and to use the merchant, Hubert Hugo, for second person.

"Tuesday November 3. It is decided that the ships MUIJDEN, DEN DRAECK, WEESP and SCHELLINGEN, intended for the first shipment home and supplied with everything needed for the journey, will be given their farewell and will weigh anchor on the sixth of this month. As soon as they have left the Straits of Sunda, with God's help, they will proceed on their journey to our dear fatherland according to the instructions given to the heads of these ships", KA 577.

These were the decisions of the G.G. and Councillors in Batavia, concerning the preparations for the departure of these first four ships, which finally left Batavia on November 7. Both Hubert de Laresse and Hubert Hugo were later involved in privateering against the English with Hugo skippering the SWARTEN ARENT under French commission. De Laresse seemed to have had a share in this ship, KA 456, fol. 636. As Aris Jansz Dul (or Dol) had died while the ship was in Batavia, a new skipper was appointed on the VERGULDE DRAECK, KA 187, March 19, 1656. From the records of the Cape of Good Hope, this appears to be Pieter Albertsz, KA 3968, fol. 213. The merchant of the VERGULDE DRAECK, Willem Volger, took a black woman back to the Netherlands, whom he later was allowed to send back, provided he payed her passage, which was 150 guilders, KA 364, March 27, 1656.

When Gijsbert Heecq arrived at Cape of Good Hope in April, 1655, on his way to Batavia, the four ships had just left the Cape for St. Helena:

"April 3, 1655 ... The Hon. Comd. Johannus Riebeecq, upper-merchant and head here, came aboard to welcome the Hon. Mr. Pieter Sterthemius, *extraordinaris Raad van India* and Comd. as aforesaid, reporting the arrival, some weeks ago, of four sturdy *jachten* namely MUYDEN, WEESP, GULDEN DRAECK and DER SCHELLINGH, bound from Batavia to Patria. They had called in here and left immediately for the island, St. Helena, in company of the *galjoot* TULP (for advice) there to await, according to order, the Hon. Mr. Ryckelof van Goens, *extraordinaris Raet van India* (if not delayed), who was soon to follow with six or nine ships as well as *jachten* ... Appointed as commanders of these four *jachten* were Huybrecht de Laresse and Huybert Hugo who had been Assistants with me in Zouratten A^o 1642", L'Honore Naber (1910-1911).

Heecq says that the MUIJDEN and WEESP had actually called in, but this is contradicted by the records of the Cape's Council:

"Wednesday January 27, 1655. The ships MUIJDEN and WEESP have not arrived here yet although they left Batavia in company with the ships DEN SCHELLINGH and DRAECK, lying here, and were to proceed together on their journey via this place. They are thought, however, to have passed by here and to have proceeded to St. Helena to await the others there. It is decided by our Council, supplemented by Vice-Commander Huybert Hugo, and merchant Willem Volkers, to send the *galjoot* TULP in company with the SCHELLINGH and DRAECK to St. Helena to fetch from there the horses carried past here ((the Cape)) by the MUYDEN and WEESP", Boeseken and De Wet (1957).

Samuel Volkertsz was the skipper of the TULP which is interesting as he was involved later in the search for the DRAECK after she was lost. While at the Cape, the DRAECK was supplied on January 27, 1655, with a cow for four guilders and 10 *stuyvers*. Abundant refresh-

ments such as milk, eggs, cabbages, carrots and all sorts of vegetables were supplied free, KA 3968, fol. 213.

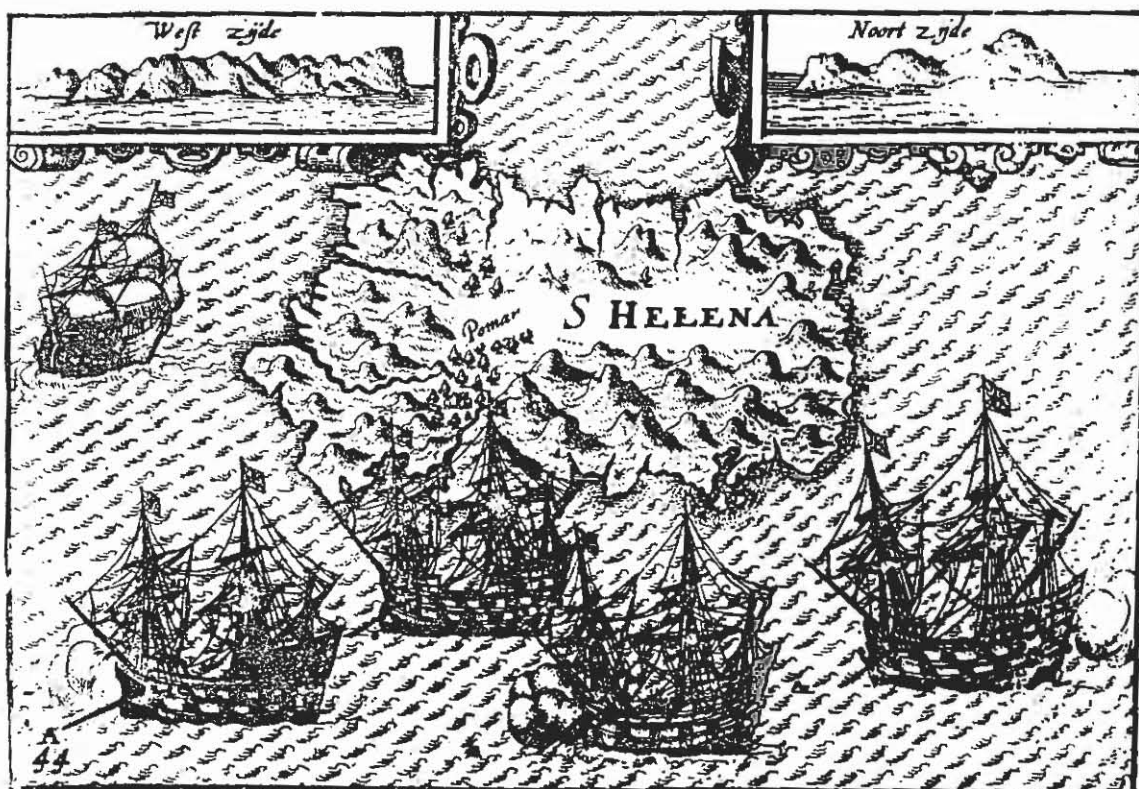
We learn from Heecq's journal that the TULP returned to the Cape on April 10, 1655, and that her skipper reported that the four ships had arrived safely in St. Helena (fig. 8). The four ships did not wait long on the island as we read in the *Hollandse Mercurius*, a Dutch newspaper of that time, for June 1655:

"In the Netherlands arrived on June 11 the East Indian Return ships 1. MUIJDEN, 2. WEESP, 3. DER SCHELLING, 4. DE VERGULDE DRAECK, having left Batavia November 7, 1654, and having no other cargo than pepper, sugar and sapan wood a kind of red sandalwood. In the beginning of the following September arrived:...." (mentioned here are the nine other ships that left Batavia January 8, 1655.)

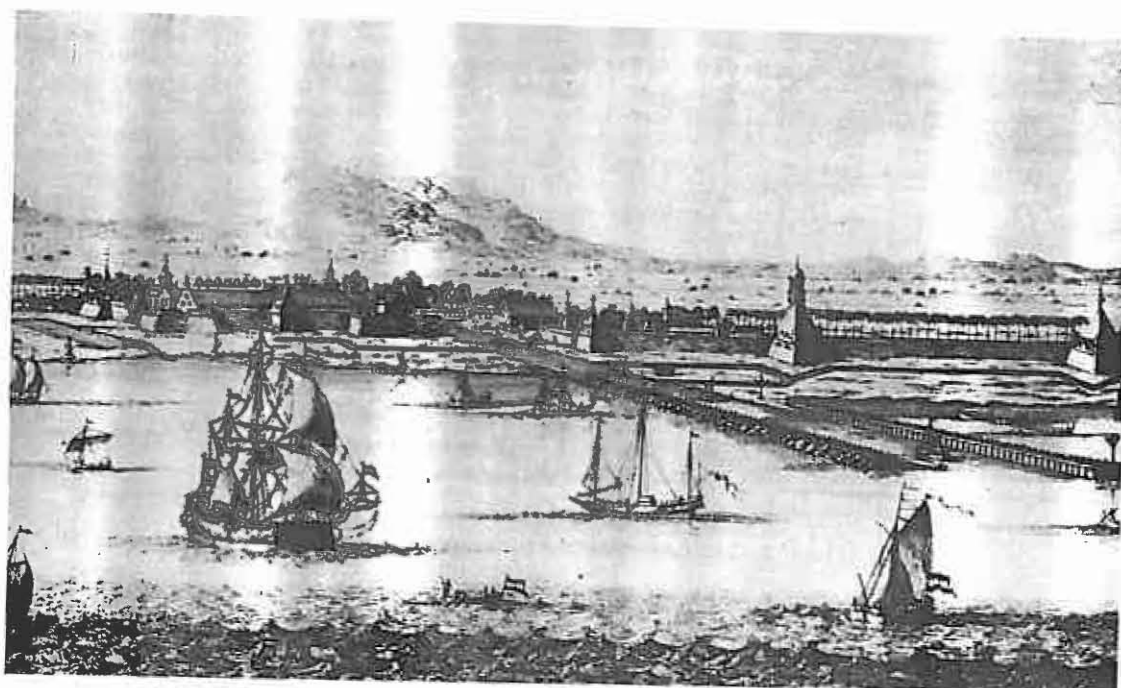
The total amount of pepper, sugar and sapan wood carried by those 13 ships was, according to the newspaper, 6502803 lb. pepper; 2982320 lb. sugar; and 287890 lb. sapan wood.

Before the four ships had anchored on the roads of Texel, several people tried to get some private trade ashore. Small vessels from the islands of Texel and Vlieland (see fig. 4) met the ships at sea and took aboard sailors' chests packed with trade goods. This was strictly forbidden and Article 24 of the *Artikelbrief* gave a fine of half the earned wages for those who sent for such a vessel before a representative of the Company directors had inspected the ship, Van Dam (1701), 26. However, the Company had anticipated this prohibited trade and awaited the small vessels when they came ashore. The chests were confiscated and when the owners asked the Company to return their chests, they were closely interrogated. They could only get them back (of course without the trade goods) if their answers satisfied the Company representatives, KA 364 June 20 - July 1, 1655.

Meanwhile, Hubrecht de Laresse travelled to The Hague and reported to the States General about the state of affairs in the Indies, delivering also a letter from the Governor General and Councillors of the Indies, KA 364, July 22, 1655. During July, the four ships were unloaded of their cargo of sugar, pepper and sapan wood. For the Chamber of Enckhuizen, the cargo from the DRAECK fetched a total of 100,587 guilders, KA 187, October 5, 1656.



- (8) The island of St. Helena in the southern half of the Atlantic Ocean. It was the first possible meeting place after the Cape for homebound ships. Engraving from *Begin ende Voortgangh* (Commelin 1646).



- (9) Overall view of Batavia. Engraving from *Oud en Nieuw Oost-Indiën* (Valentijn 1724-26).

CHAPTER VI

Second Journey (1655-1656)

As early as July 22, we read in the resolutions of the Chamber of Amsterdam:

"... as the ships, MUYDEN, WEESP and DE DRAECK, will soon be ready to sail and to load their cargo, it is decided to proceed with the equipage of the ships and to notify the other Chambers", KA 364.

On Monday August 9 the positions for skippers and assistants were advertised and a week later the "Gentlemen of the shipyard" (whose job it was to employ all the crew except the officers) were authorised to take on the rest of the crew. On Monday August 23, the skippers and assistants had applied and it was decided to appoint them the following week. The "Gentlemen of the shipyard" were then also authorised to:

"... send the ships, DRAECK, WEESP and MUYDEN, either to Texel or het Vlie as the Gentlemen thought best."

The Chamber of Amsterdam decided on August 30:

"... to appoint on the three big *jachten* ((DRAECK, MUYDEN and WEESP)) an uppersteersman, understeersman, a third steersman, a *ziekentrooster* ((comforter of the sick or lay preacher)), an upper and an underbarber and ... ((unreadable)). On the two small *jachten* MAERSEN and BREUCKELEN only an uppersteersman with a third steersman and an underbarber and ((it is also decided)) that the prayers on the small *jachten* will be done by an assistant."

On August 31, the boatsmen and steersmen were appointed and the next day the soldiers were taken on.

On Monday September 13, 1655, the resolutions of the Chamber of Amsterdam tell us this:

"After deliberation, it is resolved and decided to send to the Indies with the ships, the VERGULDEN DRAECK, MUYDEN, and WEESP, which will be ready to sail in a few days, two hundred and twenty-five thousand guilders in cash, that is for each ship 75,000 guilders", KA 364.

By Tuesday September 21, the letters of the Chamber of Amsterdam to the G.G. and Councillors of the Indies were written and on that day they were read by the Chamber; the same procedure took place with a letter to the Commander and Council at the Cape of Good Hope, so that all these missives could be despatched with the three ships. To reduce the chance of loss every ship carried copies of the letters. The *Heren XVII* wrote to the Governor General that the cargo requested for Japan was loaded into the VERGULDE DRAECK, the WEESP and the MUYDEN, but unfortunately it is not known which goods were requested for Japan, KA 455, November 2, 1655.

The second and last journey of the VERGULDE DRAECK to the Indies started on a more fortunate note than the first one. As soon as the loading was finished and the crew were on-board, the ships left the roads of Texel on October 4, KA 4389. The only delay on the trip was at the Isle of Wight where contrary winds held up the three *jachten* and the *fluit* BREUCKELEN for four weeks. But on the whole, the first leg of the trip to the Cape of Good Hope was covered reasonably fast.

The MUYDEN arrived on March 1, all hands healthy, only two having died. The WEESP dropped anchor on March 5, also having lost two people but the rest healthy. The BREUCKELEN arrived on the next day with all people safe and well.

The MUYDEN stayed only a week and left on March 7, taking aboard 24 persons. These people had stayed behind from other ships, when they were too sick to go on. They had now all recovered from their illnesses and could continue their voyage to Batavia. They were

lucky to have been put on-board the MUYDEN. If the VERGULDE DRAECK had been the first to put into Table Bay, it is doubtful whether they would ever have arrived in Batavia. Two days after the MUYDEN left, the VERGULDE DRAECK arrived in Table Bay. We read in the Day Register of the Cape:

"((March)) 9. In the morning, with the morning watch, arrived here safely on the roads the *jacht* the DRAECK with mostly all people safe and well. They lost only two men who fell overboard during the voyage and have still alive ((sic)) heads", KA 3968, fol. 128.

The VERGULDE DRAECK carried some goods intended for the new settlement on the Cape. During the three days she was anchored on the roads these goods were unloaded, KA 3969, fol. 151. They were: one *legger* of Spanish wine, one barrel of butter, one barrel of bacon, one barrel of meat, one *anker* of brandy, one half *legger* French wine, 12 ropes and one small cask of musket shot. (A *legger* was a big cask, which stayed down in the hold of the ship (Dutch *leggen* or *liggen* means 'to lay' or 'to lie'), generally used for water, but also for wine. Stapel (1927) gives roughly 400 litres as its contents but Van Dale (1971) gives 582 litres). From the five ships together, 18 casks of flour, weighing 3732 lbs., were unloaded for the Cape, costing 373 guilders and four *stuivers*. As far as can be traced only refreshments were loaded into the VERGULDE DRAECK, seven cows, 10 sheep and some vegetables.

No record exists that elephant tusks were loaded into the DRAECK, the tusks which 300 years later were to turn up on the West Australian coast. These could have been from West Africa; if so, they would have been bought by the West India Company, carried to the Netherlands, there sold to the East India Company and loaded into their ships (see further Part 2, Chapter V.5.2). Later, elephant tusks were also part of the official trade goods from the Cape, but when the DRAECK was there in 1656, this was not yet so. However, the *Heren XVII* realised even then that some private citizens at the Cape always managed to get some aboard the ships. They wrote to Jan van Riebeeck at the Cape:

"... we are told that elephant tusks would also be available there, and although the Company doesn't see them, private people do manage to send them ...", KA 456, fol. 58,

after which they tell him to try to monopolise this trade, so that the Company might get the profits.

The vegetables which had to sustain the people on-board consisted of cabbages, carrots, radishes, melons and water-melons, which were delivered free. Cows cost four and a half guilders and sheep one guilder, the same as two years before. It is interesting to see that an English ship, called GOODWILL, which put into Table Bay at the same time was charged 72 guilders for three cows and 19 guilders and four *stuivers* for four sheep! KA 3969, fol. 246. On March 12, Pieter Albertsz, the skipper of the VERGULDE DRAECK, signed for the receipt of these goods, KA 3969, fol. 223, and in the afternoon of the 13th, the VERGULDE DRAECK left with "... good, fresh, healthy people ...", as we see from the Day Register, KA 3968, fol. 129.

In a summary of arrivals at and departures from the Cape, we read:

"DRAECK left with 190 healthy men for Batavia",
KA 3968, fol. 281.

As we mentioned before, from Cape of Good Hope the skippers had to sail south until they reached the latitude of the westerly winds and from there were meant to sail east for at least 1,000 *mijlen* (see fig. 1). But for the 17th century navigator, it was quite difficult to determine the distance sailed from East to West, in other words, the longitude. To determine longitude, the mariner needs a chronometer and these instruments were only available after the Englishman, Harrison, developed a chronometer in the 18th century which was not influenced by the movement of the ship. The 17th century navigator had to be content with other methods: longitude was found by dead reckoning using compass and log. However, a log measures the speed of the ship through the water but the effect of currents and leeway had to be accounted for. In the course from Cape of Good Hope to Batavia, it was only

possible to check the ship's position at the Islands of Amsterdam and St. Paul. Thus, lack of precision in the distance sailed could cause considerable miscalculation, resulting in many untimely sightings of the west coast of Australia. Another error lay in the charts used by the steersman. In a letter to the *Heren XVII* of October 30, 1627, Jan Pieterszoon Coen wrote how his ship (GALIAS) was nearly wrecked on the Southland:

"... came on September 5 in the afternoon at the southern latitude of $28\frac{1}{2}^{\circ}$ on the land of Eendracht; we were less than half a *mijl* from the breakers before we noticed them, without being able to see the land. If we had been driven here during the night, we could have gone through a thousand perils with ship and people. On the plane chart, the positions of the steersmen were still 300 and 350 *mijlen* from shore, so there was absolutely no thought of any land, although the position on the chart with increasing degrees was 120 *mijlen* and on the globe it was only 50 *mijlen* from land. But this was the least. It is certain that the imperfection on the plane chart from Cabo de Bon' Esperanca to the Southland at a height of 35° , has more than 270 *mijlen* too much sea, to which most of the steersmen pay little attention so that many ships have run great peril and are still daily doing so", Stapel (1937).

This was the situation when the VERGULDE DRAECK struck a reef of the Southland on April 28, 1656.

CHAPTER VII

First Searches for the Wreck

In Batavia, meanwhile, several ships had arrived. The MUYDEN, 'T SEEPAERT, BREUCKELEN, WEESP, DOLPHIJN, HERCULES, and BROUWER-SHAVEN in May, and the ACHILLES, ZEEHONT, DER SCHELLINCK, HECTOR, TOLEN, and MAERSSSEN in June, totalling 3561 men, KA 1104, fol. 91. Before any anxiety could be felt over the DRAECK's failure to appear, the *schuyt* from the DRAECK arrived as early as June 7 with news of the foundering of this *jacht* on the west coast of the Southland. The Governor General and Councillors had a meeting on the same day and, in their resolutions, we read:

"Wednesday June 7, 1656. Today, shortly after midday, the *schuyt* of the *jacht* DRAECK arrived after one month wandering around with the understeersman and six sailors. They brought the sorrowful news that the abovementioned fine *jacht* had run aground on the coast of the Southland, on April 28 during the night, in the beginning of the morning watch, on a reef, stretching out in the sea for one and a half *mijl*, at the latitude of $30\frac{2}{3}^{\circ}$. Of the 193 heads, only 75 landed safely (among whom skipper Pieter Albertse and the mentioned understeersman). From the ship, which immediately burst when touching ground, nothing was saved, and only very few provisions were thrown by the waves on the beach. The remaining 68 persons were further trying to recover the boat, which was buried in the sand, in order to send it hither with some people and, meanwhile, in their sorrowful state they are anxiously awaiting all needed comfort and help from here. Thus, the honourable Governor General summons the Council on the spot and tells the Gentlemen Councillors the here-told story; he shows the extent of the DRAECK's cargo, which is 185,000 guilders of which 78,600 guilders is in cash in eight cases, and he gives the Councillors to consider what is best to be done to save the unhappy persons and the Company's cash and goods (which is, after all not entirely hopeless). After thoroughly having examined the problems,

it is unanimously approved and decided to prepare immediately the good sailing *fluit*, the WITTE VALCK, and to victual it for five months (also for the people on the Southland) along with some skilful divers, axes and other necessary tools and to send it off as quickly as possible (which is apparently tomorrow night). With them will go our order that the *jacht*, the GOEDE HOOP, (which is now cruising in Sunda Strait and which is thought to be competent and sufficient for the trip to the Southland), will set sail with the aforementioned VALCK as soon as this order is shown to her skipper. They will then sail together out of Sunda Strait and steer immediately southward, until the latitude of 32° to 33° or until they get a steady western trade wind. From there they will steer for the coast of the Southland and having arrived, with God's help, at the people of the DRAECK, they will distribute them over the two ships (which must do their utmost to stay constantly to-gether). Further they will try to recover in the most careful way, whether diving or otherwise, if it is possible, firstly the cash and then as much as is possible and practicable of the cargo, the guns and what else is particularly valuable.

"After having done all this, the officers continue to be ordered to explore the repeatedly visited coast of the Southland where the DRAECK is, or as far as can be done without hampering their return voyage, better than is known up to now. They shall discover it with particular attention, and perfectly chart all the corners, bends, bays, rocks, sandbanks and shallows, so that we can use that for the benefit of the Company's Indian trade, for which purpose the aforementioned understeersman of the DRAECK will sail thither at once. And in order to have the Company's affairs in this mission carried out in decent order, tact and to better purpose, we have approved to give the command on the outward as well as the homeward voyage to the skipper of the WITTE VALCK, Huybert Adriaensz Huyge, and to instruct him to perform and accomplish everything consulting skipper Pieter Alberts and the other officers, to the best service of our paying masters. So will be handed a copy of this resolution to the heads of the departing ships for the benefit and advantage of the Company.

"In the Castle of Batavia, date as above, signed, Joan Maetsuyker, Carel Hartzinck, Joan Cunaeus, Nicholaes Verburch, Dirck Jansz Steur, Gabriel Happart, Secretary", KA 577.

Unfortunately, the month of June is the beginning of winter in the Southern Hemisphere, and in that period, heavy storms and high seas prevail on the west coast of Australia. The WITTE VALCK and the GOEDE HOOP suffered badly from this weather. On July 18, they were driven apart in a storm that blew up during the night even before they had arrived at the coast. Nevertheless wrote the Governor General to the *Heren XVII*:

"... they did not fail to do their utmost to sail to the ordered spot. However, the *fluit* having arrived at the coast of the Southland, met such storms and high running seas that she did not dare come close to it, but thanked God that she could stay clear. The *jacht* endured the same heavy storms but managed to land with the boat on the mentioned latitude, and they have been several *mijlen* inland. They had sailed a long way along the coast but have seen neither wreck nor people. Instead they have lost eleven of their own men. Firstly, three, who seem to have lost their way in the bush, and after that another eight, who, having been sent ashore with the boat to look for them, have never appeared again. The boat was found smashed to pieces on the beach with which the crew is probably lost, too. And the *jacht*, the HOOP, not to be driven on a lee-shore and thus lose ship and people, was forced to leave the coast and return here, with which this accident adds to the other ...", KA 1104, fol. 3-4.

The G.G. and Councillors in Batavia did not have other suitable ships to order another search for the poor people of the DRAECK, and they decided to leave it for the moment to Jan van Riebeeck at the Cape of Good Hope to have another try.

CHAPTER VIII

Searches from the Cape of Good Hope

Having received orders from Batavia to send a light *jacht* or *galjoot* on its way from the Netherlands to the Indies, along the Southland, Van Riebeeck had a meeting on Monday April 3, 1657 with the skippers and officers of the *fluitschips*, VEENENBURCH and VINCQ, KA 3969, fol. 382-384. They considered the VINCQ the most suitable for this task as it was very flat-bottomed and could thus come close to an unknown shore. As the trip would not be without risks, the money from the VINCQ was loaded into the VEENENBURCH. As the uppersteersman, Joost Jansz, had taken the place of the deceased skipper of the VINCQ, and the former understeersman had been promoted to uppersteersman, and an understeersman was added to the crew of 70:

"... as she can surely use another good steersman for this expedition..."

Detailed instructions were drawn up; this is such an interesting document that it is worthwhile to give it here complete:

"Instruction for the heads of the little *fluit* DE VINCQ in order to find the wreck and the people of the lost ship the VERGULDEN DRAECK on the Southland.

"It is well known in and outside the council how this ship has unexpectedly run into the Southland at about $30^{\frac{2}{3}}^{\circ}$ and how many people are still miserably left behind who have not been found back by those of the *fluit* VALCK and the *jacht* GOEDE HOOP, sent there on June 8 of last year. It is also known how the Honourable Gentlemen, Governor General and Councillors of the Indies ordered us by letter of December 4 last to have another search done from this end with the lightest of the ships from home. Considering as in the resolution taken in your presence and signed by you, that the *fluit* VINCQ on which you came here is thought to be the most suitable for this search, you are therefore now ordered

to do your utmost and to set sail for this purpose with the first favourable wind that God may grant. Conform the resolution, you will visit the aforementioned Southland at about $32\frac{2}{3}^{\circ}$ where, according to the charts, many shallows of 100, 80 and less fathoms are to be found, as well as dunish land with trees and bushes. From there, sailing along the shore by day and heaving to by night, you will keep a close watch for any signs of fires or such from those poor, miserable people (also for any remains of the wreck) in order to release them from their misery, and to bring them back to Batavia. You will also bring back the cash and unspoiled cargo as much as you can possibly salvage ... without risk. Provided always (as ordered, too, by their Honourables aforementioned) that you will be very careful in approaching this Southland, using proper seamanship, that is if weather and wind allow such and if it can be done without risk. However, you should be keen to accomplish all, for if you find them and bring them back to Batavia, great honour will come to you, apart from the good job you will do for those poor people.

"And because the printed instructions of the Honourable Gentlemen Masters and the attached charts show further how and in what ways, also at what times of the year, the Southland can best be approached ... also what danger can be expected of rocks and shoals, you shall consult those (as you have got them with you). Finally, we advise you strongly to always keep the lead in hand near this Southland and to look sharp for all such lands, shoals, rocks and shallows as are yet unknown or undiscovered, keeping good record and making accurate notes or charts to be used after this by other Company ships that could come upon that coast ... And so that you will realise the intentions and seriousness of the Honourable Gentlemen, Governor General and Councillors of the Indies for the search for and release of these miserable people, we provide you with an extract from the missive they sent us with the copies of their resolution to this intent of June 7 last. Also, the letters sent by the lost people to the aforementioned Honourables with the little *schuyt* and forwarded to us with that missive (you can read that on your way to realise the better their Honourables' order and seriousness) ...

"As we hope not to have to doubt your zeal, we want to wish you success on this expedition and a safe voyage.

"In the fortress of Good Hope April 26 A^o 1657

was signed

Jan van Riebeeck", KA 3969, fol. 397-398.

The letters 'sent by the lost people' are later indicated to have been written on May 5 and 7 1656, KA 3970, fol. 52.

These references in the Cape papers are the first and only mention of any record written at the time of the loss of the VERGULDE DRAECK. The date shows too that the understeersman, who sailed with six men to Batavia, had only left after May 7. It is a pity these letters were never found again, for they would probably have given more information about the place where the ship was wrecked and what happened to the survivors in those first ten days on the Southland. When the skipper of the VINCQ had received his instructions, he set sail from the Cape on April 27, KA 3969, fol. 386. On-board he had two charts of the Southland, one big and one small scale. These had been handed to him by the skipper of the VEENENBURCH, KA 3970, fol. 52, which shows that not all ships were provided with these charts required by the instruction of 1655 and mentioned in the list of equipment of April 16, 1655 (for which the skipper and steersmen were responsible), KA 187.

On July 7, the VINCQ arrived in Batavia without having been able to find any signs of the wrecked vessel. On June 8, they had anchored on a reef at about 29 degrees latitude, at a depth of 25 fathoms. Till the 12th of that month, they had sailed along the coast but had not been able to come close to the shore as the weather had been very bad. In short, another unsuccessful expedition.

Governor General Joan Maetsuyker realised by now that June-July was not the best possible period to find oneself on the wind-beaten coast of the Southland. He and his Councillors decided, therefore, to try once again, but this time in summer. Meanwhile, they ordered Jan van Riebeeck to keep trying and to instruct small vessels, on their way to Batavia, to sail along the Southland. But they wrote:

"... You should be aware that January, February and March are the best months ... for, except for that season, this coast is unapproachable because of the strong winds, as has now been experienced several times...", KA 3970, fol. 408-411.

CHAPTER IX

The Last Attempts

On Friday December 21, 1657, the G.G. and Councillors in Batavia resolved to send the little *fluit*, WAECKENDE BOEY and the *galjoot*, EMELOORT, to the Southland to see:

"... whether perhaps anybody of the lost *jacht* the VERGULDE DRAECK and the 11 men from the little *jacht* the GOEDE HOOP can still be found", KA 577.

On December 31, detailed instructions were drawn up stressing the need for the two ships to keep together and further advising Captains Volkersen and Jonck - who that night after prayers, came to the Castle to receive these instructions - to observe the greatest possible caution. To encourage the crew, a share in the salvaged goods was promised, De Hullu (1904), p. 344-350.

The WAECKENDE BOEY carrying a crew of 40 and commanded by skipper Samuel Volkersen, and EMELOORT with 25 men, skippered by Aucke Pieters Jonck, left Batavia roads on January 1, 1658, well supplied with provisions for six months.

The first six weeks the trip went according to the instructions, although Volkersen had to wait several times for the EMELOORT at which he showed his annoyance in his log, KA 1115, fol. 218-227. Jonck's ship was considerably slower and could not sail as close to the wind as the WAECKENDE BOEY. In fact, the EMELOORT was in pretty bad shape. Jonck was constantly struggling with a damaged stern which caused the ship to leak considerably. On February 2, the skipper and merchant of the WAECKENDE BOEY visited the EMELOORT and complained about the situation. Jonck wrote:

"... from his words we assumed they tried to get away from us...", KA 1115, fol. 204-218.

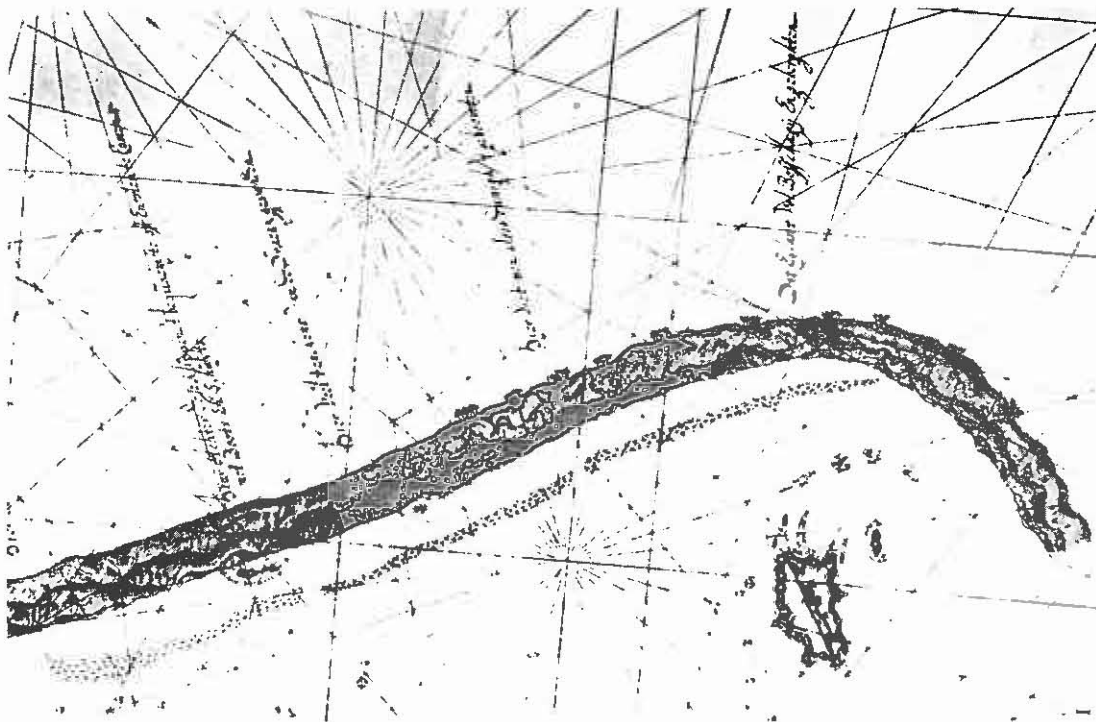
On February 14, the ships lost sight of each other. Volkersen simply commented on the fact, while Jonck actually accused volkersen of having deliberately sailed away. Whatever may have been the reason, the two ships did not meet till much later, and each approached the Southland on his own.

Of the two skippers Volkersen was apparently the better sailor. Jonck was continually heading out to sea or trying to approach the shore, without success, however. Maybe the reason for this was the bad condition of his ship or perhaps he was, in fact the better seaman by observing the greatest caution possible. As a result he only sent the boat ashore twice and did not find any signs or traces of the VERGULDE DRAECK, but, however, brought all hands back safe and well to Batavia.

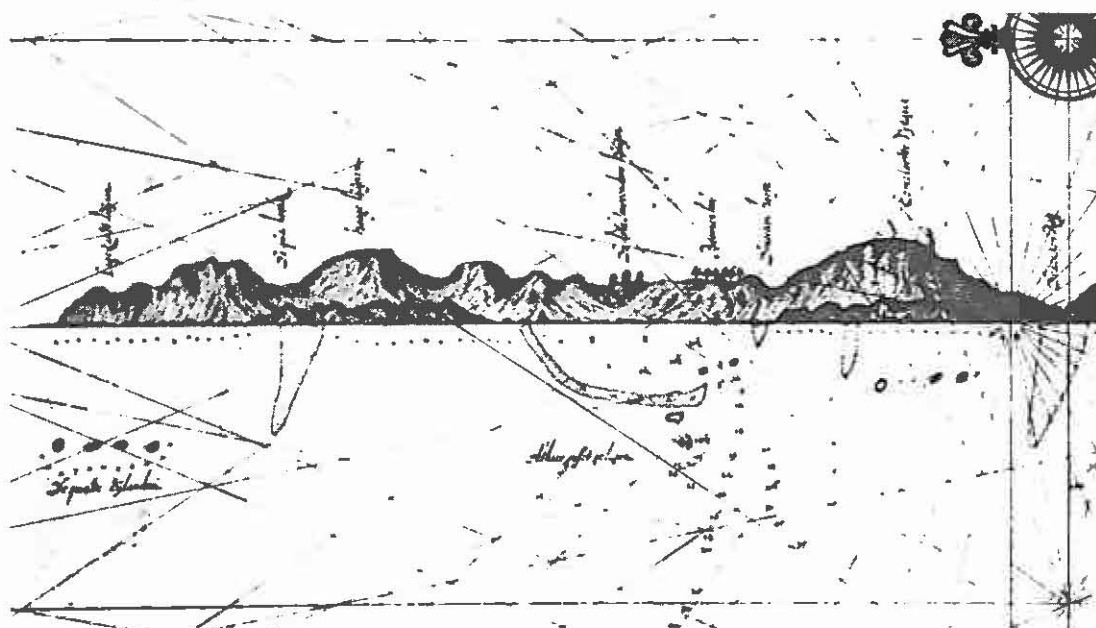
The situation with Volkersen was altogether different. He sighted land on February 23 which appeared later that day to be an island, and is nowadays known as Rottnest Island, off Fremantle. (Is alleged to have been discovered by Willem de Vlamingh in 1696, but, in fact, was discovered and charted by Volkersen who only failed to name it, because he left that matter "... to the Honourable Governor General's pleasure". It is even possible that the island was already sighted, in 1619, by the ships, DORDRECHT and AMSTERDAM, see Schilder (1976).)

Volkersen sailed on towards the mainland and the next day his uppersteersman, Abraham Leeman, went ashore. Returning on-board the next day, he reported, as is noted in Volkersen's log:

"That they had been on land and had observed many signs of the wrecked ship the DRAECK, but no footpaths nor any place where people had lived, although they had gone far and wide, both inland and along the beach. The remains of the ships on the coast which they had observed are as follows: A heavy beam, a piece of oak planking, a piece of the outer planking, a small keg, buckets, thwarts of the boat, pieces of chests, staves and similar rubbish. It was noteworthy that a number of pieces of planking had been put up in a



(10a) Detail of a chart by Samuel Volkersen, skipper of the WAECKENDE BOEY (1658) showing the island Rottneest and the spot where "many signs of the Draeck were found" (second description from the left). Algemeen Rijksarchief, 's-Gravenhage.



(10b) Aucke Pietersz Jonck, skipper of the EMELOORT, named two places after the VERGULDE DRAECK: *Draecken Riff* (far right) and *Draecken hooft* (third from right). Detail of a chart by Jonck, 1658. Algemeen Rijksarchief, 's-Gravenhage.

circle with their ends upwards. Since here we could come to no correct knowledge, we resolved to weigh anchor and to sail north along the coast."

That night, the *schuyt* which was towed behind was capsized by the sea and was lost. Sailing north, the boat was sent ashore several times, but its crew could not find any sign of the survivors or the wreck.

On February 28, they sighted the EMELOORT but on the night of March 2-3 they were separated again while still no contact had been made. The next two weeks it was blowing very hard and the WAECKENDE BOEY stood out to sea. Strange enough it was in this period that Jonck sent the boat ashore. On March 18, Volkersen found himself again off Rottneest and the next day, while the ship was scraped underwater, Leeman went ashore to investigate and reported:

"... that the island was well wooded and also that it was difficult to find a place where a boat could land, since it had around it, close to the shore, stony reefs."

Again they sailed northward along the mainland, the boat going ashore repeatedly. On March 21, Leeman found a dead-eye of the VERGULDE DRAECK; the next day a forward knighthead and a block. That day a tragic incident occurred in that Leeman was sent ashore, unwilling because he feared bad weather coming up. In this he proved to be right; during the night Volkersen had to stand out to sea and only six days later did he manage to get back to the same place. Not seeing the boat, his presumption that it must have been smashed to pieces on the beach seemed to be proven right. He was so sure of this that when, that evening, on his way north he saw a fire on the shore, he did not even think of his own people but only:

"... hoped it to be lit by Christian people, either the people of the DRAECK or HOOP, since we had never observed such a fire, and so we fired a cannon whereupon immediately another fire, close to the first, was seen. Since the wind

was rising from the south and we had neither boat nor *schuyt* in order to investigate, and as we did not find a convenient anchorage but only sharp coral we, therefore, did not drop anchor, but hove to under small sail and waited for the day."

The next day however he found himself far to the north of where he had seen the fire and, thus, he continued to Java which he sighted on April 10. The WAECKENDE BOEY and the EMELOORT met on April 14 and arrived together in Batavia on the 19th, where the G.G. and Councillors resolved that the two skippers would be questioned by the *Advocaat Fiscaal* as they had not observed their instructions to stay together, KA 578, April 19, 1658.

Apart from the journals kept by the two skippers, we still have a brief account of the Southland by Volkersen, in which he also gave an accurate description of the island which is now known as Rottneest Island. He ends with:

"Two good and certain landmarks off the west coast of the Southland:

Firstly: If in these regions you observe about 11 degrees variation of the compass, you may be sure of not being at more than 18 or 20 *mijlen* distance from the land.

Secondly: If you see rock-weed floating about, you may be assured that you will sound the bottom in 70, 60, 50, 40, 30 fathoms or less", Heeres (1899).

Back on the Southland, Abraham Leeman had managed to stay clear of the coast when left behind on March 22. After being driven north, his boat had been thrown over a reef but they had got safely ashore. Later the 14 men in the boat had sailed south to look for the WAECKENDE BOEY, but they had not been able to find her. On the sixth day, they finally saw the ship and they lighted a huge fire which was answered from the ship with a cannonshot after which they lighted another fire. The frustration and disappointment were enormous when, with dawn, they discovered the ship had sailed away! The only thing then left to them was

to try and reach Batavia with the boat. Abraham Leeman kept a journal of this exhausting trip, which gives us a moving picture of the agony suffered by the 14 men, KA 1115, fol. 229-252. Three died on the way to Java, and Leeman lost another seven when the boat arrived on Java's south coast on April 29. He anchored off a reef and sent five men ashore to fetch the desperately needed water, but they drank from a little stream and then lay down, seemingly forgetting the people in the boat. Two more did the same and then Leeman had to sail away to find a safe anchorage. He had not been able to find the others. The next day, Leeman lost his boat and from then on the four men walked along the coast and through the jungle until they reached the Company lodge in Japara on September 23. On their way they had been helped by native tribes, who had given them food and had guided them back to their own people. Only two months later, could Leeman tell his story in Batavia, by which time Volkersen had met with an accident and died, KA 578, October 31, 1658. What happened to Jonck and whether he and Volkersen were punished for their negligence on the Southland, is not known. If so, their sentences cannot have been heavy, as before he died in October, Volkersen was still Captain of the WAECKENDE BOEY.

The Governor General and Councillors then decided to have done with further attempts to try to save the survivors of the VERGULDE DRAECK. They write to the *Heren XVII* on December 14, 1658:

"... but we assume that of the poor people of the ship, the DRAECK, no one will be present any longer since otherwise it would be very difficult to explain, as they would have shown themselves by means of fires or other signs here and along the beach. Therefore, we deem it no longer necessary to despatch a third mission as the two previous ones have ended so disastrously unless you should be inclined to order that some *galjoot* or other light vessel coming from home should call in there once again on a suitable occasion, and in favourable weather, in order to make a further examination in case anybody can still be found."

Early in 1659 Jan van Riebeeck was still under the impression that he should send light vessels along the Southland and thus he ordered the *galjoot* IMMEMHORN (also mentioned as EMMENHORN) to do so. Six days after this vessel had left the Cape, the fleet arrived from Batavia instructing Van Riebeeck to abandon further searches. The IMMEMHORN, in the meantime, arrived in Batavia in June with 38 healthy men. They had visited the Southland, but nothing noteworthy had taken place, at least, no mention of such was made in the Day Register of the Castle of Batavia, Van der Chijs (1889).

This was definitely the last effort to look for the people and the wreck of the VERGULDE DRAECK. On August 21, 1660, the *Heren XVII* wrote to the Governor General and Councillors:

"... Now that all missions have been fruitless, we will have to give up, to our distress, the people of the DRAECK, who had found refuge on the Southland", KA 456, fol. 304.

PART TWO

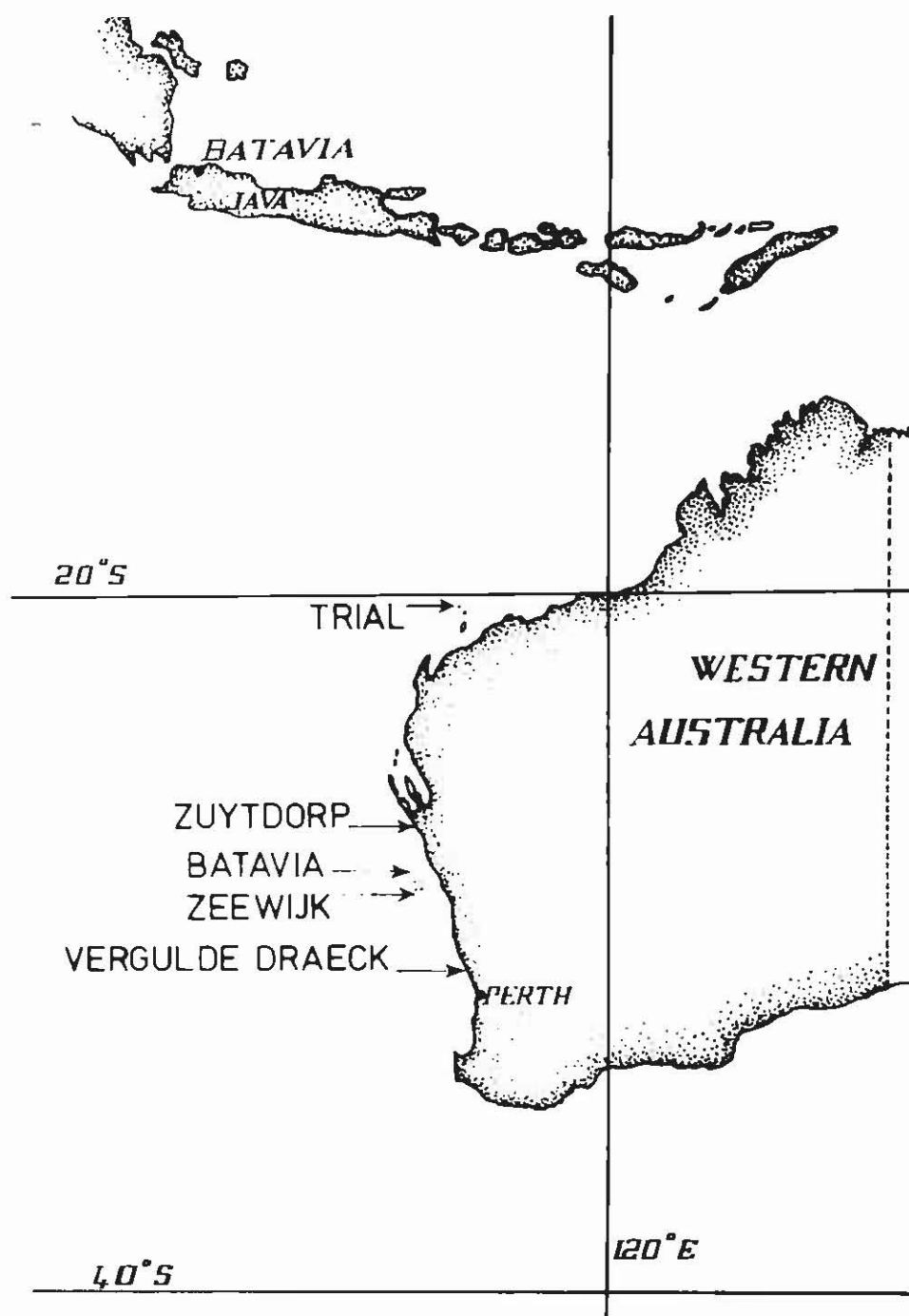
THE VERGULDE DRAECK

THE

MODERN SEQUEL

by

JEREMY GREEN.



- (11) Map showing Western Australia and part of Indonesia and the locations of the wrecksites of the TRIAL, ZUYTDORP, BATAVIA, ZEEWIJK and VERGULDE DRAECK.

CHAPTER I

The Discovery of the Wreck Site

The following account is a careful compilation of contemporary newspaper accounts of the events leading up and subsequent to the discovery of the site. Newspapers are abbreviated as follows: W.A., West Australian; D.N., Daily News; S.T., Sunday Times; S.W.T., South West Times.

In 1931, a young boy (A. Edwards) found some coins near the mouth of the Moore River, see fig. 12. In a statement to the author, he has described the event. The coins which are mainly *ducatoons* and Japanese coins are illustrated and described in Green (1973), fig. 4. A newspaper report (W.A.: 04.02.31) at the time raised the question that the coins may have been associated with the survivors of the VERGULDE DRAECK.

It seems that the nature of the hoard and the location of the site, do indicate that the coins were more than likely associated with the wreck. The fact that the coins were not *reales*, however, but *ducatoons* and *Mameita-* and *Cho-Gins*, suggested that they were a private collection belonging perhaps to a sailor, as the VERGULDE DRAECK almost certainly carried only *reales* as the official specie. The only problem is that among the collection was a 1655 Brabant-Brussels mint *ducaton*. Although it is possible that a coin minted in 1655 could have reached Amsterdam in time to be brought on-board the ship in October 1655, the coin shows signs of wear, suggesting it was in circulation for longer than just a few months.

Various suggestions in the years following mention other possible associations with the wreck, including an account of a circle of stones (e.g. W.A.: 17.02.39) which is possibly aboriginal in origin.

In September 1957, two divers, E.A. Robinson and B.F. Phillips, claimed to have discovered the wreck site of the VERGULDE DRAECK south of

Lancelin Island (D.N.: 09.09.57). The initial newspaper report mentioned "14 cannon pointing skyward". When the wreck was revisited a few days later by the finders, in company with members of the press, the only visible "wreck artefacts" mentioned were "several cannon-shaped coral outcrops jutting out of a shapeless multi-coloured reef". An attempt to saw through the coral was inconclusive (D.N.: 16.09.57). Later, the cannons were found to be limestone solution pipes (D.N.: 22.09.57), a common feature in this area. It was claimed by the finders that the position they returned to on the second occasion was not the same as the original one, although the accounts of both sites appear to correspond closely.

In April 1963, a group of five spear-fishermen, J. Henderson and his two sons, Graeme and Alan, E.A. Robinson and J. Cowan, anchored over the wreck site of what since then has been regarded as the wreck site of the VERGULDE DRAECK. The newspaper reports of the time (D.N.: 19.04.63) state that Graeme Henderson first noticed bricks and then elephants' tusks.

The report mentions that later Robinson sighted cannon, and noted:

"He (Robinson) was convinced these were cannon - like those he had been seeking since he first found - and then lost - a wreck in this area five years ago."

The wreck material was identified, by Dr P. Playford, as likely to be from a V.O.C. wreck, and possibly from the VERGULDE DRAECK. A later newspaper account (S.T.: 21.04.63) reported that Robinson claimed that the wreck was the same one that he had discovered in 1957, but that Graeme Henderson was the first to see the site. Since that date there has been controversy over whether what was reported in 1957 was the same site as that found in 1963, particularly as the 1963 find was characterised by the presence of small artefacts, that were not reported in 1957.

A report of a second dive on the wreck site in 1963 records that a piece of pottery, lead sheets, tarred rope and more ivory tusks were recovered (D.N.: 26.04.63). Later, silver coins were found (W.A.: 29.04.63), as well as four beardman jugs, tusks, copper-covered wood, sounding lead, sailmakers' scissors, lead and a whet-

stone. On May 4, a cannon (No. 25 in fig. 15) was raised and on May 6, an anchor.

subsequently, concern was expressed by numerous people about the safety and preservation of this and other historic wrecks on the Western Australian Coast particularly in view of reports of the use of explosives on the site (S.W.T.: 04.07.63; D.N.: 14.10.63). On November 11, 1963, the Hendersons and Cowan donated to the W.A. Museum all the relics in their possession and all rights claimed by them to the VERGULDE DRAECK, as finders (D.N.: 19.11.63). This public-spirited act played an important part in instigating legislation to protect this site. Two attitudes appeared current at the time: that the wreck and its relics were part of the Australian national heritage and should be protected; and that the wreck should be available for salvage by individuals under the Merchant Shipping Act. As a result of steps taken by the W.A. Museum and other responsible persons, on December 18, 1964, the W.A. Museum Act was proclaimed, protecting all wrecks off the Western Australian Coast that had occurred prior to 1900.

While these momentous decisions were being made, a rather curious search for the treasure of the VERGULDE DRAECK took place north of the wreck site (W.A.: 29.06.64). The story states that a Perth syndicate was digging inland from Dynamite Bay, south of Green Head, for the eight boxes of treasure which were supposed to have been carried on the VERGULDE DRAECK. The hunt was initiated by the following story from the organiser of the search:

"Many years ago I befriended an old Dutchman who I knew only as Harry. He was grateful for the way we looked after him after an illness ... One day the Dutchman took me aside and said: 'I have something to show you that no-one else has ever seen'. He showed me an old piece of parchment and told me it was a map that indicated exactly where chests of coins from the GILT DRAGON had been buried in a cave on a West Australian beach.

"I was sceptical, but he convinced me that he was a direct descendant of one of the men who had sailed in the GILT DRAGON.

"He said that the map had been handed down from generation to generation till finally it had come into his hands. I examined the map and it was obviously very old and seemed to me to be genuine.

"Several years ago, the two of us following the map, came to this sandhill near Dynamite Bay. We decided this must be the spot. In front of my eyes he burnt the map, saying: 'No-one else has seen this, and no-one ever will'. Later he died."

After the syndicate was set up, digging in the spot was started, using a drag-line. After eight weeks' work, the top of the pit was reported to be 30 yards in diameter, and at the bottom 20 feet long and 10 feet wide at a depth of 45 feet, which was later extended to 65 feet and then abandoned (W.A.: 08.07.64; D.N.: 02.07.64). Needless to say the treasure was never found.

In 1966 a survey of the wreck site was carried out under a Western Australian Museum contract by a group comprising: J.Cowen, G.Brenzi, R.Sonnerman and W.Anderson. This survey served as the basis of the wreck site plan used in fig. 15 below. During the following year E.A.Robinson was employed by the Museum on a part-time basis to recover material.

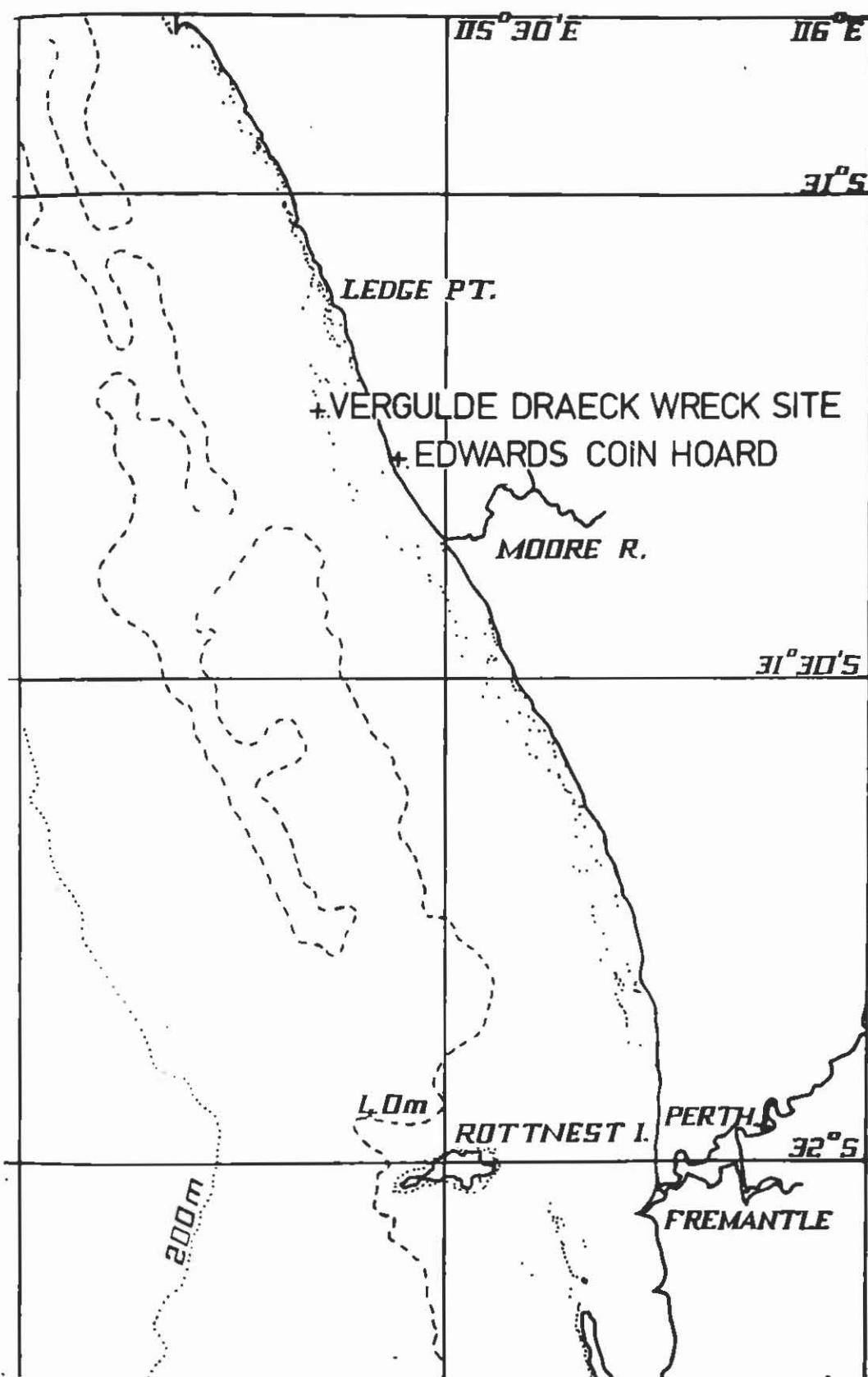
This and subsequent work was, however, carried out in a context of continuing legal difficulties, which was, to some extent, resolved by the passing of the Museum Act Amendment Act of 1969, in which the Museum's powers were strengthened. Further improvements were made in the legislation which resulted in the Maritime Archaeology Act of 1973. However, claims were made that the legislation was invalid. In particular a High Court challenge was made by Mr E.A. Robinson, a ruling on the first part of which has only recently been handed down. The High Court ruled against the Western Australian Museum's contention- that was, that Mr Robinson's claim that the Maritime Archaeology Act was invalid, was in itself invalid. In

the meantime, in 1972, an agreement was signed between the Australian and Netherlands Governments, whereby the rights of ownership of the Netherlands Government as successors to the V.O.C., to the VERGULDE DRAECK and other V.O.C. wrecks off the Western Australian Coast, were transferred to the Australian Government. Recently the Australian Government proclaimed the Historic Shipwrecks Act of 1976, which ensures the protection of these and other historic shipwrecks. For more details of the legislation and workings of these acts, see Pearson (1976), Green and Henderson (1977) and Green (in press). The latter being the proceedings of the 1st Southern Hemisphere Conference on Maritime Archaeology, held in Perth in September 1977, where many of these issues were discussed and subsequently published.

This account of the discovery and subsequent developments has been recorded here to illustrate the problems that existed before and after the enactment of protective legislation. In spite of the fact that the Museum was criticised on several occasions for failing to establish an active excavation programme, there can be little doubt that the basic policy was correct. Because of the lack of a qualified or experienced maritime archaeologist to direct excavation; the role of staff was essentially a watch-keeping one, but the various surveys of the sites and the controlled collecting programme instigated in 1969, served to establish a presence and discourage looting. However, this policy undoubtedly alienated a large proportion of the amateur diving fraternity, who were disappointed that excavation of the sites did not immediately take place. The start of the excavation programme of the VERGULDE DRAECK in 1972 by the Museum heralded a completely new approach to the wrecks. Following this excavation, the looting problem was considerably reduced. It is easy to be wise in retrospect, but it is unfortunate, that because of the lack of qualified maritime archaeologists at that time, this approach could not have been introduced immediately after the original legislation was brought down in 1964.

It is this author's contention that the enactment of legislation does not prevent looting of wreck sites; it does however establish

a moral involvement of governments and institutions in maritime archaeology. It is the responsibility of the maritime archaeologist to then establish an active scientific programme of excavation.



- (12) Map of the coast of Western Australia from Fremantle to Ledge Point showing the wreck site and the site where the Edward's coin hoard was found.



(13) Underwater view of outer reef looking towards the wreck site, showing gulleys and extensive weed coverage of reef.



(14) View looking through complex cave system on the wreck site

CHAPTER II

The VERGULDE DRAECK Wreck Site

The wreck of what is now assumed to be the VERGULDE DRAECK, lies on an off-shore reef 5.6km from the coast of Western Australia, in latitude $31^{\circ}13'$ south, longitude $115^{\circ}21'$ east. It is 12km south-south-west of the small fishing village of Ledge Point, figs. 11 and 12. The reef is part of a chain of off-shore reefs, that extends north-south along this part of the coast. They consist of Pleistocene eolianite, named Coastal Limestone, and were formed from dune systems developed during the Pleistocene when the sea was at a lower level, Geological Survey of Western Australia (1975), Perth Basin. The featureless sea-bed slopes gradually up to this reef. On approaching the reef at a depth of about 10m, solution holes and caves may be seen (fig. 13), which gradually become deep caves winding their way into the reef through arches and tunnels (fig. 14). This is part of a solution hole system and is a common feature of these reefs. The shallowest part of the reef is less than 1m at low tide, maximum tidal range 0.9m, Department of Defense (1976). However, the tunnels and caves drop to a depth of up to 8m. Beyond the reef, towards the coast, is deeper water ranging from 5-10m.

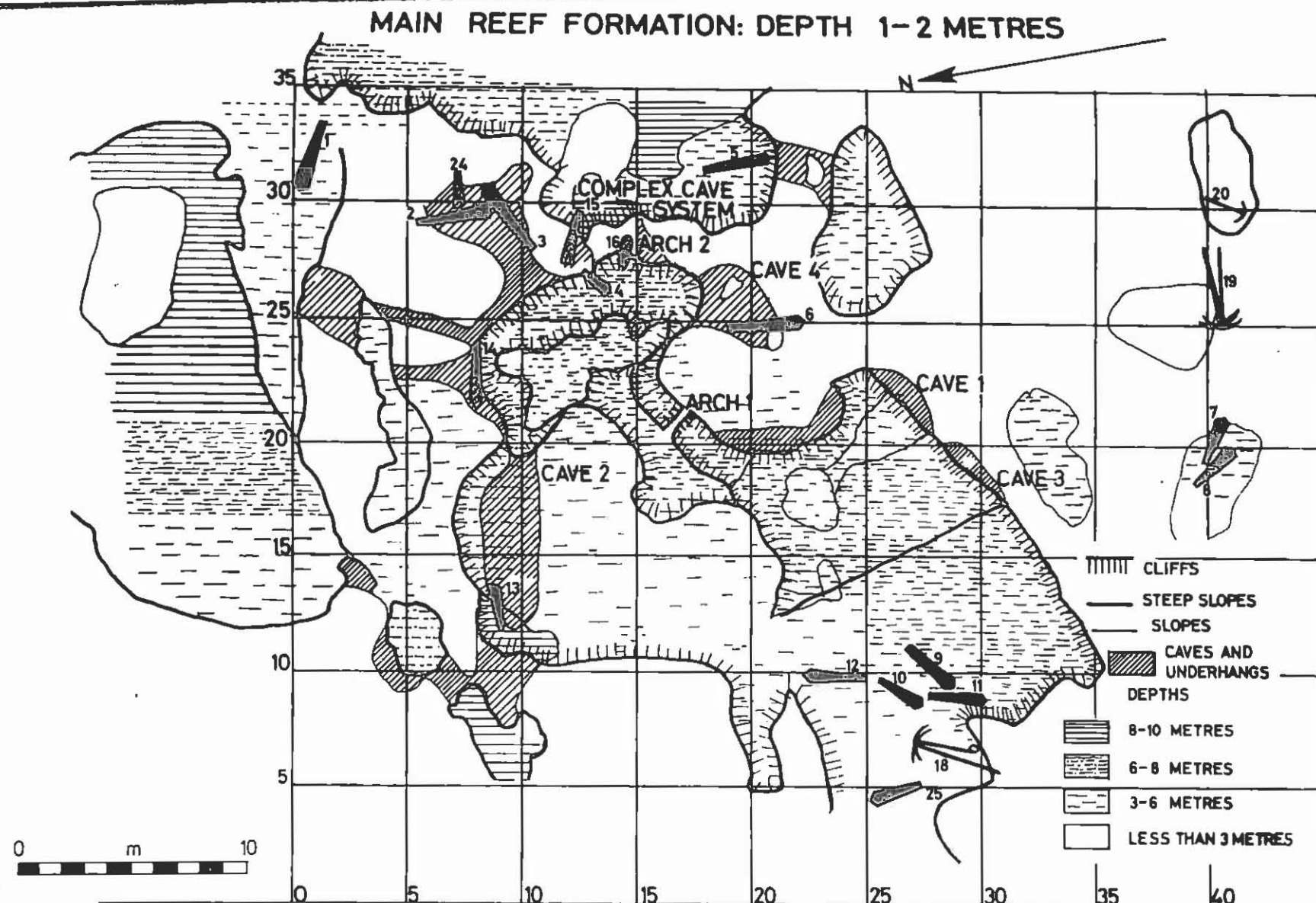
The wreck site is located about 100m from the north end, on the eastern or seaward side of this unnamed reef. About 1km to the north, is a large triangular reef known locally as Flat Rock. The wreck site covers an area 50m long by 40m wide, bounded on the Western (long side) by the reef. The site is extremely complex: the reef consists of a complex cave system, and cannon are scattered on top of the reef, in caves and on the floors of tunnels. In one place, three cannon (Nos. 13, 15, 24) lie on the floors of caves at different levels, one above the other. The western side of the site is relatively flat, but the sea-bed slopes gradually down from about 4m to 6m at the base of the reef and the entrances to the caves. The floors of the caves consist

of a limestone shingle, and sand (fig. 15).

The only wreck material noticeable on the site is the overgrown (with weed) and heavily concreted cannon and anchors, most of the site being covered with light seaweed and algae. Only a practised eye can spot these cannon, as they are generally well camouflaged with the weed and concretion, and blend into the surroundings. Numerous small, yellow bricks are scattered over the site, and a closer examination may reveal some pottery and brass candlesticks.

The main problem in working on this site and at other exposed sites on the Western Australian coast, is the Indian Ocean swell. The swell is generated far out in the Indian Ocean by frontal troughs and high-pressure systems moving east, and approaches the coast of Western Australia from the west or south-west, see Australia Pilot, Hydrographer (1972). The waves have a long wavelength (\bar{c} 300m), and sharp crests. As the sea shallows, the wave-crests increase in amplitude until, at a depth of generally less than 10m, they break. The larger the amplitude of the wave, the further from the reef it breaks. At times on the VERGULDE DRAECK site, the swell can reach a height of 8-9m. The swell is also unpredictable, both in the long- and short-term, which presents another problem. It is difficult to predict 24 hours in advance what the swell conditions will be on the site. Usually, a bad swell will last for several days, and then may accountably change for the better. However, if the swell is low to moderate, there appears to be a short-term unpredictability, and an unexpected series of large swells may suddenly pass through within a few hours. Thus, even on relatively calm days, great care must be taken to observe the sea pattern; this observation relies on instinct rather than any form of exact science.

Compounding these problems is the condition of the sea state created by local weather. Thus there may be heavy swells and a low sea, or low swells and a high sea. The sea state, apart from making the swell difficult to observe, merely creates discomfort on the working platform.

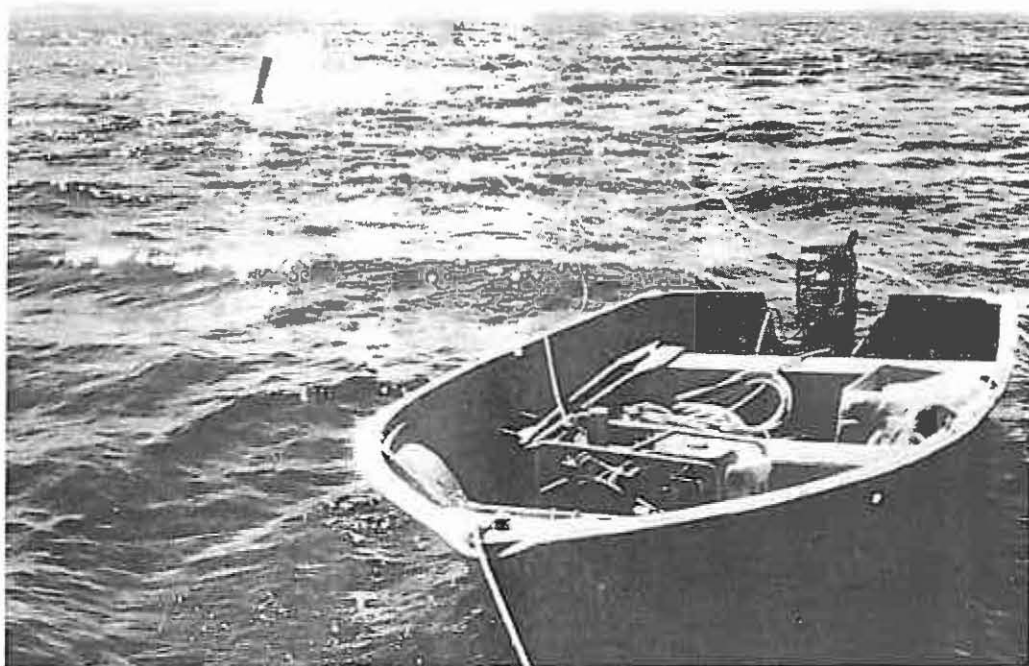


(15) Plan of the wreck site, showing the reference grid and location of cannon, anchors and major topographical features. From the original survey by J. Cowan, G. Brenzie, R. Sonnerman and W. Anderson in 1966.

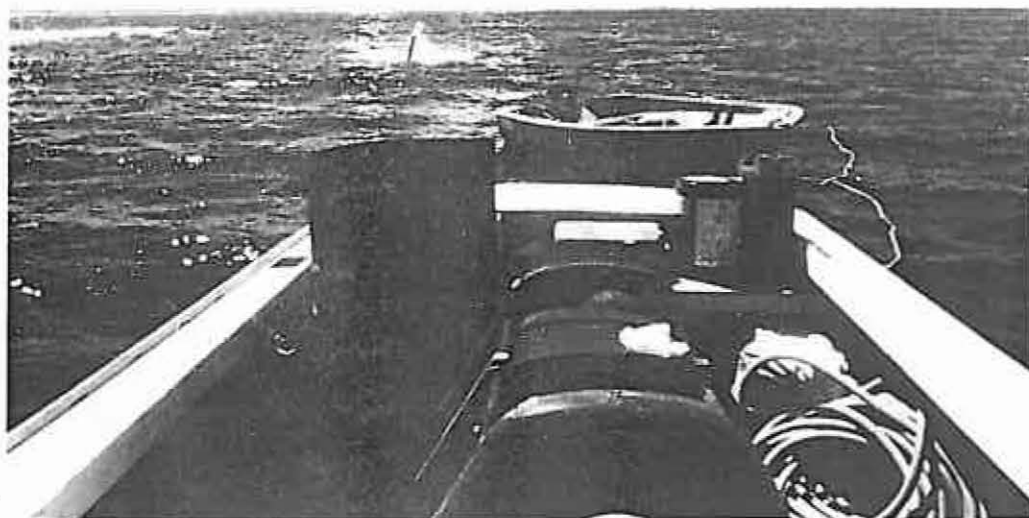
Underwater the situation is somewhat different; a diver close to the sea-bed, experiences surge from the swell, but is in no real danger even if the swell is breaking over him. A danger exists only if he should be forced to the surface, for example if his air supply failed. The surfacing diver could be washed onto the reef by breaking waves, where he may well sustain injuries. However, it is possible to swim out through bad surf conditions, simply by duck-diving into the breaking waves.

Most diving in these shallow conditions is carried out with hookah surface-demand air supply, which gives continuous air provided the power-unit does not fail. If a power failure occurs, the diver has several minutes warning due to the air supply getting 'tighter', and thus he can start to swim out underwater from the reef. In the event of a catastrophic failure, for example a burst pipe the hookah hose, which is secured to the work boat, acts as a safety-line, preventing the diver being washed over the reef. If adjustable buoyancy life jackets are worn, they should not be inflated in this situation; a diver swimming on the surface has to dive under the breaking waves, and a life-jacket would prevent this.

The greatest danger in working on this wreck site is to the boat anchored outside the reef, and her crew. If the vessel should break adrift in heavy swell conditions, it would be rapidly driven onto the rocks. The boat would be a total loss within a matter of seconds and the crew in grave danger. Fast action must be taken to get the vessel out of the danger area, and temporary abandonment of divers and equipment on the wreck site is necessary, to save the boat and crew. Therefore, it is important to have a secure chain mooring, well outside the breaking swell. In the case of the VERGULDE DRAECK, the work boat was moored 100m out from the wreck site. In general, if the amplitude of the swell was above 2m, or the break occurred more than 75m out from the wreck site, diving was considered impracticable.



(16) Dinghy with hookah, view looking towards wreck site, rigid airlift discharge pipe in background, and coast line in distance. Photograph taken on a very calm day.



(17) View taken from workboat showing road drill compressor in foreground, airlift supply pipe leading to wreck site. Dinghy with hookah, and airlift discharge may be noted in background. The reef lies under white water on left of picture.



(18) Diver working under Arch 1 with flexible airlift.



(19) Area of uncleared bricks in early phase of excavation.

CHAPTER III

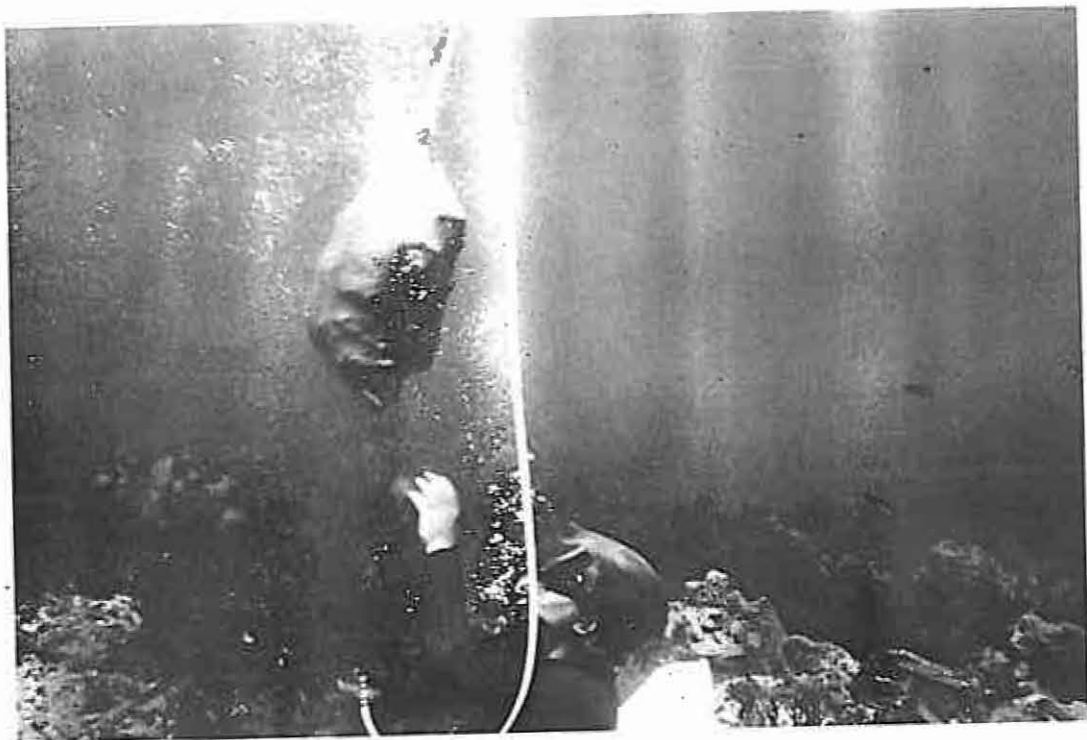
The 1972 Excavation

The excavation of the VERGULDE DRAECK in 1972 was the first attempted by the author, and the first full-scale excavation carried out in Western Australia. Many of the problems were dealt with on an *ad hoc* basis as they arose. At times, problems developed during the course of the excavation that demanded a complete re-examination of techniques and methods being used, and modifications had to be made on the spot. In some cases solutions to problems were only realised retrospectively, and these have been adopted in subsequent excavations.

The excavation was started in January 1972. The excavation team was based at the Western Australian Museum's field station at Ledge Point, where basic domestic facilities were available. Each day that diving was possible, the team commuted to the wreck site by boat. Three vessels were used: a 9.5m bonded-plywood work boat with twin 50H.P. outboard motors; a 5.5m fibre-glass, high-speed dinghy with a 50H.P. outboard (fig. 16); and a 4.5m aluminium, deep-V dinghy with a 18H.P. outboard. The work boat was kept on a mooring at Ledge Point, while the two dinghies were beached each day and taken on trailers, with a four-wheel-drive vehicle, about 100m to the field station. A $1.5\text{m}^3/\text{min}$ low-pressure (5 atmospheres) compressor located on the work boat was used to power two airlifts on the site (fig. 17). The airlifts were of two types. One consisted of a rigid P.V.C. tube, 150mm in diameter, with an air box on the lower end at the anchoring point. Attached to this was a further 4m of flexible, plastic suction tubing, with a constriction at the working end to prevent blockage. The other airlift was an entirely flexible, plastic suction tube, 120mm in diameter and 12m long, anchored about 5m from the working end (fig. 18). The air supply pipe was then fed into the working end so that the air discharged slightly beyond the anchor point. The air supply was blocked off at the end of the supply pipe and a series of about 50, 3mm holes were drilled into the pipe to give an emulsified air supply. The emulsified air supply was used to



(20) Bones and bricks in situ.



(21) Lifting bags of bricks.

increase the suction, as it was found that if the air was run direct from the 30mm supply pipe, it tended to form large bubbles of air as it rose up the airlift tube, and thus decreased the efficiency. Since the air supply was only $1.5\text{m}^3/\text{min}$ in a depth of 7m, any decrease in efficiency considerably reduced the suction. With an emulsified air supply, it was possible to run both airlifts with sufficient suction to remove sand and gravel, but not large rocks. The discharge spoil was directed over the reef into a large hole to the south of cannon No.5. Periodically, when conditions permitted, this spoil was checked for artefacts that had been accidentally discharged up the airlifts.

On this type of site, and indeed on most sites in shallow water, the airlift is the best way of removing sand and gravel up to a diameter of 100mm. The main problem is that the compressor unit used to power the airlift is large, and requires a stable working platform. A water dredge is ideal for discharging spoil horizontally off a wreck site, and has been used with great success by Henderson (1976), on the JAMES MATTHEWS (1841) site here in Western Australia. The water pump required to run the dredge is small, making the whole operation simple. However, the airlift was the only practical system for removing spoil from the VERGULDE DRAECK site, as it had to be discharged over the reef. Any attempt to discharge seaward from the wreck, would result in the spoil being driven back onto the wreck site. Flexible working ends are considered essential for this type of work, and a solid tube, as illustrated by Wilkes (1971), is not recommended.

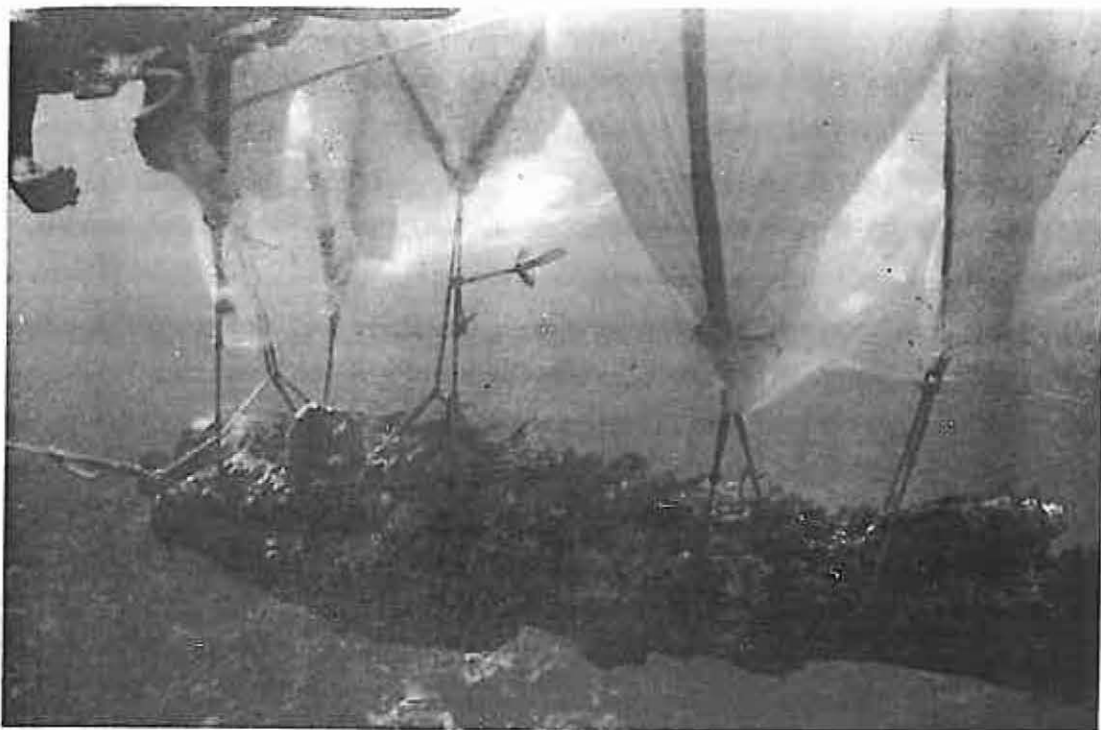
The larger material, in excess of 100mm diameter, could not be discharged off the site with the airlift. This material fell into two basic types: artefacts such as bricks and concretions (figs. 19 and 20); and spoil - rocks and stones. On some sites, back-filling has been used to avoid having to remove vast amounts of spoil off a wreck site. On the DARTMOUTH (1690) site, Martin (1977) trenched across the wreck site, and then moved progressively forward using a water dredge, back-filling the excavated areas. Such a technique is ideal for this type of site, where there is very little sea-bed movement. However, on the VERGULDE DRAECK

site, any form of systematic movement of material around the site was useless, since the first storm would have completely confused this work and at the same time large quantities of fresh sand would have been washed in. Any excavation here had to completely remove spoil from the wreck site.

Loose material that could not be handled with the airlift, was placed in calico bags and tied up. The bags, when full, weighed about 20kg (in air), and were stored on the site until time was available to move them. If the weather conditions permitted, the 4.5m aluminium dinghy was dropped back so that it was over the wreck site and the bags were then hauled up with a line one by one onto the boat (fig. 21). If bad weather prevented this operation, about 50 of the bags were tied onto a lifting bag with single lines and quick release knots. The lifting bag, which had a line running to the work boat, was then inflated and hauled out from the wreck site through the surf to the work boat, where the bags were unloaded in calm conditions into the dinghy. Sorting of spoil and artefacts was carried out at the field station and later at the Conservation Laboratory in Fremantle.

Lifting bags were used for lifting heavy objects such as cannon which were towed back to Ledge Point with the work boat (fig. 22). Subsequently a crane was hired and the object was taken out of the shallows onto the beach. The general lifting operations on the VERGULDE DRAECK were far from satisfactory, and this experience made heavy lifting gear a high priority on the new Museum work boat, built after the excavation, for use on the BATAVIA, Green (1975).

Small robust artefacts such as pottery and coins recovered during airlifting and general collection work, were placed in bags carried by the divers. At the end of the day's work, they were unloaded at the field station for recording and registration. Delicate material such as leather, rope, etc. was placed in sealed jars and dealt with in the same way.



(22) Towing Cannon No. 12 off the wreck site with lifting bags.

The first phase of the excavation was to determine how much of the site had been disturbed, how deep the wreck deposit extended, and if there was any structure or stratification present. An area in the south-west corner of the site, (fig. 23:13.1), about 1 x 2m, was selected for a test excavation. The surface deposits consisted of loose, jumbled ballast bricks and lumps of broken concretion (as in fig. 20). Below this was a sand layer containing loosely scattered ballast bricks. Bedrock was reached at a depth of about 0.15m where animal bones and the remains of the staves of a wooden barrel were found. The bones have the marks of butchering and are thought to be the remains of provisions such as salt beef, see Chapter. V.2.2. Apart from the very deepest levels in the test area, no stratigraphy was noted nor was there any evidence of the ship's structure. Examination of other areas on the wreck site indicated a similar situation. Since looting is usually carried out without an airlift, it is not surprising that the surface deposit consisted of large quantities of rubble and spoil. After removing surface artefacts, looters

generally dig pits into deeper levels, depositing the spoil around the edge of the pit. These pits are quite quickly filled-in by natural processes. The looting continues until the whole surface of the site is covered with a thick layer of rubble and spoil. On this site, the disturbed layers usually extend to a depth of between 0.5 and 1.0m. The Museum had been conducting a fairly limited surface collection for several years, working in a systematic manner in carefully controlled areas. However, the work of looters often using explosives, and the effects of severe storms, confused much of this work, making detailed and systematic recording of individual items on the surface unnecessary.

The first priority was to remove the surface layers of disturbed material, in order to try and uncover undisturbed levels. In the following weeks, teams of divers cleared the superficial material, often bringing back as many as 40 bags of bricks a day. The airlifting was carried out in an east-west trench about 2m wide, extending from the western limit of the disturbed material (13.1) east through Cave No. 1 (fig. 15) to the base of the underhang (21.1). The results of this first phase confirmed the initial findings that the superficial levels were severely disturbed. However, in levels undisturbed by looters very little structure or stratification was noted. In the eastern area of the trench (17.1) some ship's structure was found, but the timbers were badly broken-up and almost unrecognisable. In some cases, pottery and other small artefacts were found above and below the brick layer. This tends to indicate that the ship broke-up violently and her wreckage was thoroughly mixed-up.

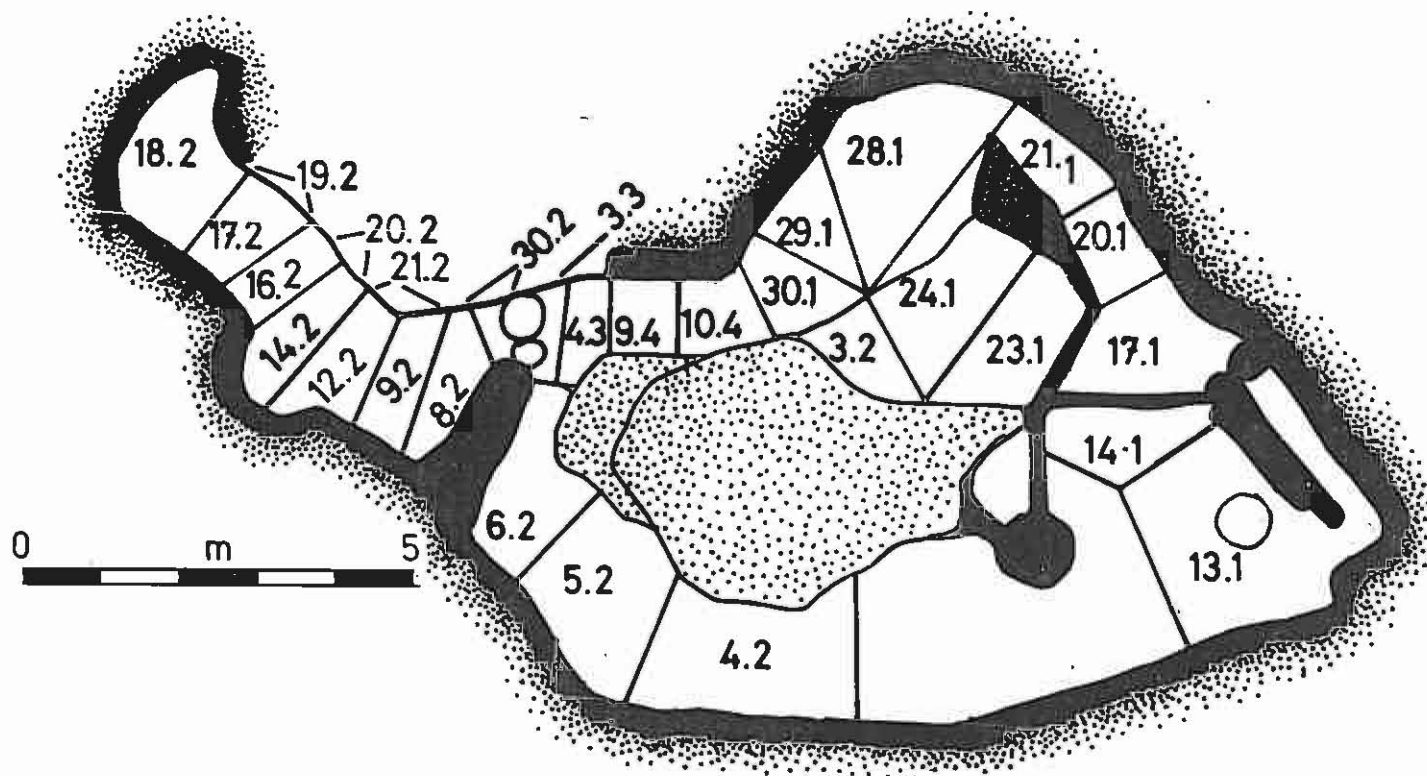
It was, therefore, decided to continue the excavation, recording only the significant material, by sketching its approximate position (\pm 1m) and the depth at which it was found, on an accurate plan of the site (fig. 15).

In the excavation's second phase, the concretion between Cave No. 1 and the large lump was removed (23.1-24.1). This area was then

excavated down to bedrock, and the excavation extended along the underhang to the north, up the large lump (30.1). Excavation then moved to the west of this lump (4.2) extending this work through the trench to the end of the main deposit (18.2). The various lumps obstructing the excavation to the east of the large lump were then removed, and the large lump was broken-up into manageable pieces.

Various caves were inspected, but in all cases only a superficial layer of sand, gravel and brick was observed. Excavation of these caves was abandoned because of the dangers and difficulties involved with the very strong surge.

Two cannon were raised (the first, No. 12 (fig. 25), and the second, the badly damaged Cannon No. 16), for research into methods of treating and conserving iron cannon. A limited programme is now underway to collect the few remaining loose artefacts on the site. A survey of the whole reef is planned to check whether there are any other wreck deposit areas, and a hydrographic survey of the area around the wreck site should determine where exactly the ship struck the reef.



- (23 Progress of the excavation, starting on January 13, 1972 (13.1) and continuing until April 10, 1972 (10.4). Areas worked on particular dates as indicated.

CHAPTER IV

Distribution of the Finds

The distribution of the various finds from the wreck site is given in the following figures:

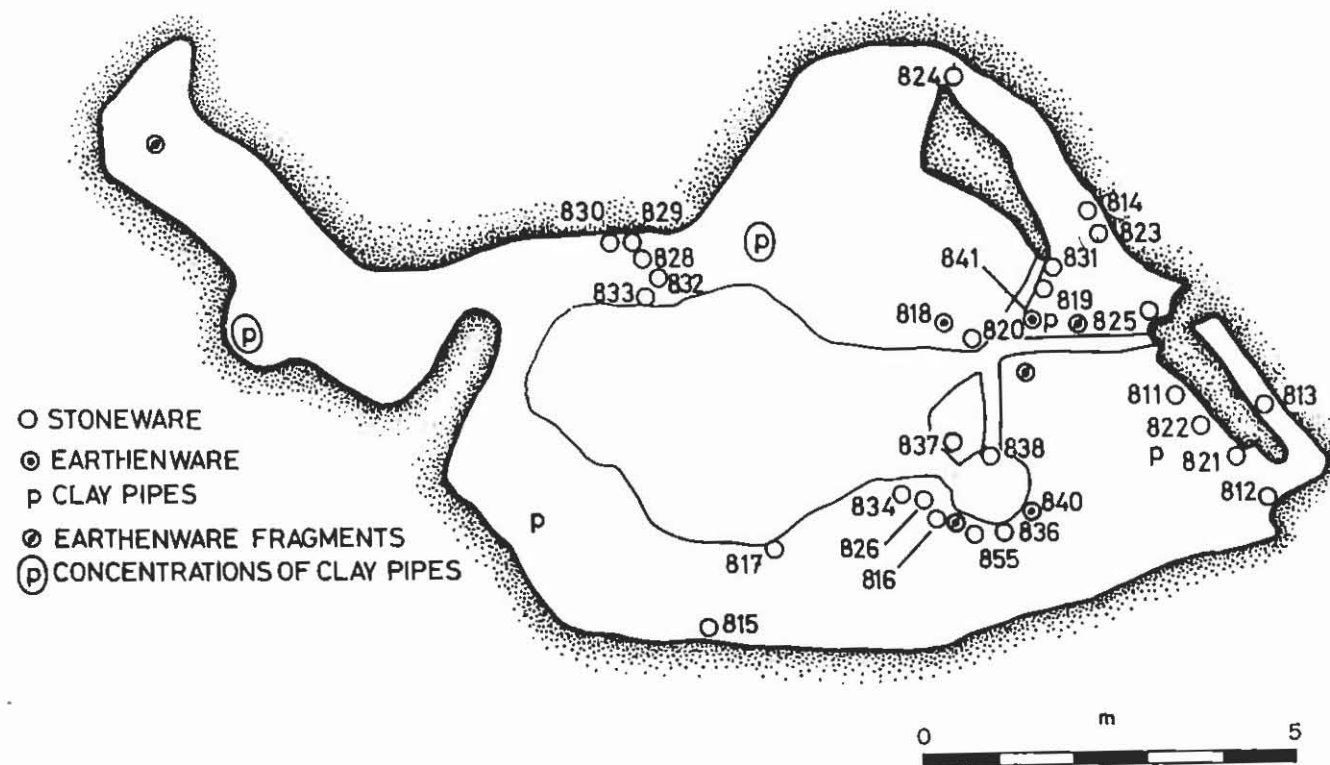
1. Ceramic material, fig. 24.
2. Brick and ferrous material, fig. 25.
3. Non-ferrous (including coin) and glass material, fig. 26.
4. Miscellaneous material, fig. 27.

The figures show a certain system in the distribution of the finds which may indicate to some extent how the VERGULDE DRAECK broke-up.

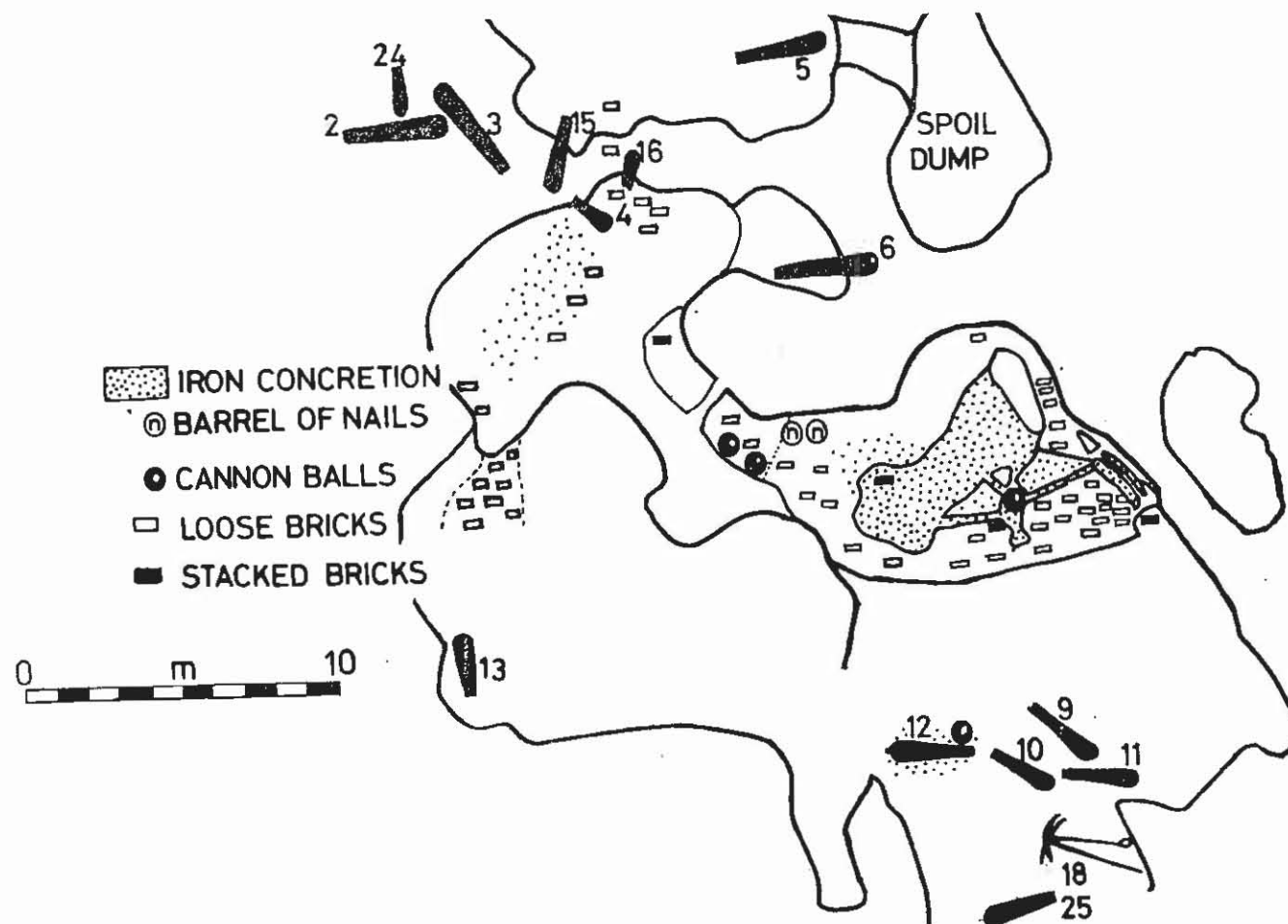
Initially, it should be noted that the 1972 excavation was concentrated in the area between Arch No. 1, Cave No. 1, Cave No. 2, and the west cannon and anchor complex. The area in the 'complex cave system' (fig. 15) had no small artefacts, but it had a group of nine large iron cannon. It is thought that more material, possibly structure, may exist in the area bounded by Cannon No. 14, Cannon No. 4, Arch No. 1, and Cannon No. 13. This was not investigated in 1972, but it is hoped this may be done sometime in the future.

Dealing first with the distribution of small artefacts in the southwestern excavation area of the wreck site: it was clear that the coins were all confined to the gulley under Arch No. 1; many of the bones and tusks which would have been in the hold, were at the southern end of the site; a large concentration of iron billets or bars in concretion was located in the central area, again clearly cargo; and the ceramic material was predominantly in the southern end of this area.

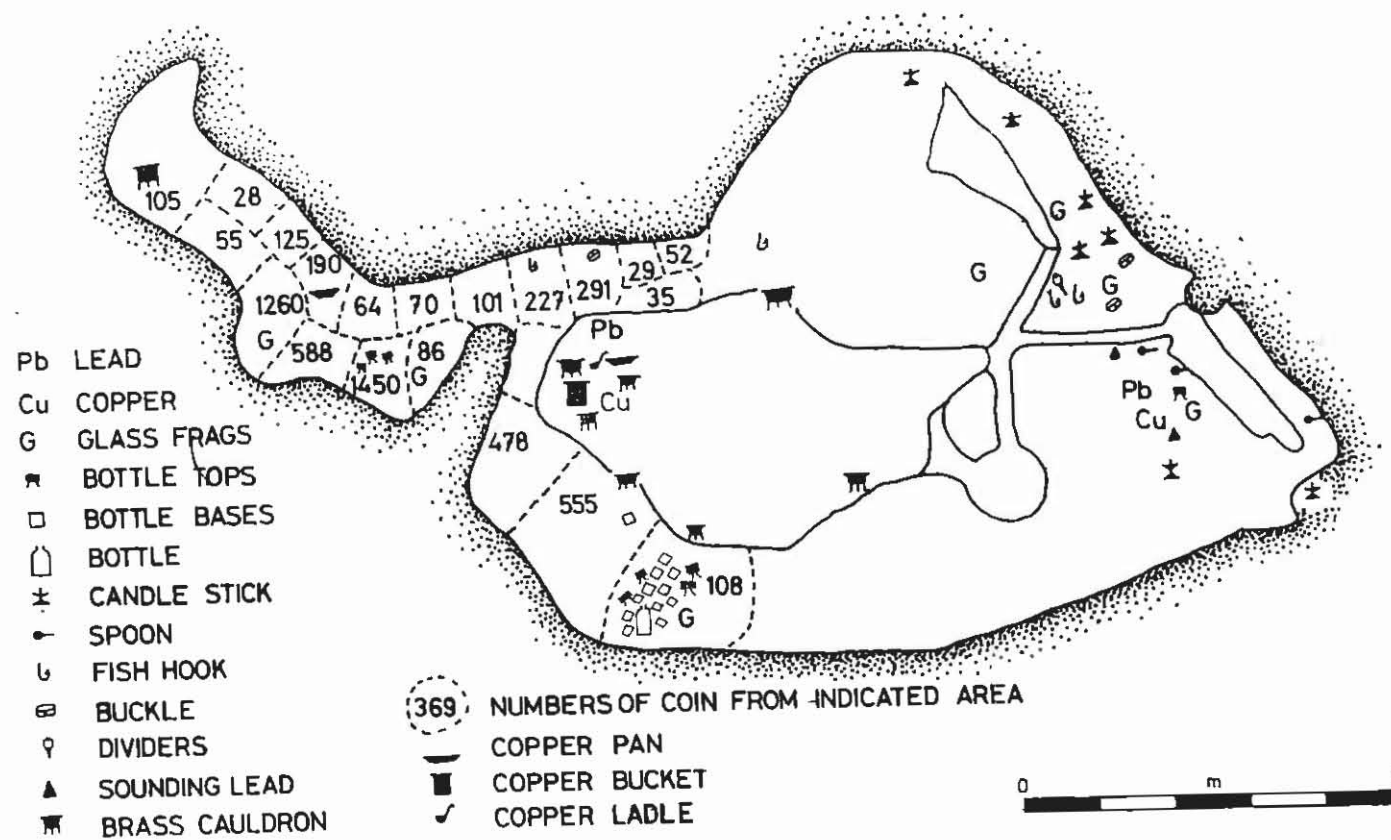
However, the significance of the positions of these small articles is difficult to evaluate, in the light of the scattered distribution of cannon and anchors on the site. It is interesting to compare the complex nature of this site with the relative systematic



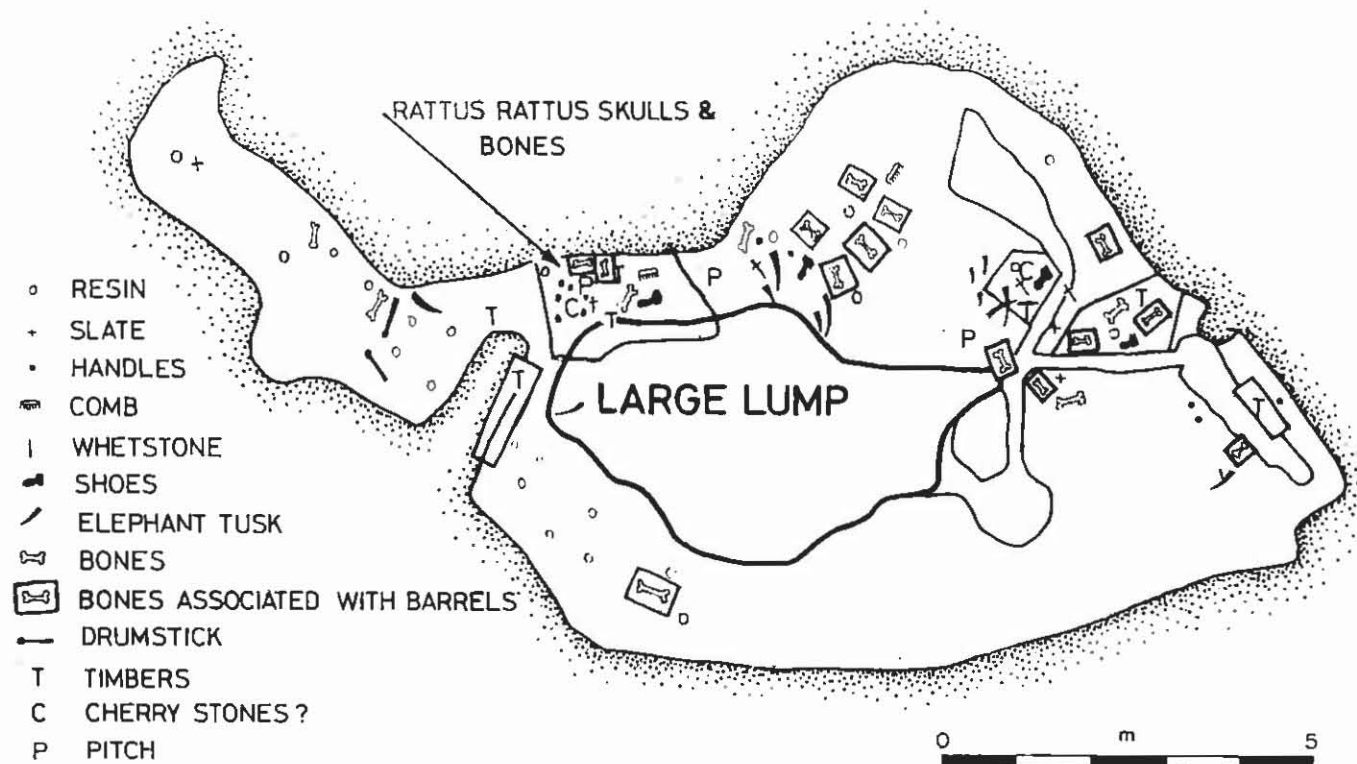
(24) Distribution of ceramic material on wreck site.



(25) Distribution of brick and ferrous material on wreck site.



(26) Distribution of non-ferrous and glass material on wreck site.



(27) Distribution of miscellaneous material on wreck site.

distribution of material on the BATAVIA, Green (1975), where the cannon and anchors on the wreck site indicate their original position on the ship. The BATAVIA site is more exposed, lying 100m from the top of a gradually sloping reef, whereas the VERGULDE DRAECK lies within 20m of the top of a much steeper reef.

On the ZEEWIJK site, which is slightly more exposed than the BATAVIA, there is nothing left of the ship outside the reef where she struck except the cannon and anchors. Most of the material from this ship was driven over the top of the reef (0.5m deep, and shallower than the BATAVIA site) and into the shallows beyond. Three large iron cannon have been found in this area, Ingelman-Sundberg (1977ii), indicating the strength of the surf on this site. Muckelroy (1977) examined in detail the possible factors affecting the break-up of wreck sites. A superficial examination of the parameters of his analysis as applied to these three sites, may be summarised as follows:-

VERGULDE DRAECK	Little noticeable wreck distribution pattern. No material over the reef. Many good quality artefacts intact. No ship structure.
BATAVIA	Noticeable wreck pattern. Material over the reef up to 1km away. Many good quality artefacts. Ship structure.
ZEEWIJK	No noticeable wreck pattern. Material over the reef more than 1km away, including cannon. Few good quality artefacts. No ship structure.

In general, the conditions on the three sites are fairly similar, though the ZEEWIJK has a very strong current and surf. The surf on the BATAVIA is only slightly stronger than that on the VERGULDE DRAECK. The VERGULDE DRAECK lies on a steep reef, but the maximum

and minimum depths over all three sites are the same. Each site has approximately similar coral, sand and gravel material on it. Curiously enough, historical accounts indicate that the ZEEWIJK appears to have survived the longest intact on the reef, about 4 months, Ingelman-Sundberg (1977ii). The BATAVIA lasted only a few weeks, Green (1975), and the VERGULDE DRAECK broke-up almost immediately (see Chapter VII - above). It is clear that more investigation of the patterns of wreck break-up is required, as the distribution of artefacts on each site do not seem to be consistent.

The cannon and anchors on the VERGULDE DRAECK site lie in three main groups: a southern group of two cannon and three anchors, possibly the forepart of the ship; a western group of five cannon and two anchors, possibly the midships; and another group, to the north, of 12 cannon, possibly the stern. Assuming that the anchors have not moved since the ship broke-up, the southern anchors probably represent the bow anchors. The midships is identified by the two western anchors which may have been kept in the hold, and the large amount of cargo to the east of this. We may assume that the coins were kept in the skipper's cabin, and their concentration under Arch No. 1 would locate this. However, the large group of cannon on the reef to the north of this area, does not make much sense. It would seem that the ship broke-up with the bow pointing south, and that the main part of the upper ship, including the gundeck, spilled over onto the reef, while the cargo dropped out into the deeper part of the site to the west of the reef. This would explain why no ship structure was found in this area, simply because the bottom of the ship broke open, the heavy cargo fell into the large hole, and the timbers floated away.

Another aspect of the distribution of small artefacts is that the original patterns may have been disturbed by the early uncontrolled salvage on the wreck site. It is very difficult to estimate how much material was recovered legally from the wreck site prior to the Museum Act 1964, and almost impossible to determine what was recovered illegally subsequent to this Act. We can only study the site as it appeared when the excavation started in 1972, together with a list of finds recorded from the site prior to this which have almost no provenance.

CHAPTER V

CATALOGUE OF ARTEFACTS FROM THE WRECK

OF THE VERGULDE DRAECK

1. INTRODUCTION

The artefacts which have been recovered from the VERGULDE DRAECK since its discovery in 1963, make up an extremely diverse and interesting collection. It is intended here to describe every artefact that is available to the author, both from the W.A. Museum Collection, and from material held in private collections. Wherever possible, these artefacts are described in detail, illustrated, and where known their position on the wreck site is given by a six-figure grid reference related to an arbitrary grid on the wreck site (fig. 15). The first three figures, refer to the southing and is the distance in decimetres from origin in an approximately south direction. The second set of three figures are the easting in decimetres from origin. These position references are given in brackets after the description of the catalogue registration number.

The catalogue is subdivided into various material types, i.e. ceramic, non-ferrous, miscellaneous, organic, ferrous, etc. This division is thought to be better than that related to artefacts' uses on-board as adopted by some authors, e.g. Marsden (1972). The whole question of the purpose or use of artefacts found on wreck sites is fraught with difficulties, and is dealt with in Chapter VI. However, some specific cases are dealt with here in the catalogue. The use of stoneware jugs as mercury containers is discussed by Sténuit in Appendix 1 and further by this author in Appendix 3. The coins recovered from the VERGULDE DRAECK are dealt with by S. Wilson in Section 9 of this catalogue.

All illustrations in the catalogue are at 1:2 scale except where otherwise stated.

2. CERAMIC MATERIAL

2.1. Stoneware

The stoneware consists mainly of beardman jugs of Frechen origin (fig. 28). Although it is tempting to construct a typology of this material, this would seem rather premature, particularly as the author is currently working on a larger collection of beardman material from the V.O.C. ship, BATAVIA (1629). Analysis of the BATAVIA material indicates that the VERGULDE DRAECK beardmans are not nearly representative of the complete cross-section of types from the first half of the 17th century. Thus the jugs have been divided simply into their four basic types: plain,



(28) Beardman jugs.

mask, mask and one medallion, mask and three medallions, and the basic variations described. The drawings show that there are numerous types of masks and medallions, and there are few obvious relationships between the types of jugs, masks and medallions, or their sizes. Where possible, parallels are indicated, but no intentional typology is suggested here.

The globular shape of the VERGULDE DRAECK jugs is typical of the first half of the 17th century, and is similar to that of the BATAVIA (1629), Stanbury (1974). Later jugs have a more ovoid or biconical body with a smaller base, e.g. the PRINSES MARIA (1686), Mak van Waay (1974), no. 2; the Jutholmen wreck, Ingelman-Sundberg (1976), fig. 4; and the so-called Dutch galliot of 1677, Andersen (1974), fig. 3.

Beardman Jugs - Masks and Medallions

The beardman jugs with a single mask, a mask and one medallion, and a mask and three medallions have a variety of basic mask types. For convenience and to save repetition, their parallels are described here rather than in the catalogue which follows. However, where there is a parallel to a particular jug, mask, medallion or size, it is indicated in the catalogue.

Masks:

1. Mask with palmette beard, 'ladder-like' mouth and lenticular moustache: (GT 816, 834, 825, 833, 811, 4A, 657, 839, 845, 863). This type of mask corresponds to Holmes (1951), type V, plate XXIII, fig. f. It is commonly found on the BATAVIA, Stanbury (1974), BAT 2372, 2214 and 2102, and has been found on the excavation at Basing House, Moorehouse (1970), fig. 22, no. 266, and on the excavation of Dover Castle, Mynard (1969), fig. 11, no. 18. An example also exists in the Schokland Museum Collection, Z 1947/VII/42. The Stadt Frechen Archiv has three examples: two have medallions depicting the Arms of Jülich-Kleve-Berg-Mark-Ravensberg; the third, with the Arms of the Count of Gelderland, does not have a palmette beard but more of a linear beard, as in

GT 829 and mask type 11 below. This type is not recorded by Friederich (1967).

2. Mask with linear beard and double 'ladder' mouth (GT 829). This appears to be an unusual type of variant on the single 'ladder' mouth.

3. Mask with curved 'ladder' mouth, leaf-like palmettes, and up-curved fangs (?) beneath the nose (GT 88 and 3226 (poss.)). This type appears to be rare.

4. Mask with 'hour-glass' mouth (GT 828, 5, 85, 831, 826, 815, 32, 02392, 755, 817, 87, 854, 862), generally referred to by Holmes (1951) as type VIII. There are several variations in the portraiture of the mouth:

(i) Double-lined outline to mouth (GT 826, 815). This type is similar to Von Bock (1971), no. 329a, attributed to Frechen; it is also similar to Price and Muckelroy (1974), fig. 8, and to Forster and Higgs (1973), fig. 6, both from the wreck of the V.O.C. ship, KENNEMERLAND (1664); and is similar to Andersen (1974), fig. 3 and Woodward (1974), fig. 20; Holmes (1951), plate XXIVf, illustrates a jug dated 1688 with a similar-type mask. Other similar masks exist in the Schokland Museum Collection, 1950/III/83, 1958/I/45, 1954/V/54, and in the Hoorn Museum. This type does not appear on the BATAVIA, nor in Friederich (1967).

(ii) Single-lined outline to mouth, crude, with lateral crescents under lower lip (GT 828, 5, 85, 831, 32, 02392 (?)). This type is illustrated in Friederich (1967), fig. 28-44 and -47, but does not appear to be common elsewhere in current literature, and is not found on the BATAVIA.

(iii) Elongated 'hour-glass' mouth with circular patch on lower lip (GT 755, 817).

This type is also unusual, not commonly appearing in current writings. An example of this type of mask is in the Hoorn Museum,

cat. no. M43, although slightly simpler in design. Not illustrated in Holmes (1951) nor Friederich (1967), nor found on the BATAVIA.

(iv) Mouth with either lateral or vertical comb-like fangs (GT 87, 854, 862).

It is possible that Friederich (1967), fig. 28-45, has vertical comb-like fangs, but this is unclear. Not in Holmes (1951), nor on BATAVIA.

5. Mask with 'open hour-glass' mouth and longitudinal lobes for moustaches (GT 3745, 836, 733, 719A). This type is common on the BATAVIA, Stanbury (1974), BAT 583A and 2110, although the treatment of the eye is different, with stylistic eyelids instead of eyelashes as on BATAVIA. The type is also shown in Göbels (1971), fig. p. 164, originating from Frechen. The Schokland Museum Collection has an example. 1955/IX/12. Friederich (1967) and Holmes (1951) do not record this type.

6. Mask as above. with vertical lozenge moustache (GT 18A). Rare.

7. Mask with a 'fish' mouth and stylistic eyelids (GT 750). This type is possibly similar to Moorehouse (1970), fig. 23-293. Not illustrated by Friederich (1967) nor by Holmes (1951), and not found on the BATAVIA.

8. Mask with double longitudinal lobes and dot in centre of mouth (GT 784A). Rare.

9. Mask with 'U'-shaped mouth with three feline-like pads (GT 845, 837). Friederich (1967) illustrates a similar mask with two pads, fig. 28-42; also similar to Holmes (1951), plate XXIVb, called type VI. The BATAVIA material of this type, Stanbury (1974), all have two pads.

10. Mask with 'U'-shaped mouth with two 'feline' pads and a flower (?) in centre of mouth (GT 3050). This mask is similar to BATAVIA mask, Stanbury (1974), BAT 2104.

11. Mask with small, smiling mouth, vertical lozenge moustache, and 'forked' beard (GT 1461, 821, 830, 656). This type seems to be a debased form of Holmes (1951), plate XXIIa, type II. Similarly Friederich (1967), figs. 26, 23 and 25, dated 1570-1580. Examples on the BATAVIA, Stanbury (1974), BAT 603B, 2259, 2450. Göbels (1971), figs. p. 240 and 237, shows a similar style attributed to 1570 and 1580. Another two examples from the V.O.C. ship, PRINSES MARIA (1686), are illustrated in Van Waay (1974), nos. 2 and 4; and another from the Dutch galliot of 1677, is in Andersen (1974), fig. 3. This type of mask had a long time range: the earliest examples date from the second half of the 16th century, originating from Köln and Frechen, with an inscription around the belly of the jug, Von Bock (1971), nos. 283, 318, and Göbels (1971), p. 154. This type appears to continue in style up to at least 1686.

12. Mask with crude, linear features around mouth and 'forked' beard (GT 921, 756).

This type is similar to Holmes (1951), plate XXVa, type IX, and Friederich (1967), fig. 30-55, dated 1700. Not found on the BATAVIA.

13. Mask with 'forked' beard but no mouth (GT 86). Rare type.

14. Obscure mask with central palmette on beard (GT 01824). Rare type.

Medallions:

1. Rose-Crown-Heart (GT 816, 846, 826, 815, 3050, 835, 755, 817, 834, 825, 87, 837, 90A, 720, 757A-885). This is the commonest type of medallion; variations exist in number of units in

base of crown (stylistic ermine); generally there are four units, in some cases three (GT 845, 815), and in others five (GT 834, 90A, 720). One example (GT 816) is more carefully executed with double dog-tooth and a more realistic rose.

Examples of this type of medallion have been found on the V.O.C. ship LASTDRAGER (1653), Sténuit (1974), fig. 20 and Appendix 1 (below), and on the V.O.C. ship, KENNEMERLAND (1664), Price and Muckelroy (1974), fig. 8. Fragments of this type have also been found on the excavation at Hangleton, Holden (1963), fig. 28-254-255-257. Examples exist in the Schokland Collection, 1958/I/45.

2. Cross-Stars-Heart (GT 750, 21B). This is rare and is usually associated with the 'fish' mouth mask; is not present on the BATAVIA.

3. Heraldic. This group consists of various heraldic devices; in some cases, representing genuine Arms; in others - either unidentified or stylistic.

(a) Arms of the City of Amsterdam (GT 830, 897A). The medallion GT 830 is dated 54, representing 1654, the year before the VERGULDE DRAECK sailed. The crowned Arms, consisting of three saltires, is a common medallion; examples from the BATAVIA, Stanbury (1974), BAT 2397, 2121, 2022, have lion supporters. The scroll work on the VERGULDE DRAECK examples may be a debasement of these. Holmes (1951), plate XXIIIe, illustrates this type. Celoria (1966) shows a more crude version, dated 1648, from the London Museum, P642. Göbels (1971) shows an undated version fig. p.162 (A95; 89/4/20). Moorhouse (1970), fig. 22-269, has a version with lion supporters.

(b) Arms of the House of Von der Lippe (GT 811). The Arms of the village Mayor, Dietrich von der Lippe of Asperschlag; they appear to have a crowned helm surmounted by three stylistic flowers, and are similar to those illustrated in Göbels (1971), fig. p. 125 (A75; 89/3), from Frechen, with a suggested date of 1610.

(c) Arms, helmed, with three horseshoes, three mullets and a taucross (GT 1461). These Arms have been identified by Mr. K. Göbels of the Stadtarchiv of Frechen as follows:- "It is the blazon of Friedrich Fabricius, 'praeceptor' of the monastery of Sancti Antonii in Köln. The stars and horseshoes are the distinguishing mark of the family of Fabricius. The T-cross is the tau- or Greek cross, or Anthony cross named after Saint Antonius Eremita (356 AD). A nursing order was established in the 12th century by a Frenchman, Gaston, and his son Guerin, at St. Didier de la Mothe; the friars thereof nursed patients suffering from the 'Anthony fire', or epilepsy. From 1298 to 1802 a monastery and hospital of this order existed at Köln. In 1632, the praeceptor was Fr. Fabricius, who died in 1680. His seal (fig. 29) shows the same blazon, but the T-cross is held in the right hand of Antonius Eremita, and in his left hand is a flambeau. The legend runs: 'Sig(illum) Friederici Fabrity Praecep(toris) Sanct(i) Anton(ii) Colon(iensis)', dated 1646." The author is grateful to Mr. Göbels for this identification.

(d) Quartered Arms (GT 832), crowned and dated 1654: In the first, three bends sinister; second, three bars; third, three pales; fourth, two chevrons. This is an unidentified Arms, possibly stylistic.

(e) Crowned Arms: two chevrons (GT 4A, 883), two chevrons and a mullet (GT 655). Unidentified Arms, this type has been recorded on the V.O.C. *fluit* LASTDRAGER, Sténuit (1974), fig. 20, Appendix 1 (below) and possibly Courtney (1975), fig. 5-1.

(f) Fragment (GT 883A), quartered Arms: In the first and fourth, three bars; second, heraldic rose; third, a chevron between two roundels and a mullet. Unknown origin.

4. Rosette Medallions:

(a) Four units (GT 833, 757, 874). Not recorded on the BATAVIA.

(b) Five units, double-layer heraldic rose (GT 836, 870). This type is common on the BATAVIA, Stanbury (1974), BAT 527, 2117, 539, and also in more complex triple and quadruple-layers. It is the only type of floral medallion found on the BATAVIA. It is illustrated by Sténuît (1974), fig. 22 and Appendix 1 (below), as the so-called Fetlar Bellarmine, possibly from the LASTDRAGER; and by Moorhouse (1970), fig. 22-266 and fig. 23-275, -276, -277.

(c) Eight units (GT 88, 32, 812, 733, 3226, 872, 874). This type often alternates a petal and stamen theme (GT 872) or an alternating theme (GT 873). Sténuît (1974), fig. 20, and Appendix 1 (below), illustrates this basic type from the LASTDRAGER. Examples have been found at Basing House, Moorhouse (1970), fig. 23-280 and fig. 22-268; and at Hangleton, Holden (1963), fig. 28-253, -256.

(d) Ten units (GT 873). Rare.

(e) Twelve units (GT 871). Rare.

5. Miscellaneous Medallions:

(a) Face Medallions. Profile of face (GT 3745), and full face with stylistic mouth and 'electrified' hair (GT 870A). There are no exact parallels to these two, and they may represent a debasement of the large, early Caesar medallions, Holmes (1951), plate XXIIId, and Brauns (1958), fig. p. 25, which were also found on the BATAVIA, Stanbury (1974), BAT 483. They may also relate to the smaller medallions, BAT 539 and 2036.

Göbels (1971), fig. p. 164, illustrates a medallion similar to the full face, and there is an example from Basing House, Moorehouse (1970), fig. 22-267.

(b) House-mark Medallion (GT 877). This mark is similar to one illustrated in Van Gent (1944), no. 740, of Diederik Heijmericks, 1615. House-marks are a common theme on medallions, q.v. Von Bock (1971), nos. 362 and 403; Göbels (1971), fig. p. 162; Klinge (1972), kat. no. 627.



(29) Seal of Friedrich Fabricius, courtesy of Stadtarchiv Frechen
(Repro-Film: 51, Neg. 1. 14-20).



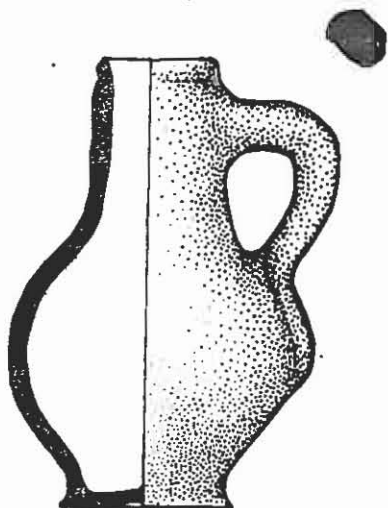
(30) Beardman jug (GT 846) heavily concreted into seabed.

(c) Jug or coffee pot with flowers (?) (GT 822). This could be the seal of the Frechen pottery industry, as illustrated in Göbels (1971), fig. p. 330. In fact, the medallion is illustrated here upside-down, the 'S'-shaped objects corresponding to the handles, the handshake being missing in this case. A similar vase medallion was found on the LASTDRAGER, Sténuit (1974), fig. 20 and Appendix 1 (below). The Stadtarchiv Frechen Collection has a medallion of a similar pot but with a house-mark. However, the medallion could also represent the symbol of the town of Vlissingen.

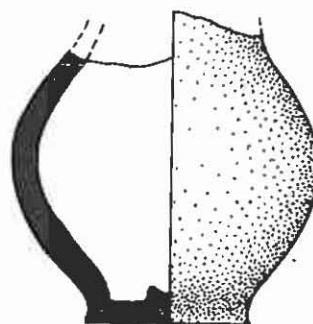
Gr

2.1.1. Plain stoneware jugs

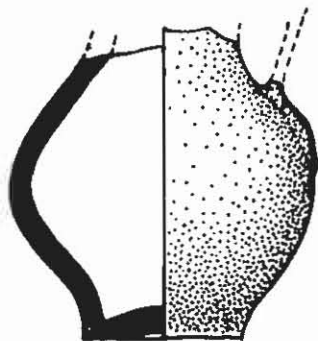
The plain jugs are a typical find of the 17th and 18th century wrecks: similar jugs have been found on the BATAVIA (1629), Stanbury (1974), BAT 2667; the 1677 galliot, Andersen (1974), fig. 3; the DARTMOUTH (1690), Holman (1975), fig. 3; and the ZEEWIJK (1727), Ingelman-Sundberg (1977). These jugs are either small (height circa 120mm) or medium (height circa 160mm), and there are none corresponding to the larger class of beardman jugs (height circa 250mm), on this wreck, nor any illustrated in current literature.



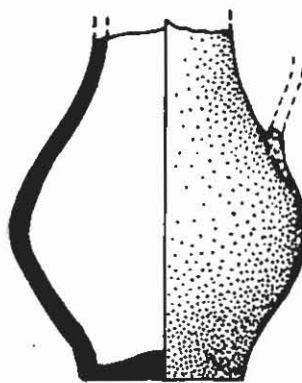
GT 920 Height 118mm, Dia. 74mm,
Base 44mm, Volume 0.15
litres, Weight 293.7g
(270195 approx.)



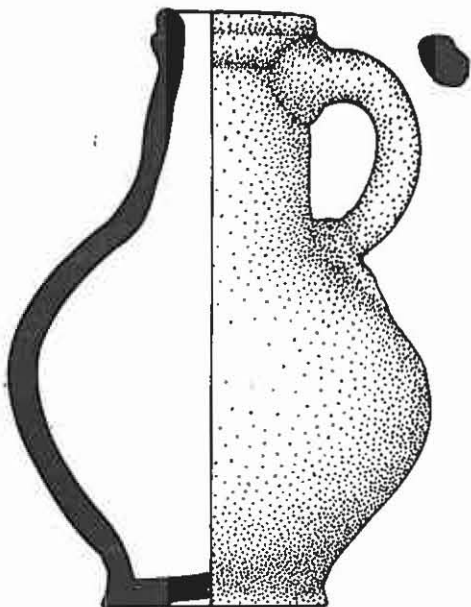
GT 842 Neck and handle miss-
ing. Height N.A.,
Dia. 80mm, Base 45mm,
Volume N.A., Weight
N.A. (275210).



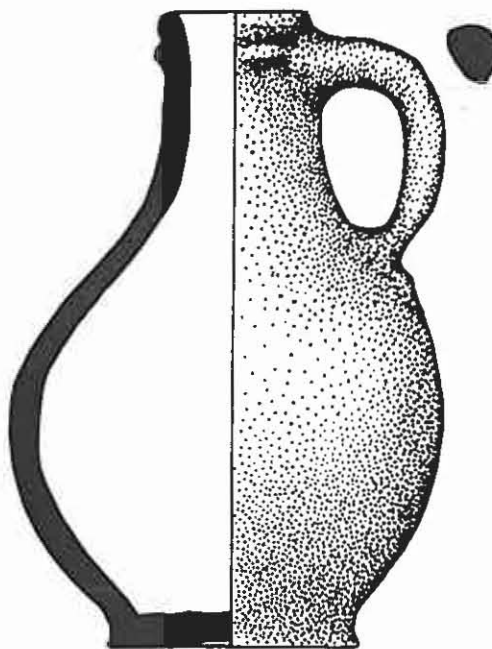
GT 843 Neck and handle missing. Height N.A.,
Dia. 79mm, Base 42.5mm,
Volume N.A., Weight
N.A. (290185 approx.)



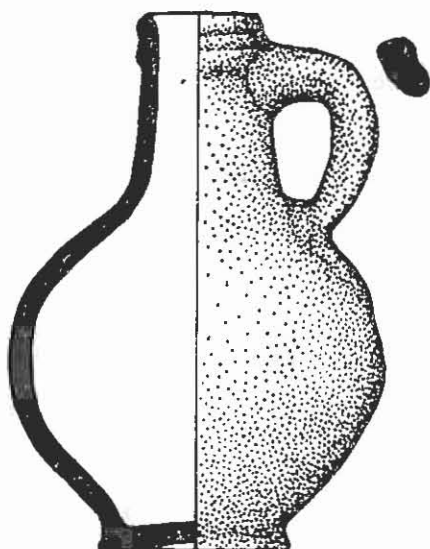
GT 844 Neck and handle missing. Height N.A.,
Dia. 74mm, Base 43mm,
Volume N.A., Weight
N.A.



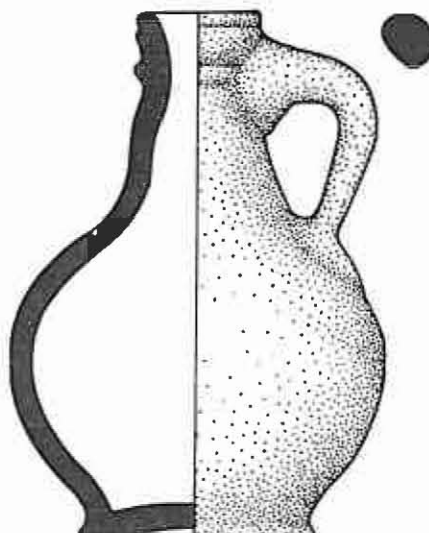
GT 823 Height 157mm, Dia.
113.5mm, Base 63.5mm,
Volume 0.52 litres,
Weight 513.7g (280205).



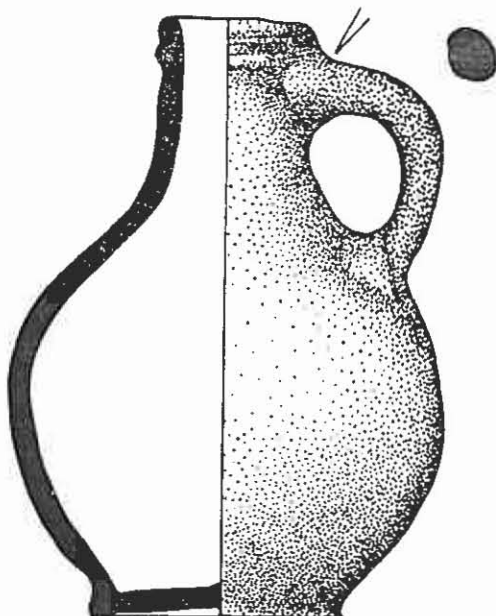
GT 821 Height 166.5mm, Dia.
114.5mm, Base 64.5mm,
(298178).



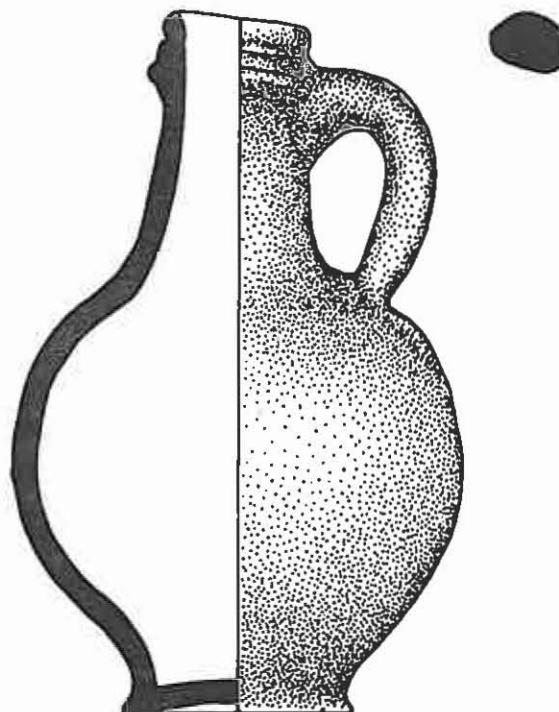
GT 819 Height 141mm, Dia. 99mm,
Base 50mm, Volume 0.35
litres, Weight 359.9g
(272199).



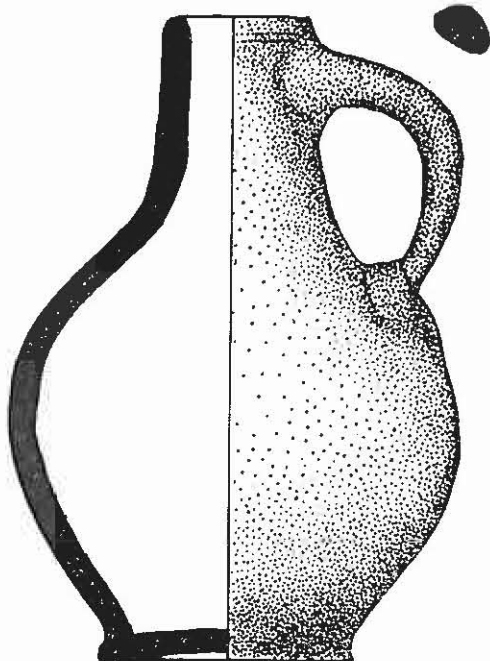
GT 820 Height 138mm, Dia.
100mm, Base 61.5mm,
Volume 0.315 litres,
Weight 482.8g (263191).



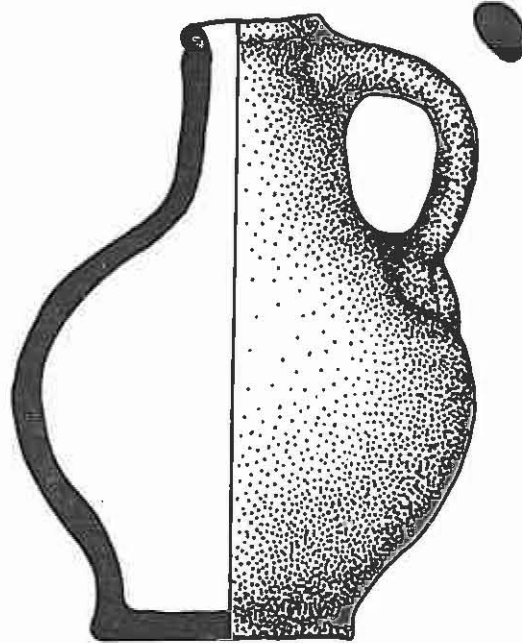
GT 822 Height 158mm, Dia. 117mm,
Base 657mm, Volume
0.650 litres, Weight
705g (N.A.).



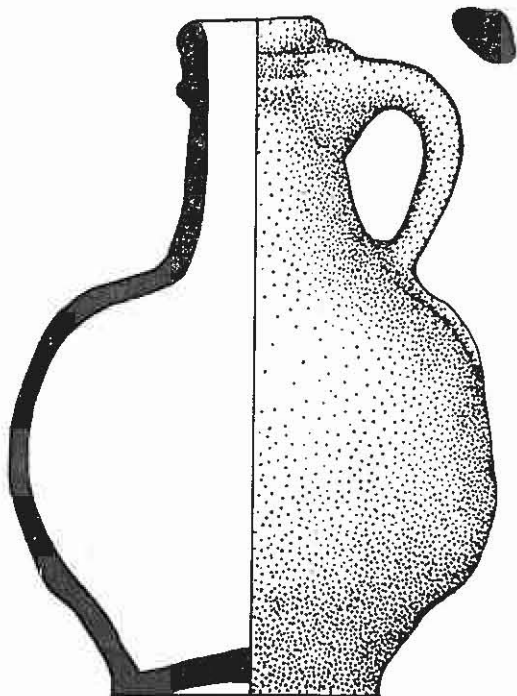
GT 004B Height 187mm, Dia.
118mm, Base 57mm,
Volume 0.650 litres,
Weight 705g (N.A.).



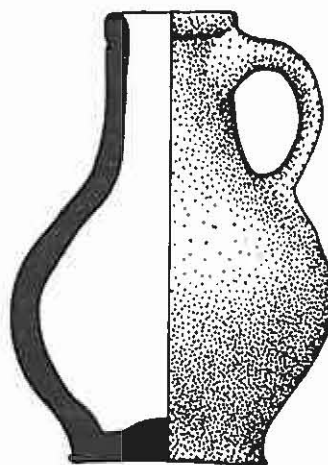
GT 824 Height 172mm, Dia.
120mm, Base 67.5mm,
Volume 0.72 litres,
Weight 557.7g (261225).



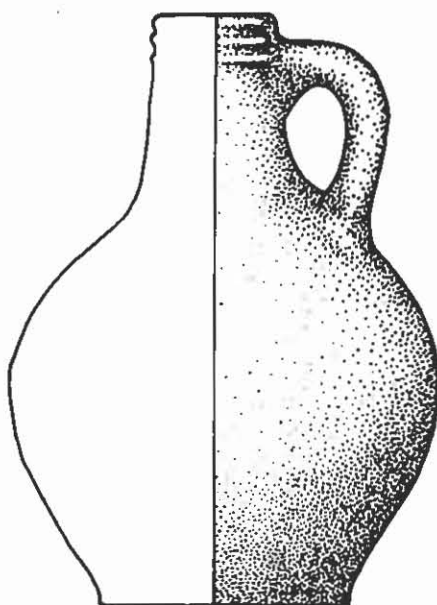
GT 814 Height 166mm, Dia.
118.5mm, Base 66mm,
Volume 0.86 litres,
Weight 867.5g (270207).



GT 84 Skewed - flattened down
neck, leaks from small
hole in lower right
front. Height 178mm,
Dia. 124mm, Base 73mm,
Volume 0.885 litres,
Weight 632.8g (N.A.).



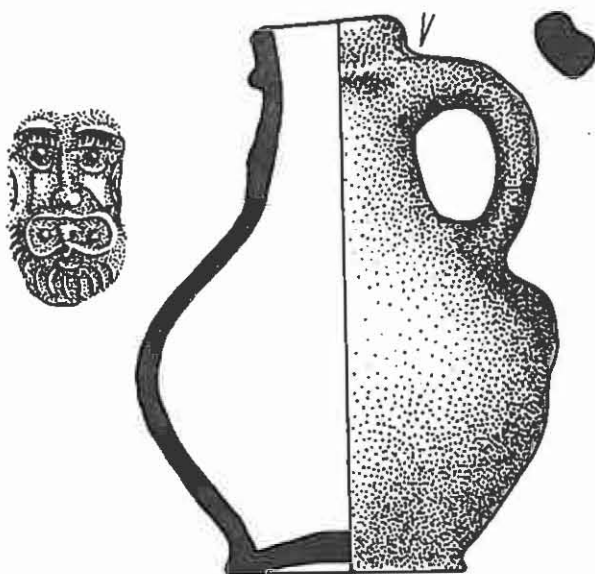
GT 1462 Height 118mm, Dia. 85mm,
Base 53mm, Volume 1.36
litres, Weight N.A.
(N.A.).



PCO 2643 Height 156mm, Dia. 113mm, Base 66mm, Volume N.A.,
Weight N.A. (N.A.).

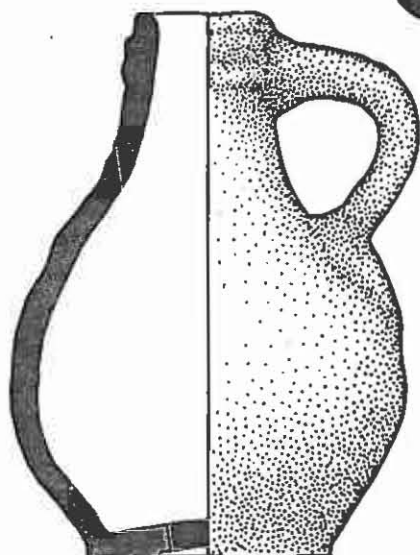
2.1.2. Jugs with a mask only (beardman)

This type appears to be rather rare; they are not commonly recorded in literature, nor do they appear on the BATAVIA. Their size ranges from small to medium (height 120-160mm), and as such correspond to the plain jugs. Possibly their small-medium size jugs differed in use or purpose from the larger jugs with medallions.

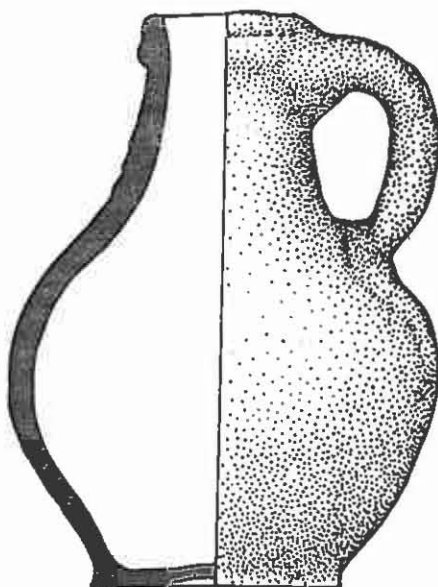


GT 828

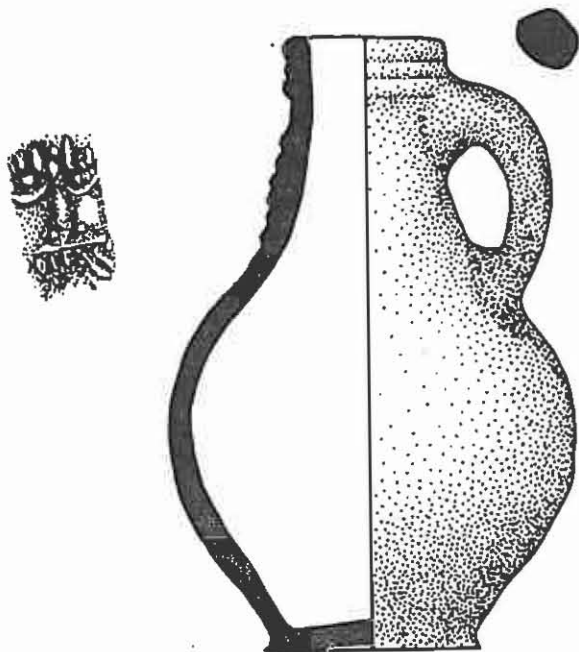
Height 145mm, Dia. 107mm, Base 63mm, Volume 0.425 litres, Weight 433g (219201).



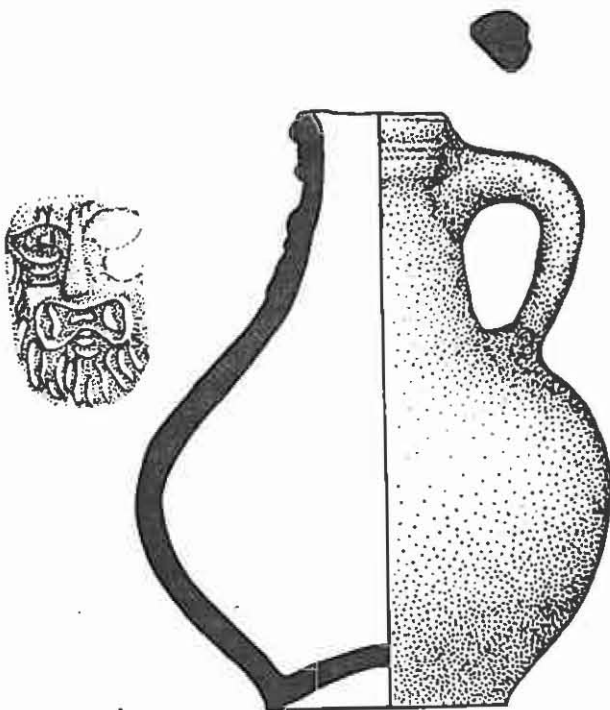
GT 921 Height 143mm, Dia. 105mm, Base 64mm, Volume 0.44
litres, Weight 498g (N.A.).



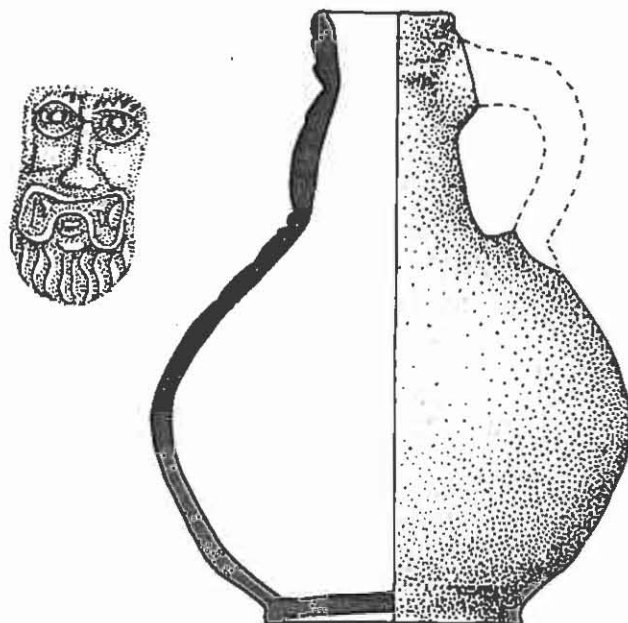
GT 005 Part of neck rim missing. Height 154mm, Dia. 109.4mm,
Base 64mm, Volume 0.48 litres, Weight 506.2g (N.A.).



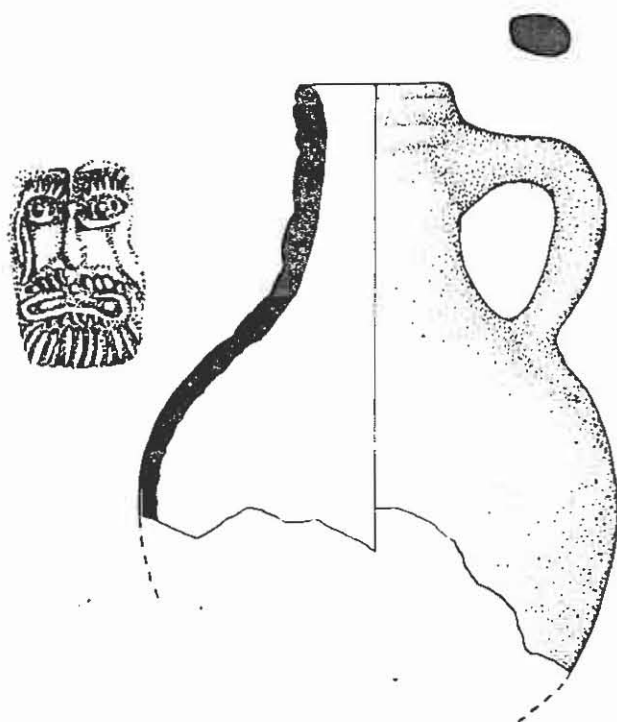
GT 756 Height 160mm, Dia. 105mm, Base 57.5mm, Volume 0.48 litres, Weight 493.5g (N.A.).



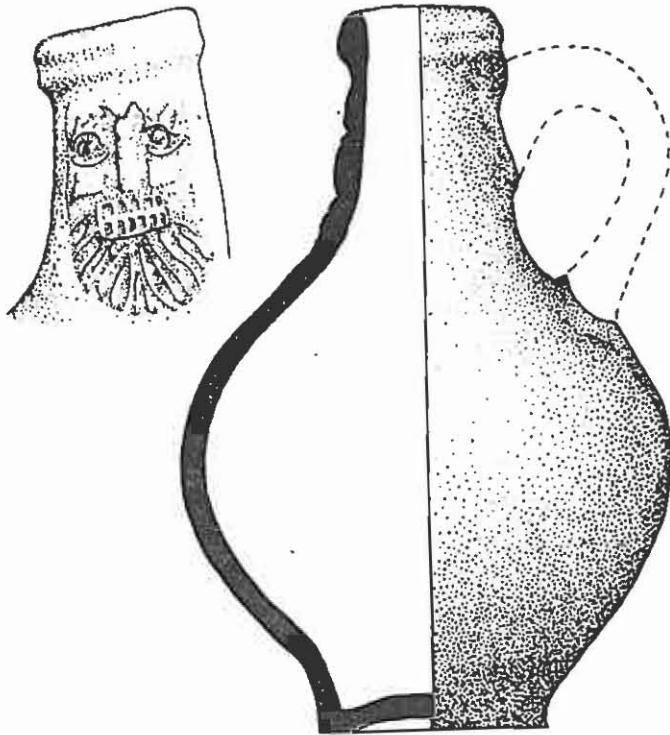
GT 85 Height 158mm, Dia. 121mm, Base 62mm, Volume 0.62 litres, Weight 507.7g (N.A.).



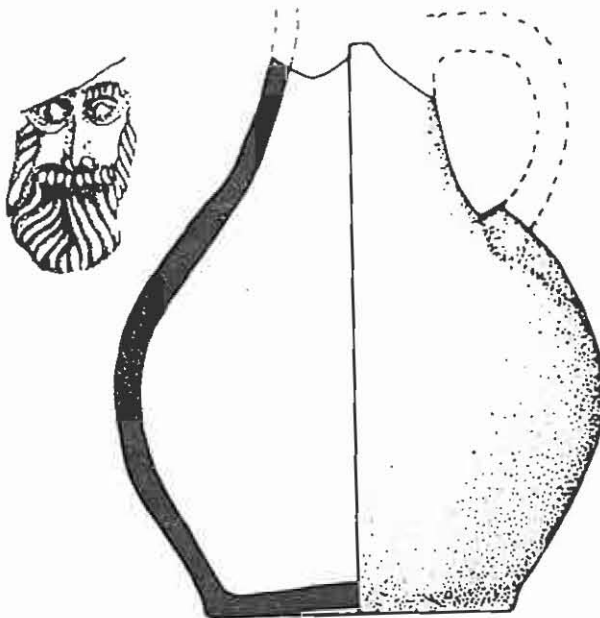
GT 831 Handle missing. Height 163mm, Dia. 124mm, Base 67mm, Volume 0:670 litres, Weight 525.2g (273200).



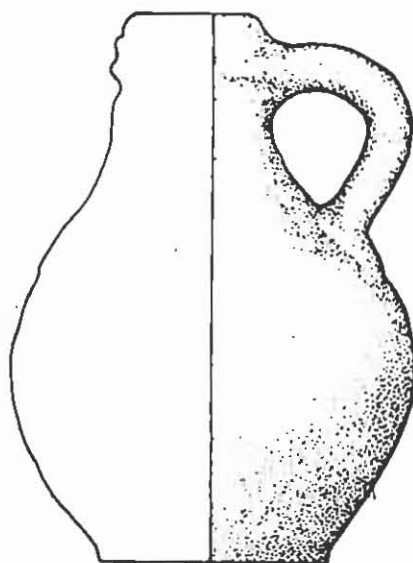
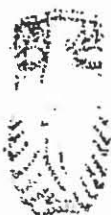
GT 18A Lower half of jug missing. Height N.A., Dia. 125mm, Base N.A., Volume N.A., Weight N.A. (N.A.).



GT 829 Handle missing - skewed neck. Height 190mm, Dia. 127mm,
Base 61mm, Volume 0.82 litres, Weight 673.8g (218204).



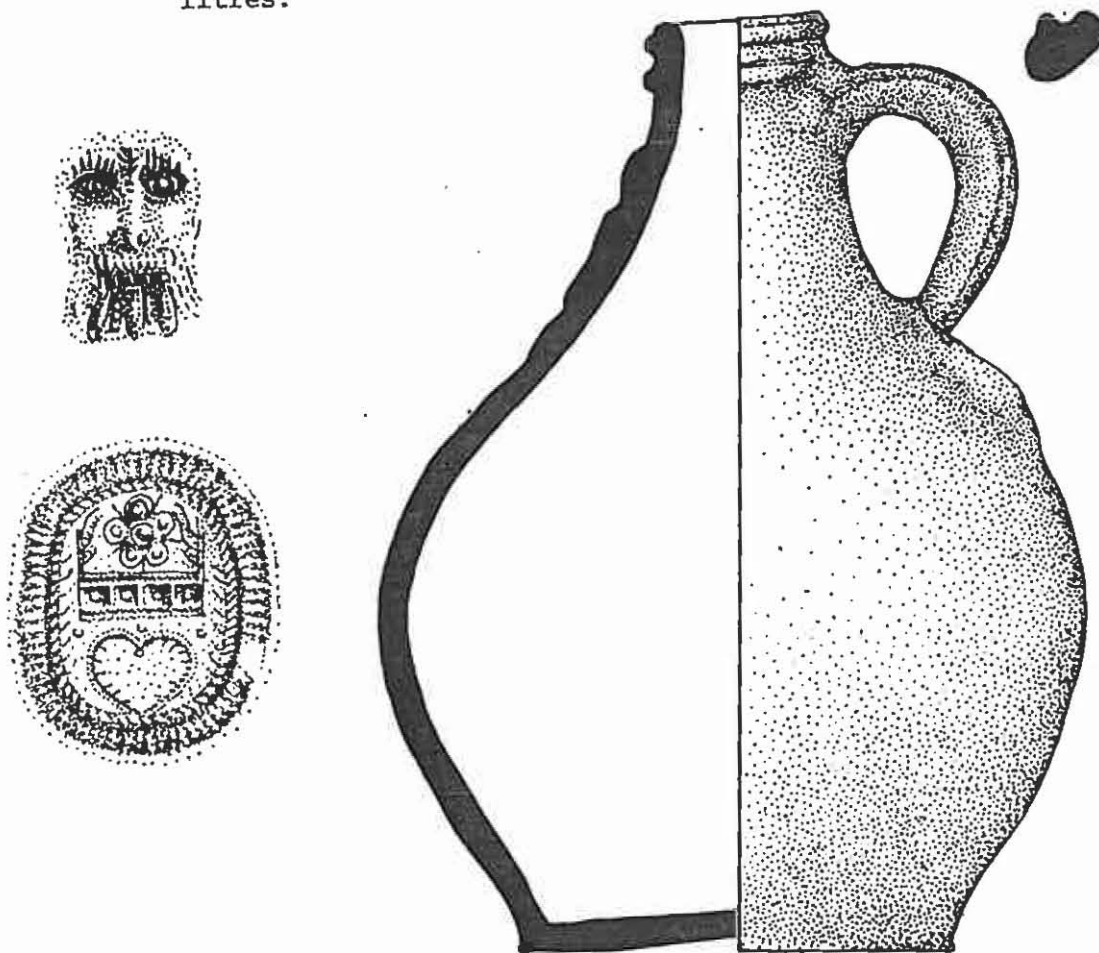
GT 86 Broken neck, handle missing, eroded glaze. Height N.A.,
Dia. 128.5mm, Base 79mm, Volume N.A., Weight N.A. (N.A.)



PCO 1824 Height 146mm, Dia. 106mm, Base 60mm, Volume N.A.,
Weight N.A. (N.A.).

2.1.3. Jugs with a mask and one medallion (beardman)

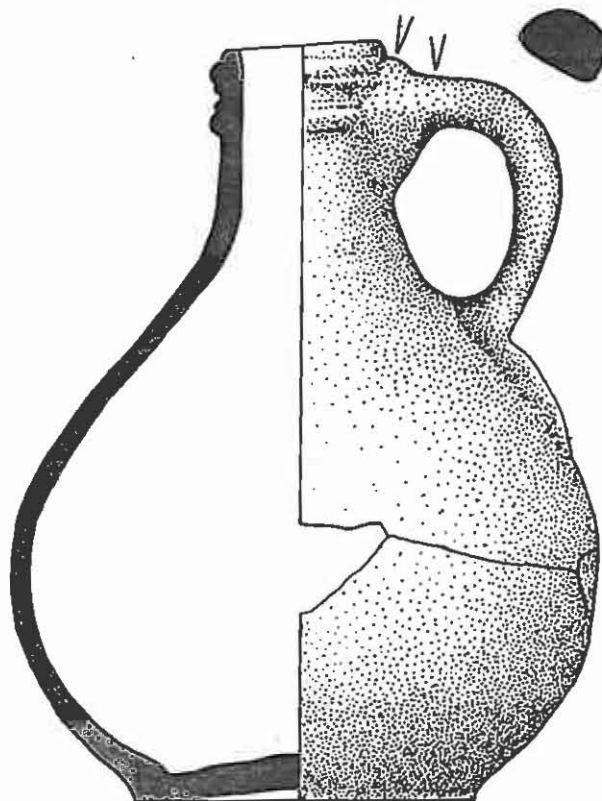
This group is similar in size, medallion and mask type to the jugs with a mask and three medallions. The height range varies between 189mm and 258mm, and the corresponding capacity between 1.3 litres and 3.0 litres.



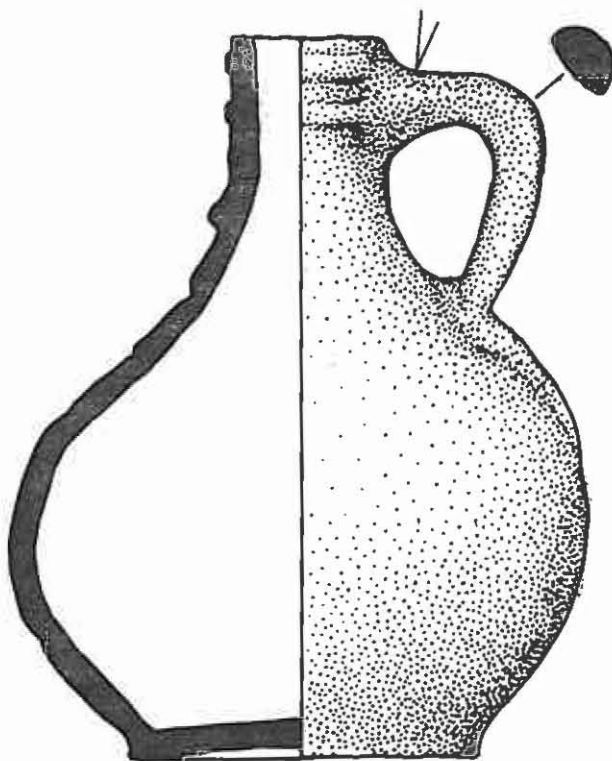
GT 816 Fragment missing from neck rim, bung in situ, Height 249mm, Dia. 186mm, Base 114mm, Volume 2.775 litres, Weight 1471g (258169).

GT

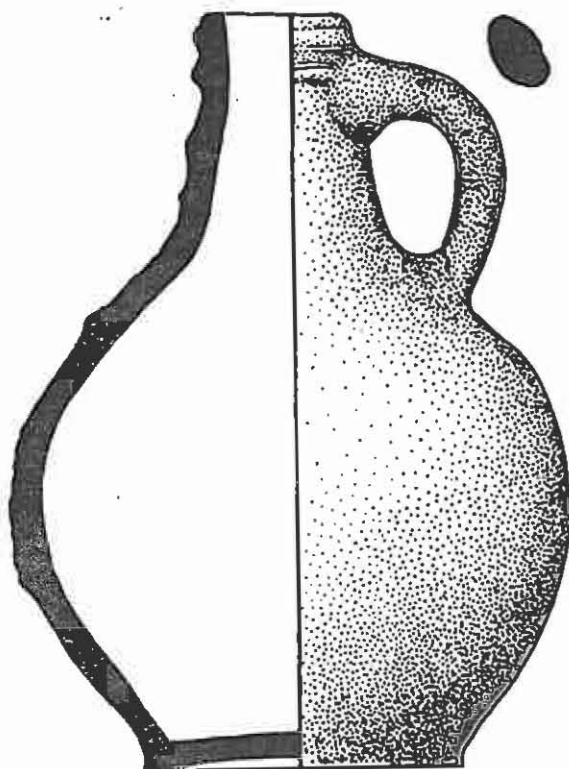
GT L.



GT 846 Two large areas missing. Fig. 30. Height 192mm,
Dia. 151mm, Base 86mm, Volume N.A., Weight N.A. (N.A.)

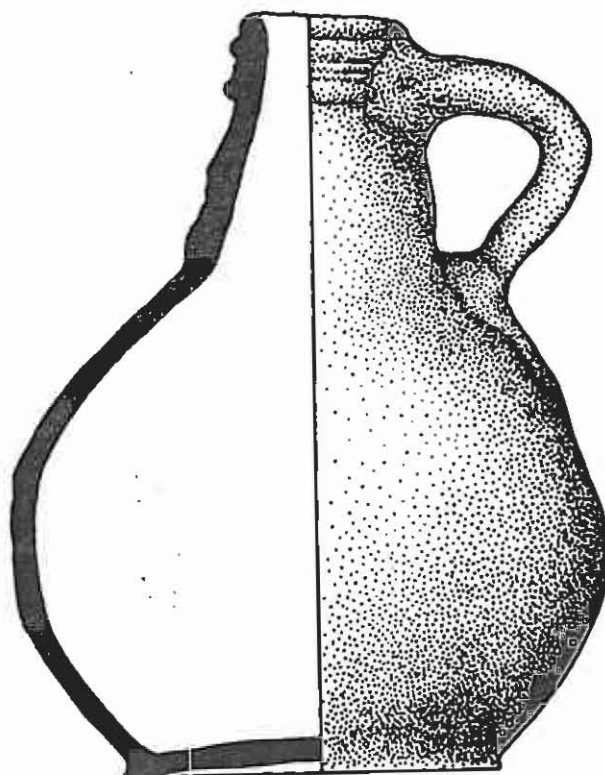


GT 826 Height 189mm, Dia. 147mm, Base 91mm, Volume 1.285
litres, Weight 875.1g (250171). Very similar to
Price and Muckelroy (1974), fig. 8.



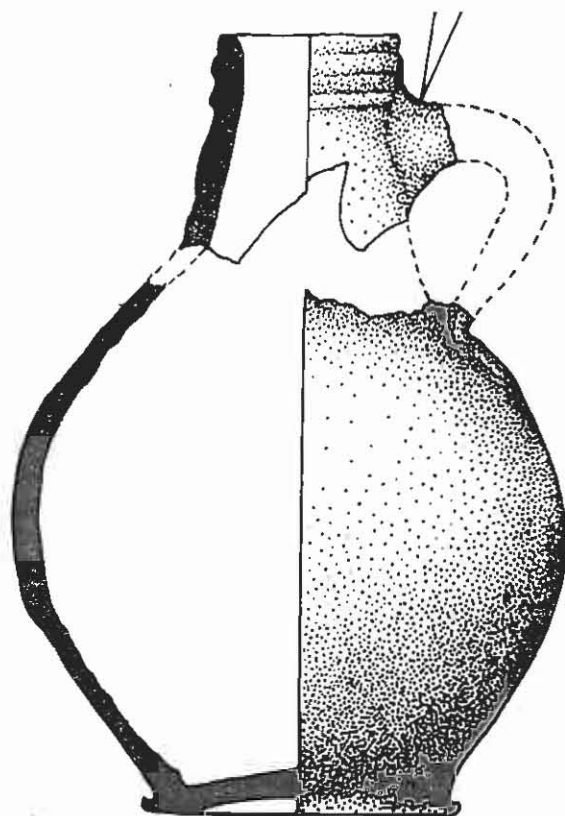
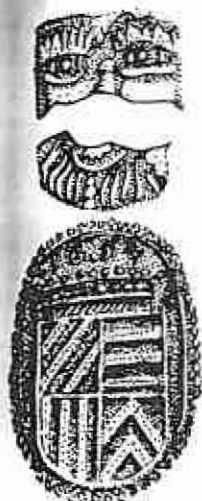
GT 815 Height 197mm, Dia. 149mm, Base 84mm, Volume 1.33 litres, Weight 877.5g (228154).

GT 8

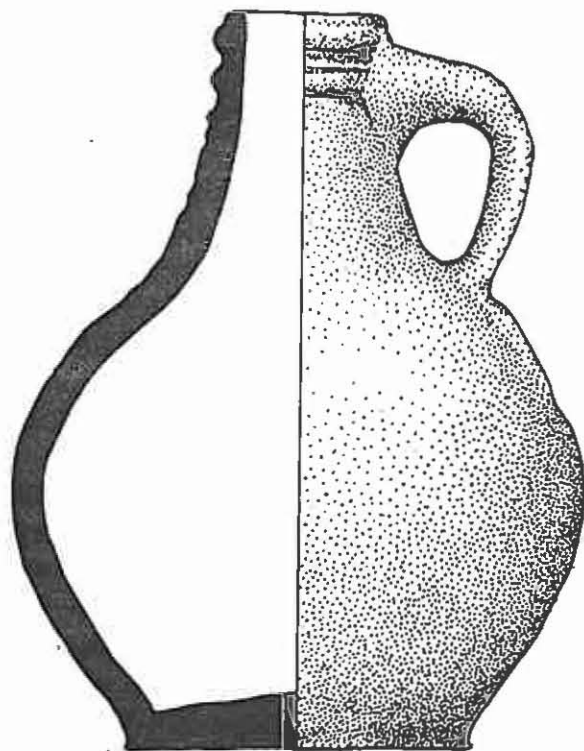


GT 32 Height 197.5mm, Dia. 155mm, Base 99mm, Volume 1.44 litres, Weight 1038.4g (N.A.).

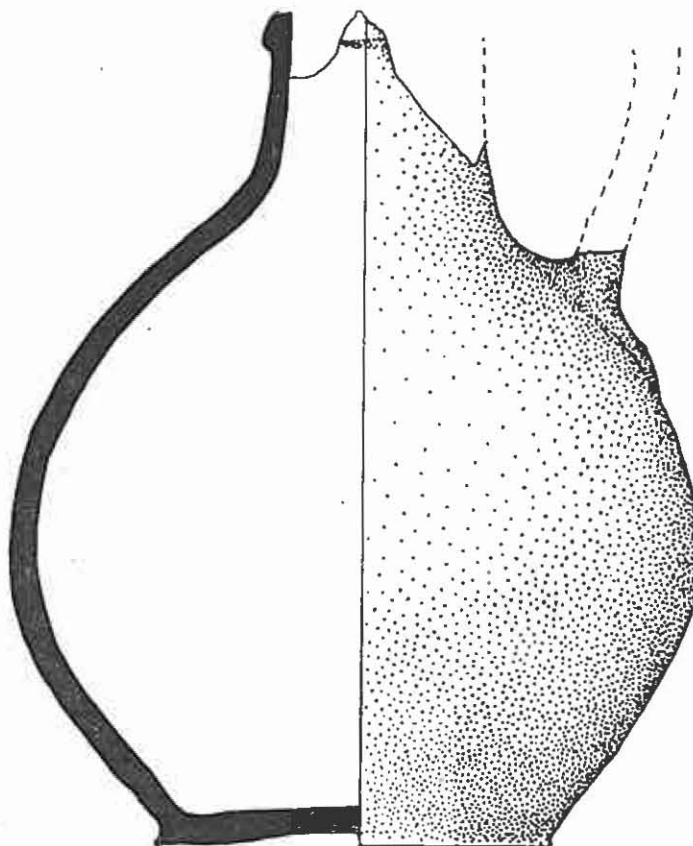
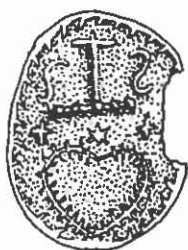
GT 1461



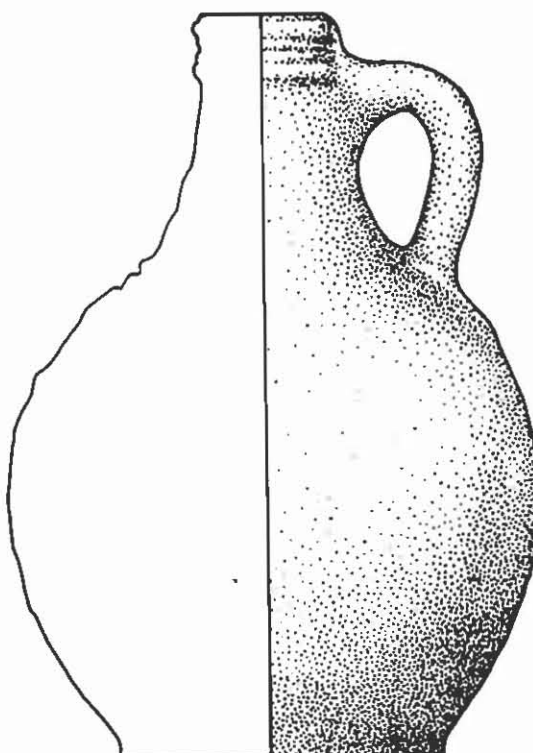
GT 832 Neck and handle missing - Arms unknown, dated 1654.
Height N.A., Dia. 144mm, Base 83mm, Volume N.A.,
Weight N.A. (222200).



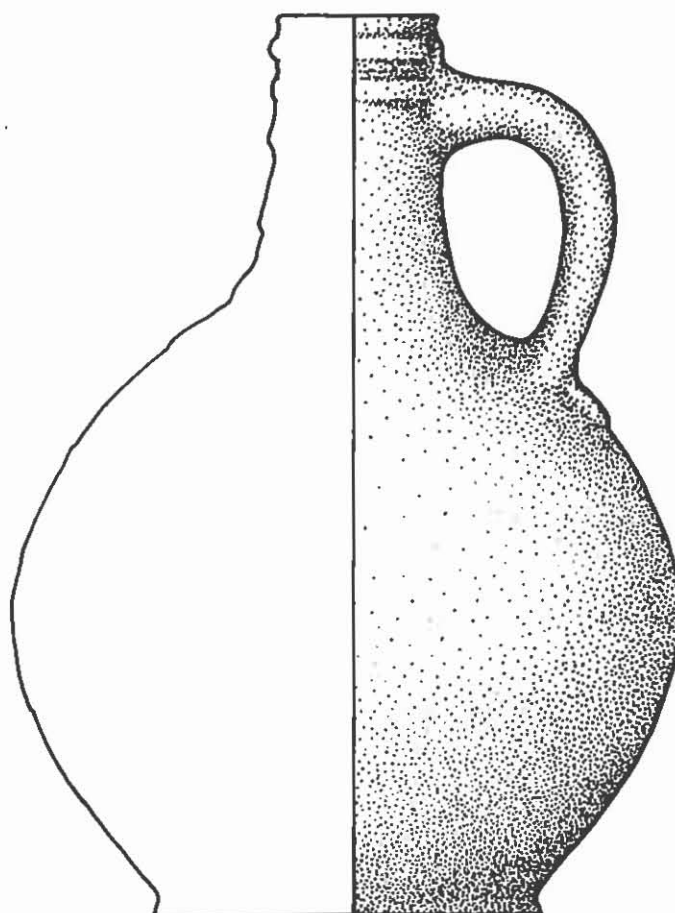
GT 1461 Height 195mm, Dia. 151mm, Base 91mm, Volume N.A.,
Weight N.A. (N.A.).



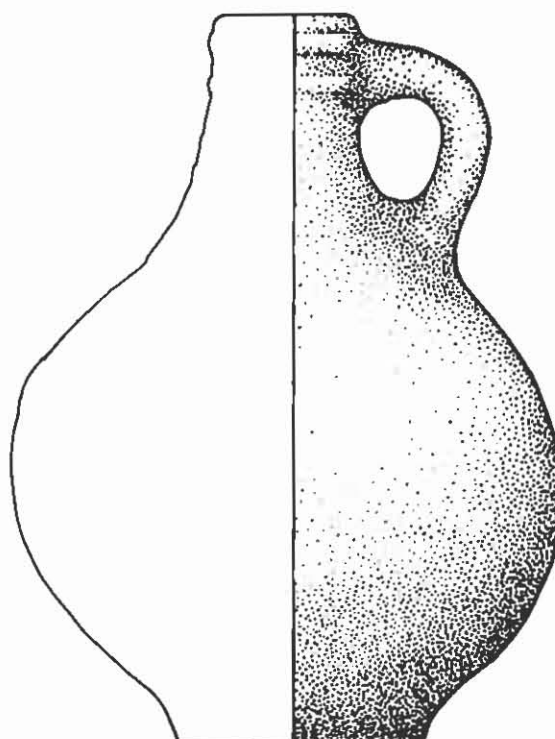
GT 750 Handle missing. Height N.A., Dia. 181mm, Base 104mm,
Volume N.A., Weight N.A. (N.A.).



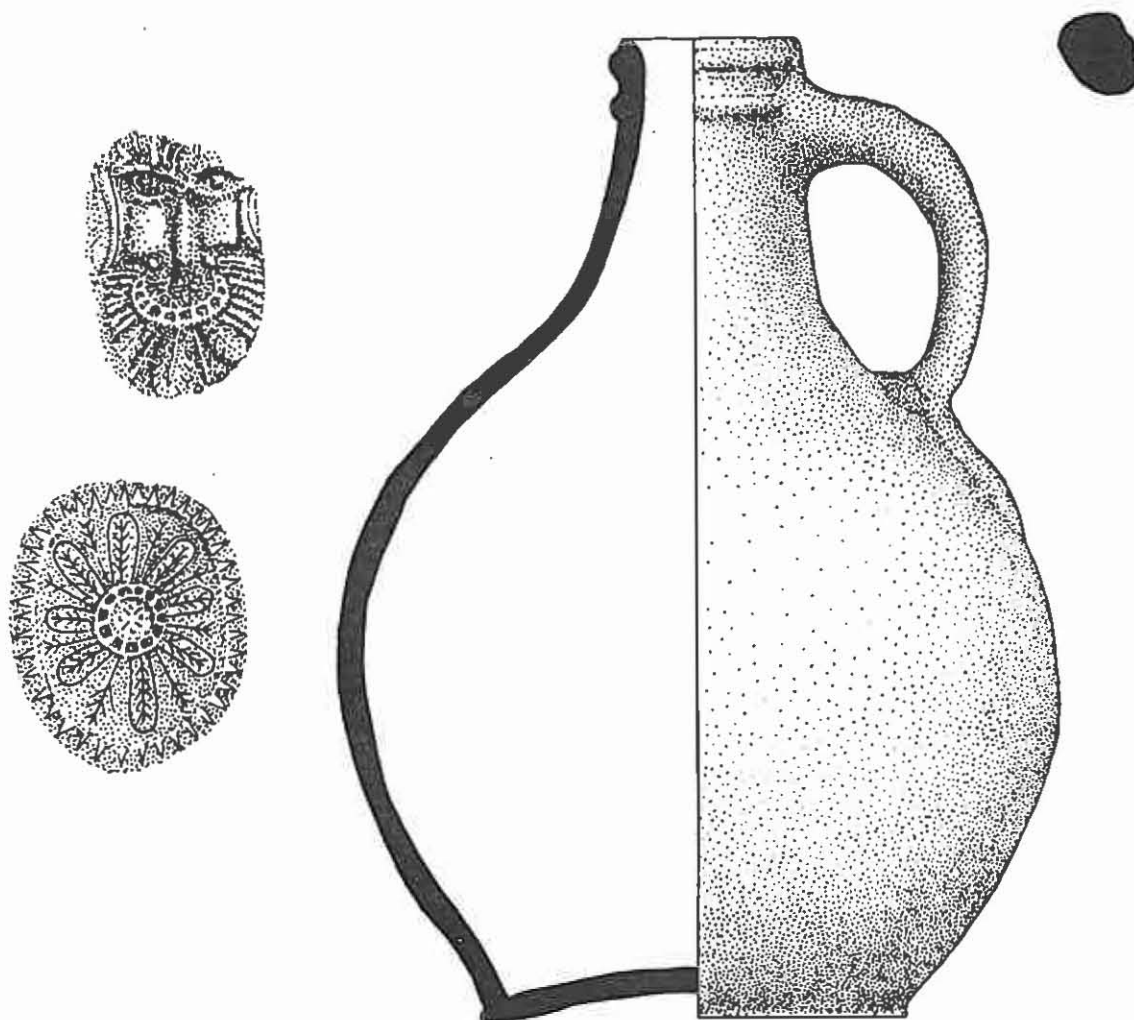
PC 3050 Height 196mm, Dia. 140mm, Base 86mm, Volume N.A.,
Weight N.A. (N.A.).



PC 3745 Height 240mm, Dia. 175mm, Base 103mm, Volume N.A.,
Weight N.A, (N.A.).



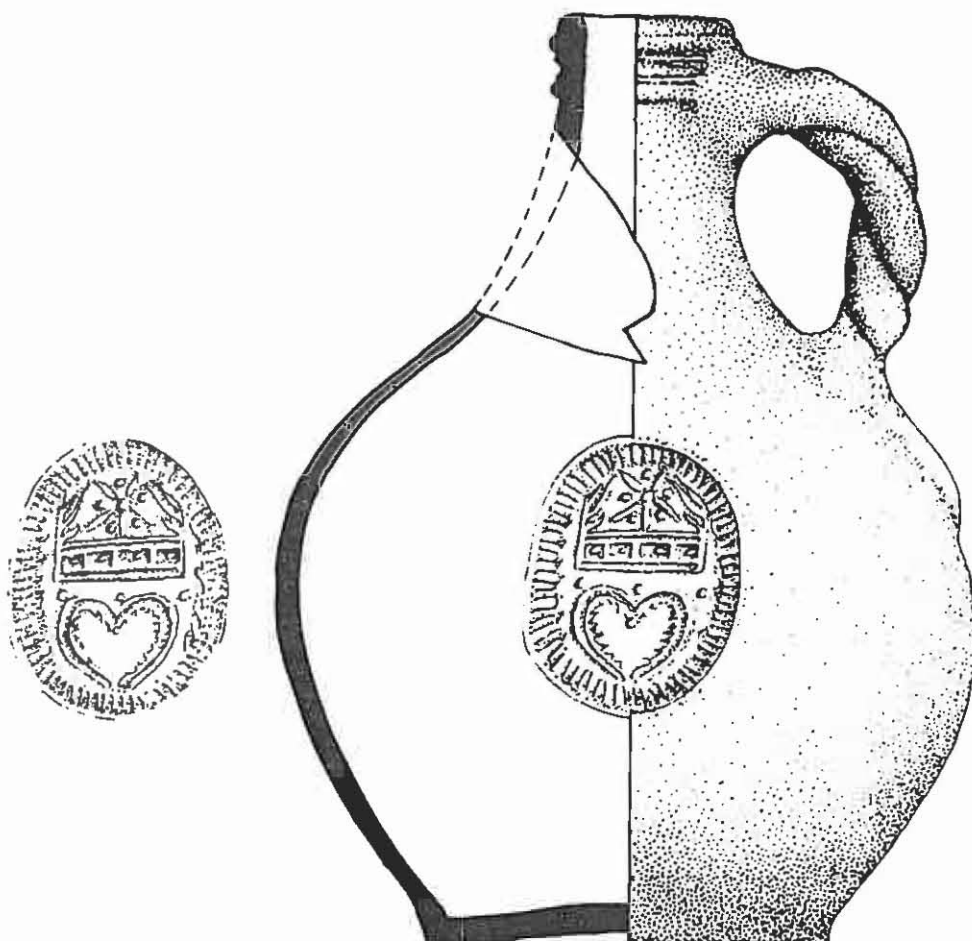
PCO 2392 Height 193mm, Dia. 145mm, Base 65mm, Volume N.A., Weight N.A. (N.A.).



GT 88 Height 258mm, Dia. 189.5mm, Base 112.5mm, Volume
3.06 litres, Weight N.A. (N.A.).

2.1.4. Jugs with a mask and three medallions (beardman)

The height range in this group is between 184mm and 251mm with corresponding volumes of 1.4 litres and 2.9 litres. In most cases the three medallions appear to come from the same mould as occasionally similar flaws appear in each of the three medallions, fig. 31.

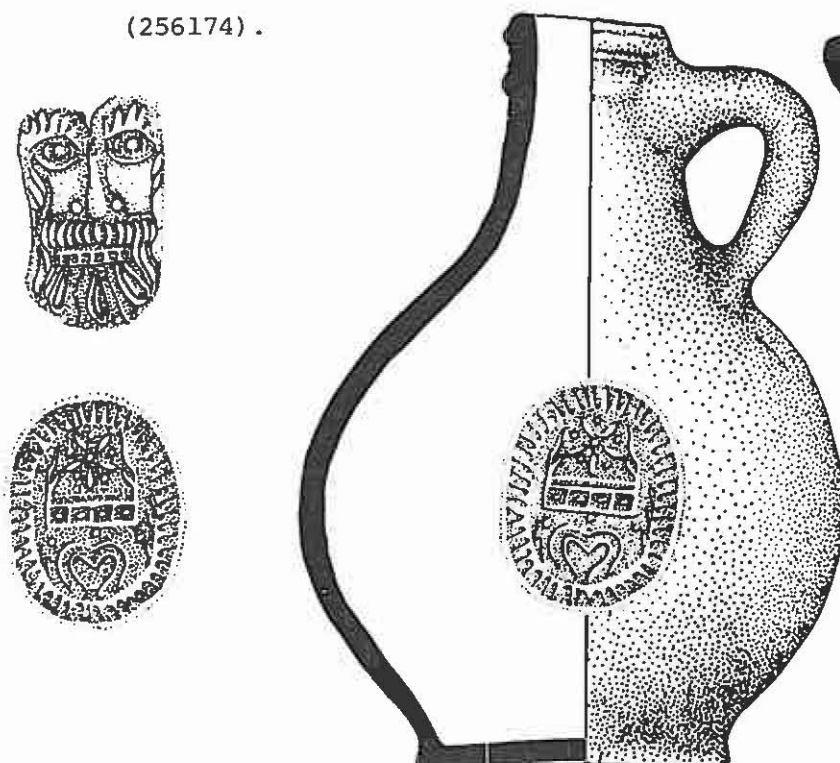


GT 835 Badly broken, mask missing, twisted handle. Height 249mm, Dia. 182.5mm, Base 109.5mm, Volume N.A., Weight N.A. (261171).

Twisted handles are common on BATAVIA, Stanbury (1974), BAT 2240 and 2234. Illustrated in Göbels (1974), figs. p. 294 and 315.



GT 834 Badly broken, parts missing. Height 239mm, Dia. 184mm, Base 110mm, Volume 2.8 litres, Weight N.A. (256174).



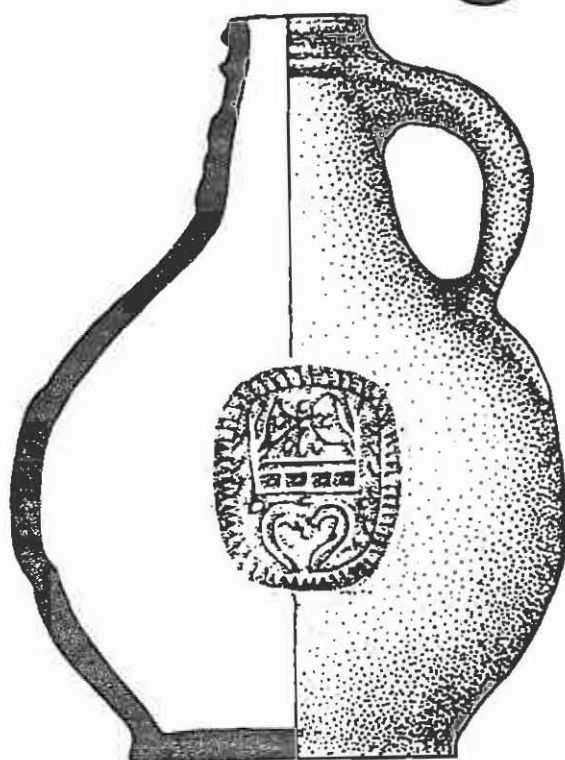
GT 825 Dented left side, thumb print on mask. Height 198mm, Dia. 149mm, Base 88mm, Volume 1.31 litres, Weight 926.8g (276196).



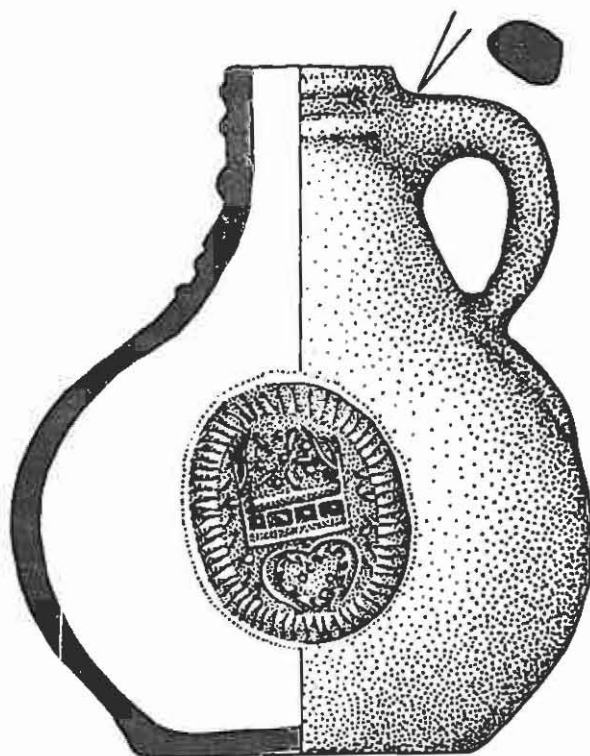
(31) Pair of medallions from GT 835 showing similar flaw on heart on each. Scale 1:1



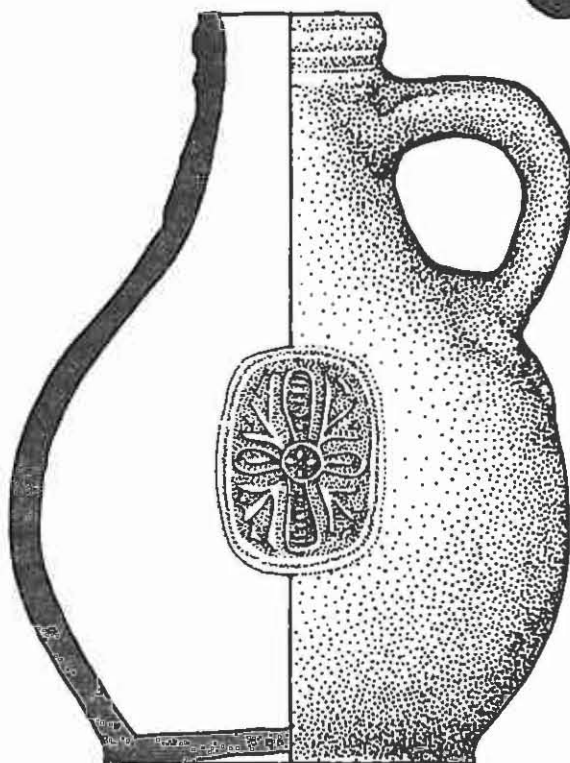
(32) Beardman jug (GT 811) lightly concreted to reef.



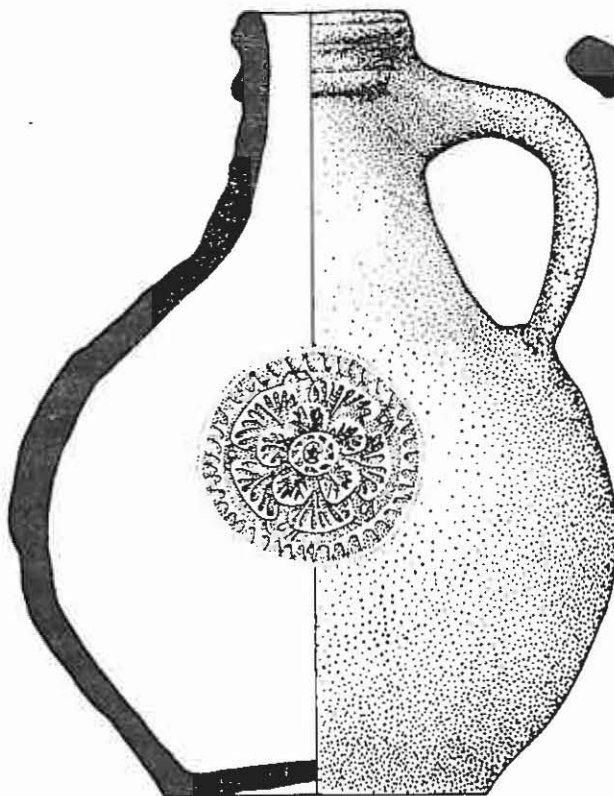
GT 087 Leaks from small hole in lower right front. Height 198mm, Dia. 143mm, Base 85mm, Volume 1.24 litres, Weight 912.9g (N.A.).



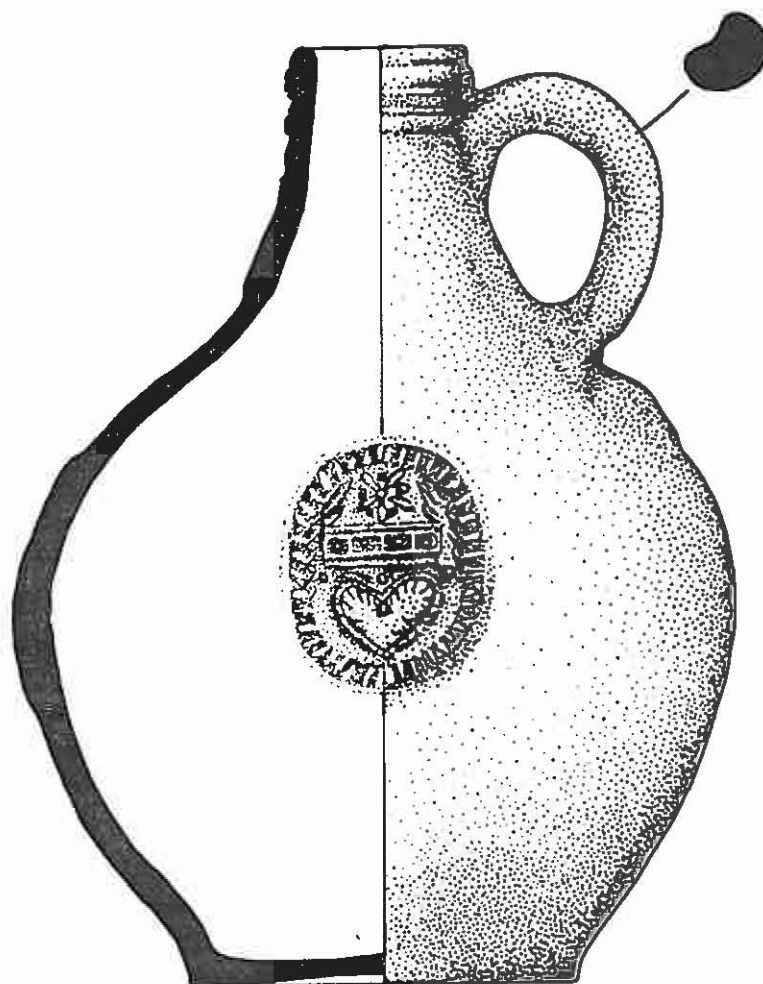
GT 837 Height 184mm, Dia. 152.5mm, Base 89mm, Volume 1.359 litres, Weight 920g (260179).



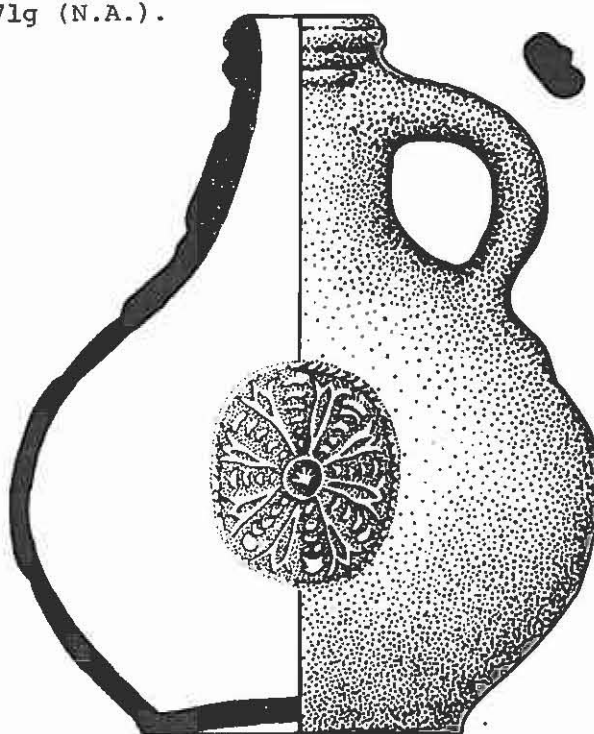
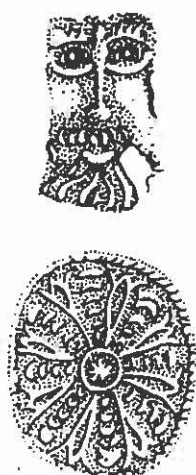
GT 833 Height 197mm, Dia. 144mm, Base 95mm, Volume 1.27 litres, Weight 999.4g (220197).



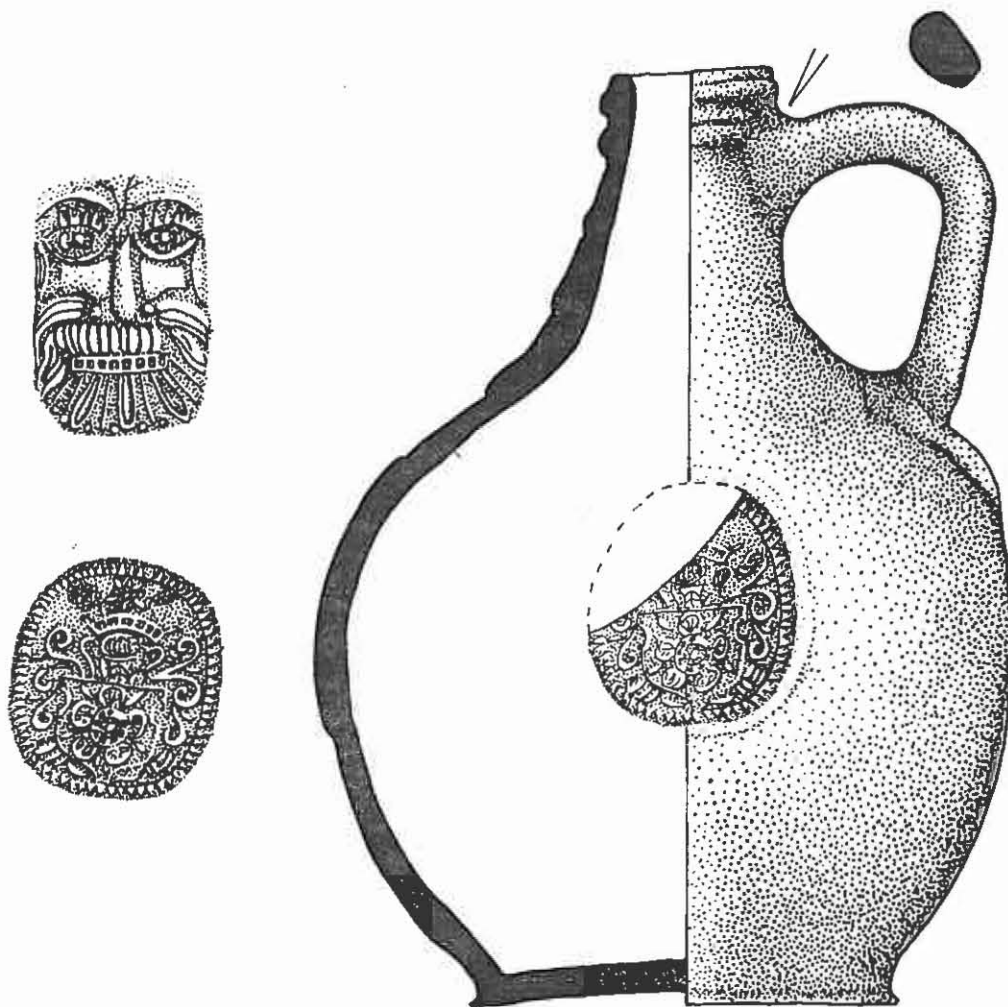
GT 836 Height 205mm, Dia. 156mm, Base 87mm, Volume 1.6 litres, Weight 969.9g (267165).



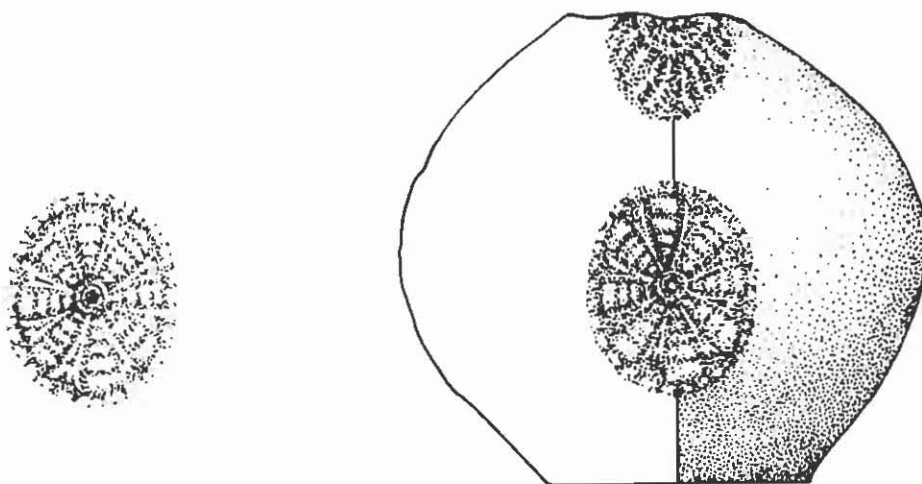
GT 755 Height 251mm, Dia. 189mm, Base 101mm, Volume 2.85 litres, Weight 1471g (N.A.).



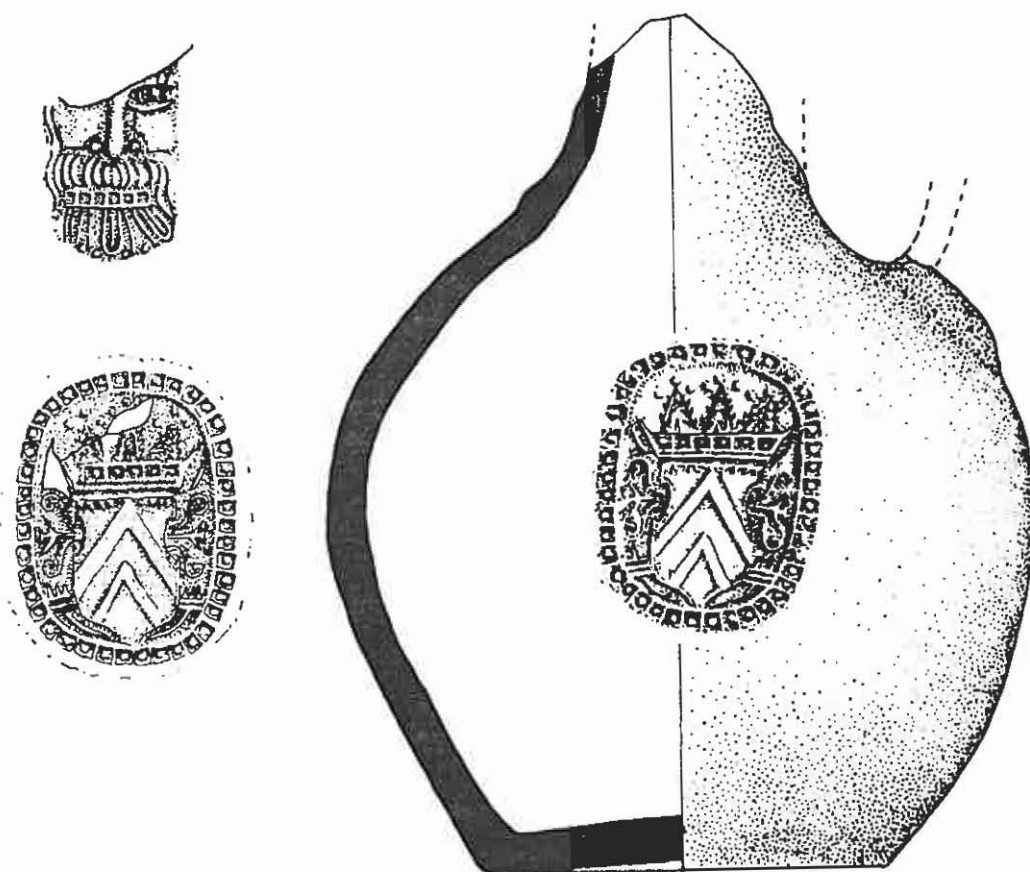
GT 812 Height N.A., Dia. N.A., Base N.A., Volume N.A., Weight N.A. (N.A.).



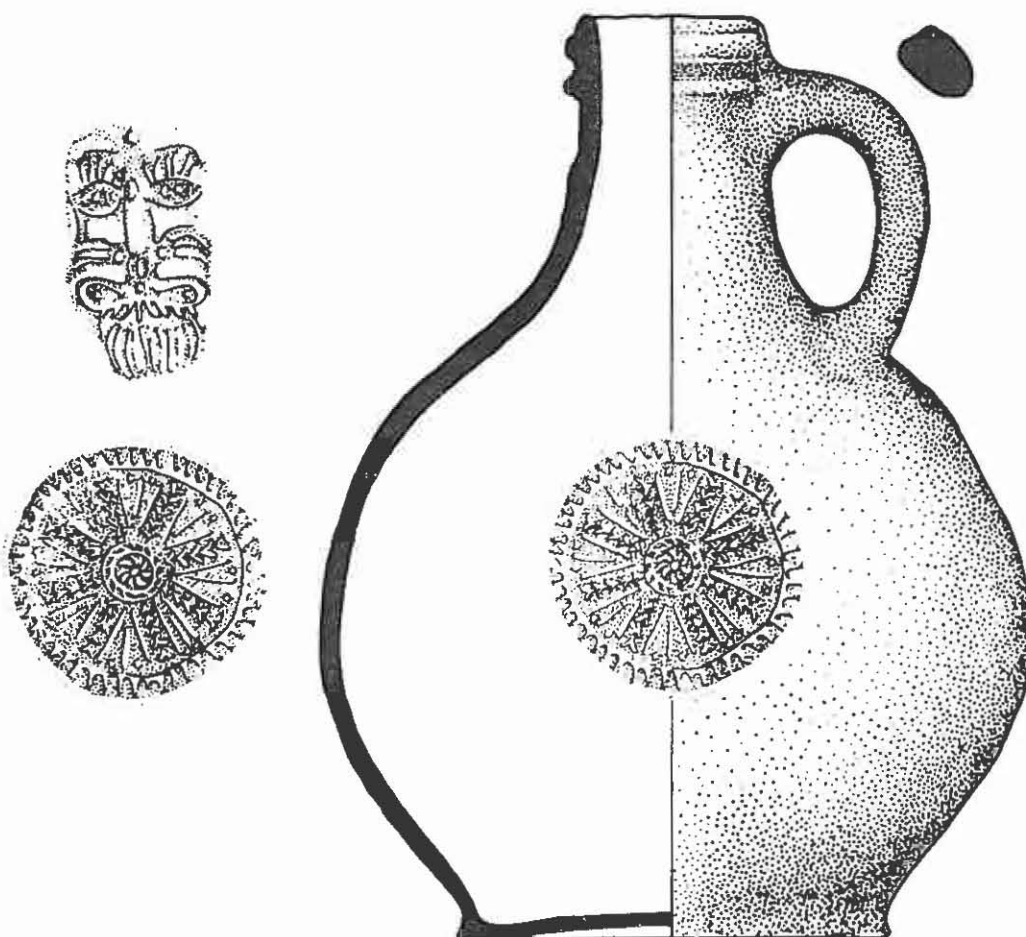
GT 811 Part of R.H. medallion missing, fig. 32. Height 246mm, Dia. 200mm, Base 112mm, Volume 3.25 litres, Weight 1490g (290185).



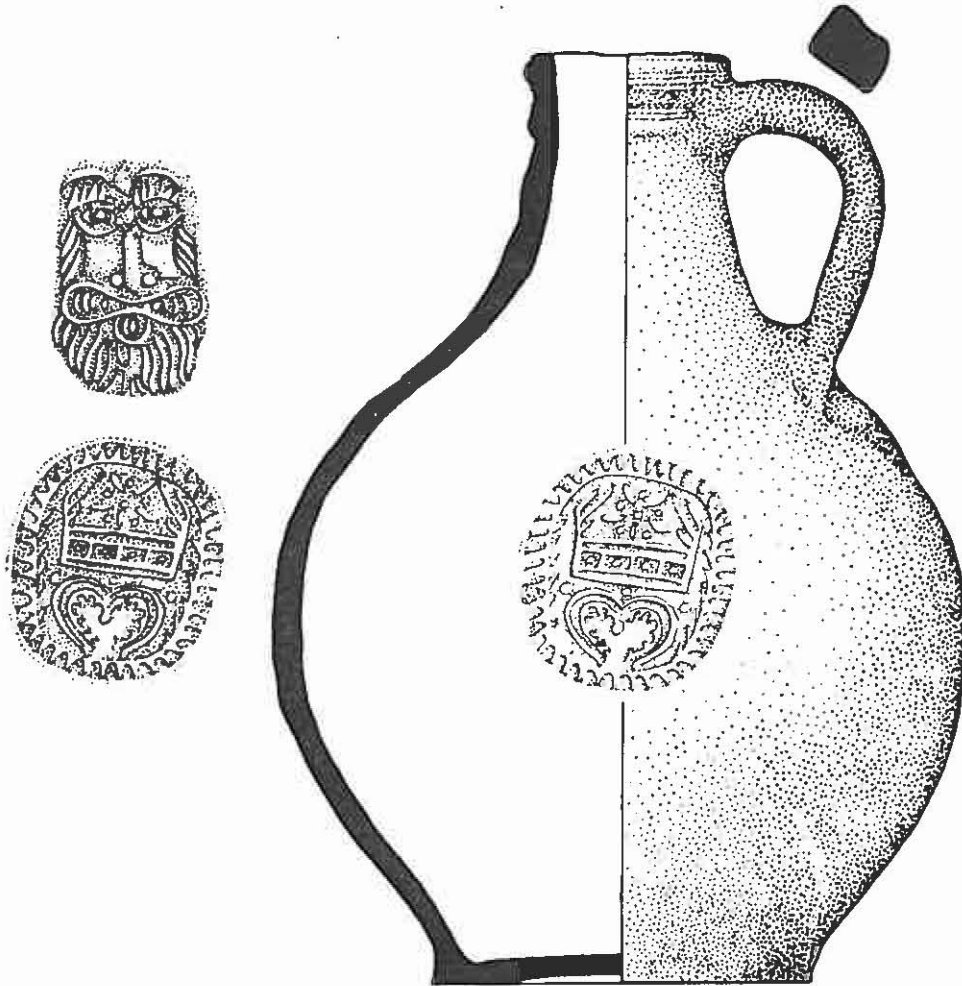
PC 3226 Neck and handle missing. Height N.A., Dia. 139mm, Base 68mm (N.A.).



GT 004A Mask and handle missing. Height N.A., Dia. 182mm,
Base 107mm, Volume 2.75 litres, Weight N.A. (N.A.)

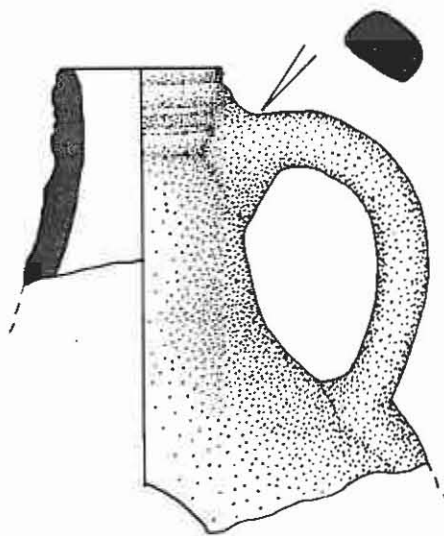


GT 733 Height 246mm, Dia. 187.5mm, Base 109.5mm,
Volume 2.85 litres, Weight 1485g (N.A.).

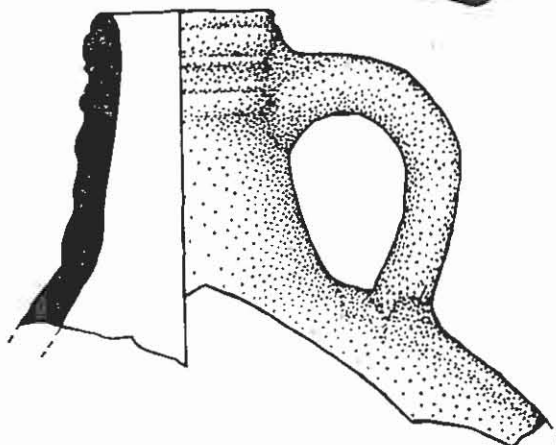


GT 817 Height 248mm, Dia. 182.5mm, Base 95mm, Volume 2.65
litres, Weight 1471g (236164).

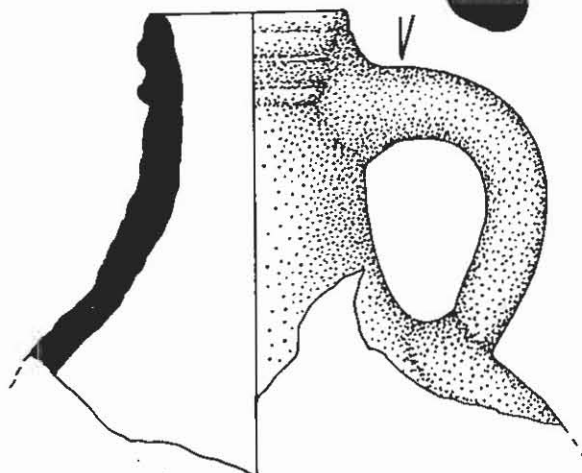
2.1.5. Stoneware jug fragments (necks)



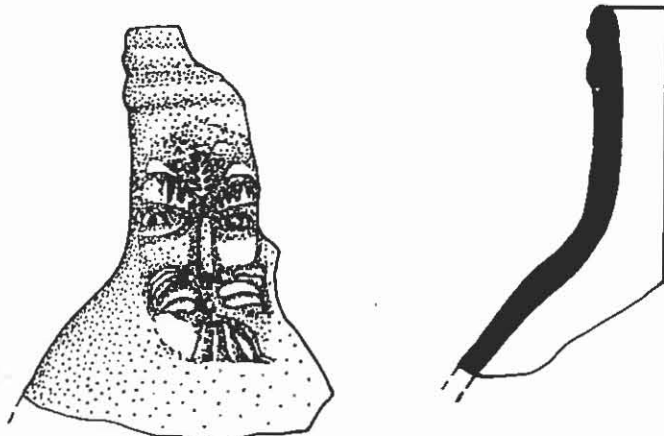
GT 78 Neck and handle only (N.A.).



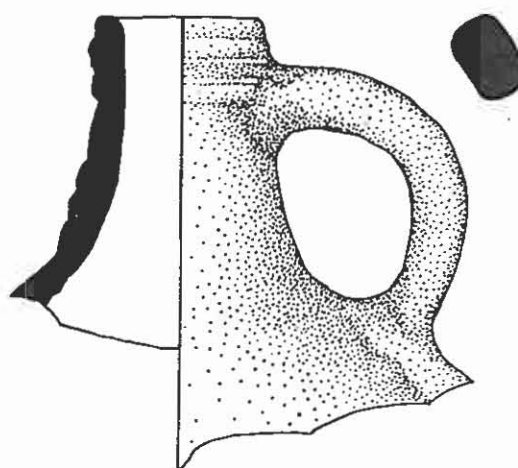
GT 657 Neck and handle only (N.A.).



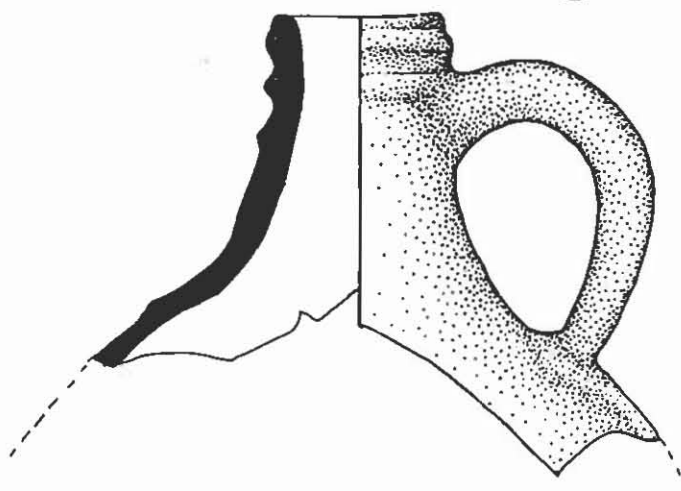
GT 719A Neck and handle only (N.A.).



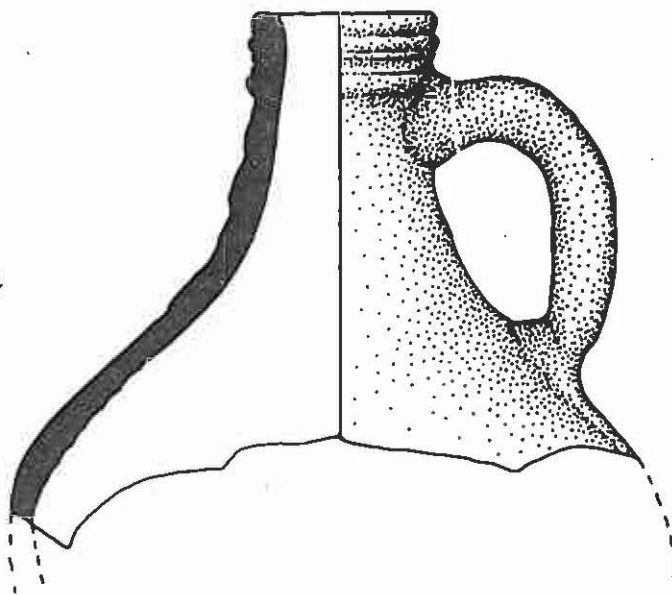
GT 784A . Neck only (N.A.).



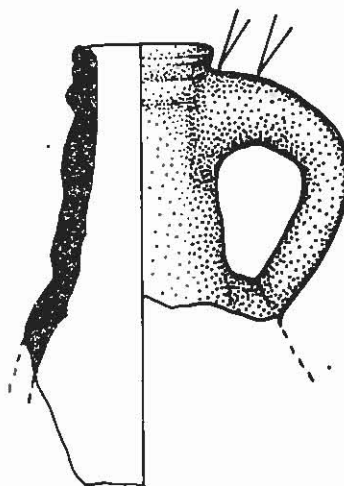
GT 839 Neck and handle only (260200 approx.).



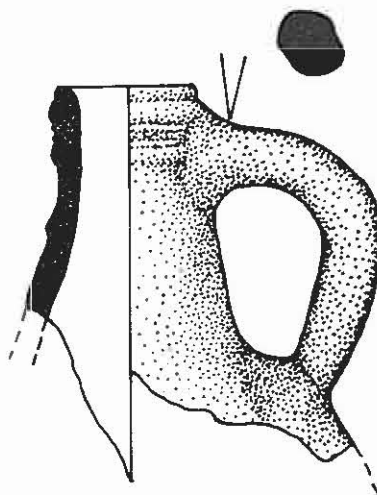
GT 845 Neck and handle only (280170 approx.).



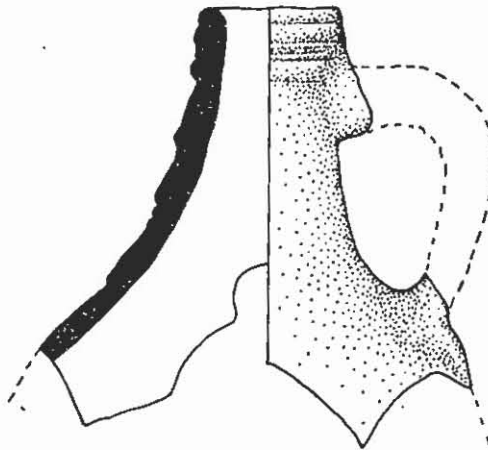
GT 854 Neck and handle only (275210).



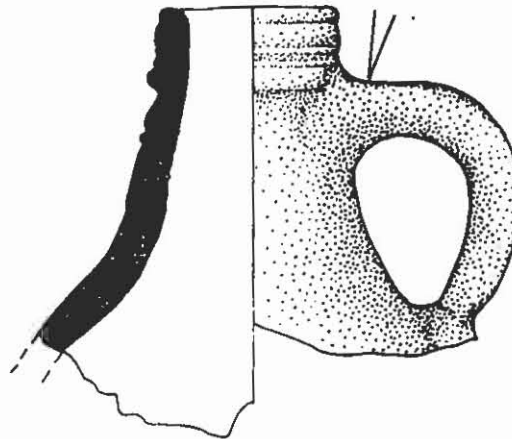
GT 855 Neck and handle only (165190).



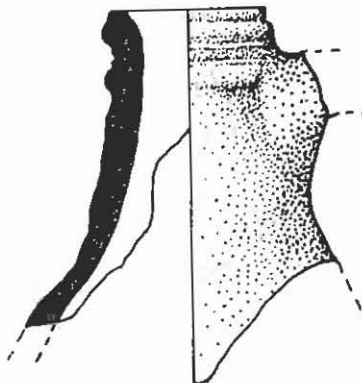
GT 856 Neck only (N.A.).



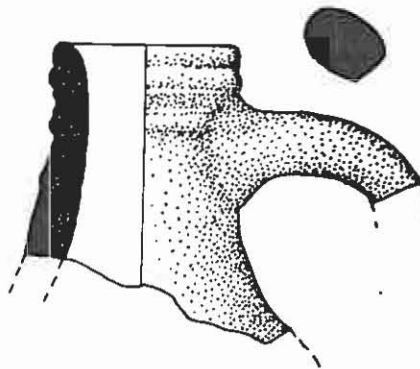
GT 861 Neck and handle only (275185).



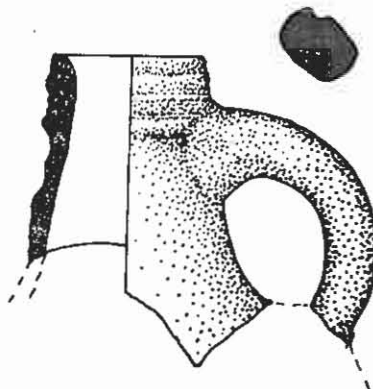
GT 862 Neck and handle only (245220).



GT 863 Neck only (235205).

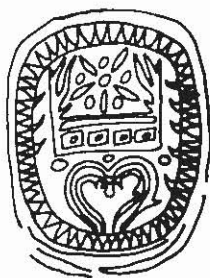


GT 864A Neck and handle only (155225).

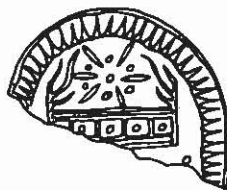


GT 864 Neck and handle only (N.A.).

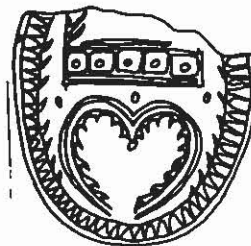
2.1.6. Stoneware jug fragments (bases and medallions)



GT 87
Medallion fragment:
rose-crown-heart.



GT 868
Medallion fragment:
rose-crown-heart.



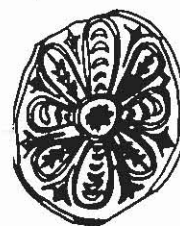
GT 90A
Medallion fragment:
rose-crown-heart.



GT 757A
Medallion fragment:
floral.



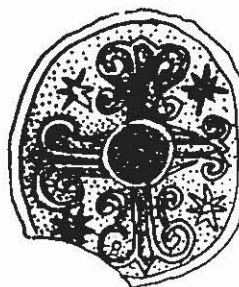
GT 872
Medallion fragment:
floral.



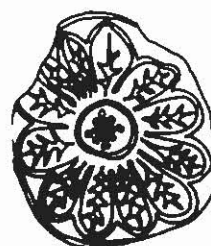
GT 874
Medallion fragment:
floral.



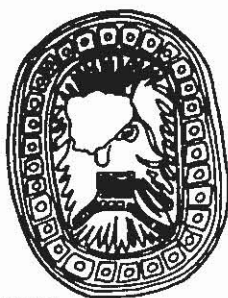
GT 90
Medallion fragment:
floral.



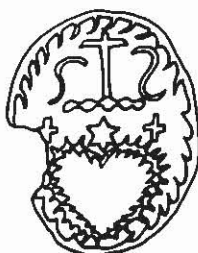
GT 878
Medallion fragment:
floral.



GT 871
Medallion fragment:
floral.



GT 870A
Medallion fragment:
face.



GT 21B
Medallion fragment:
cross-stars-heart.



GT 822
Medallion fragment:
jug or pot.



GT 655

Medallion fragment:
two chevrons, heraldic.



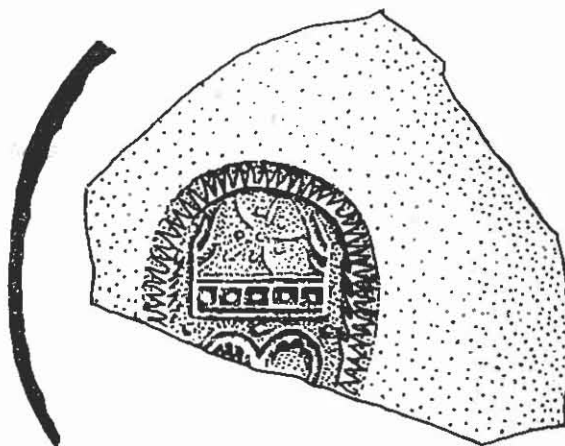
GT 883

Medallion fragment:
two chevrons, heraldic.



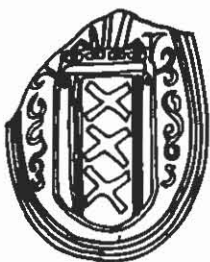
GT 883A

Medallion fragment:
heraldic?



GT 720

Medallion fragment: rose-crown-heart.



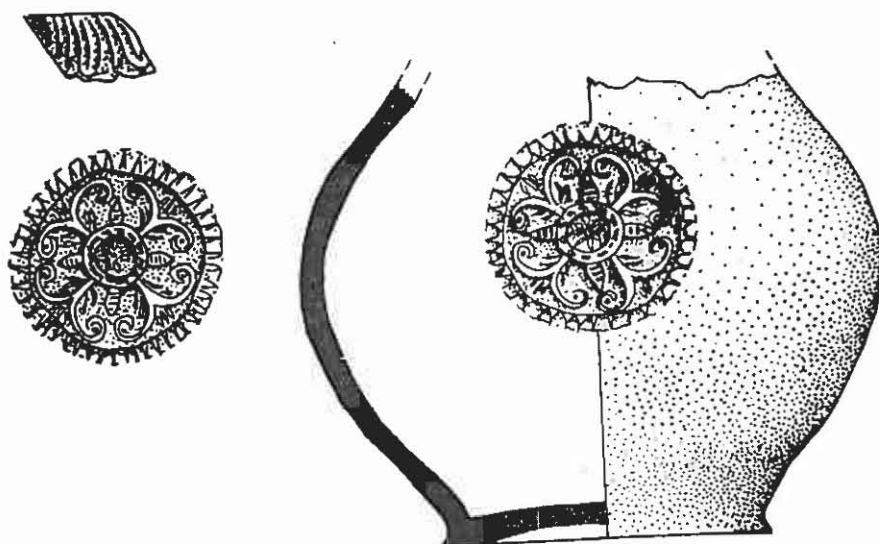
GT 879A

Medallion fragment:
Amsterdam City Arms.

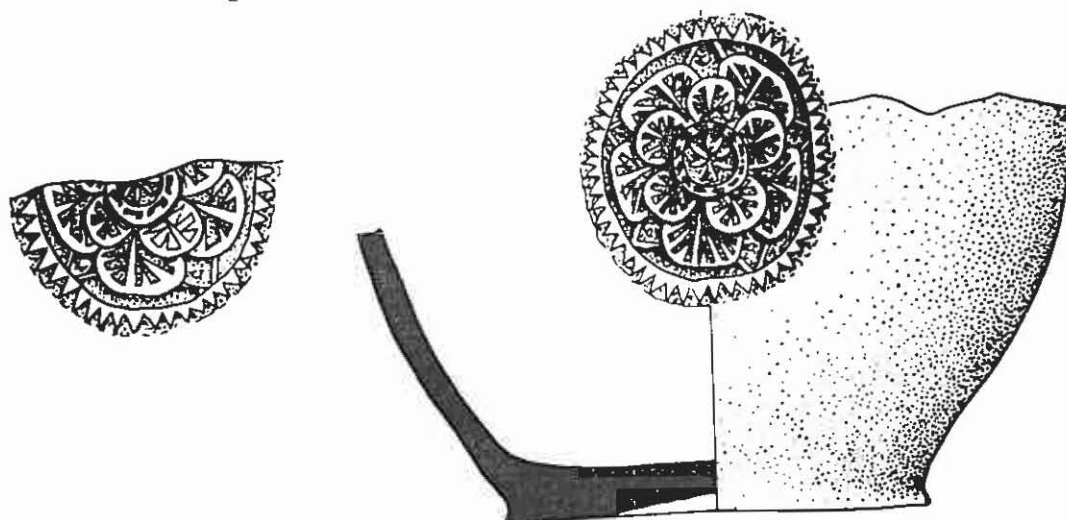


GT 877

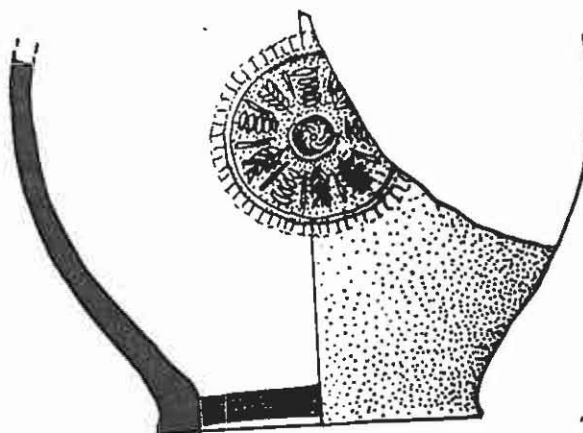
Medallion fragment:
house-mark.



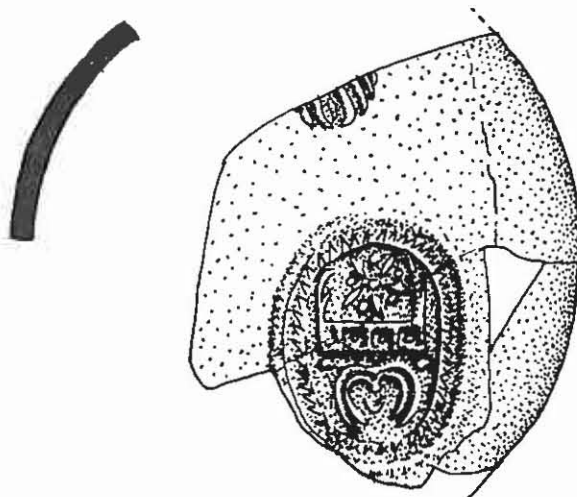
GT 757 Base and medallion with part of mask: floral (originally 3 medallions). Dia. 154mm, Base 87mm.



GT 870 Base and medallion (originally 3 medallions): floral. Base 112mm.

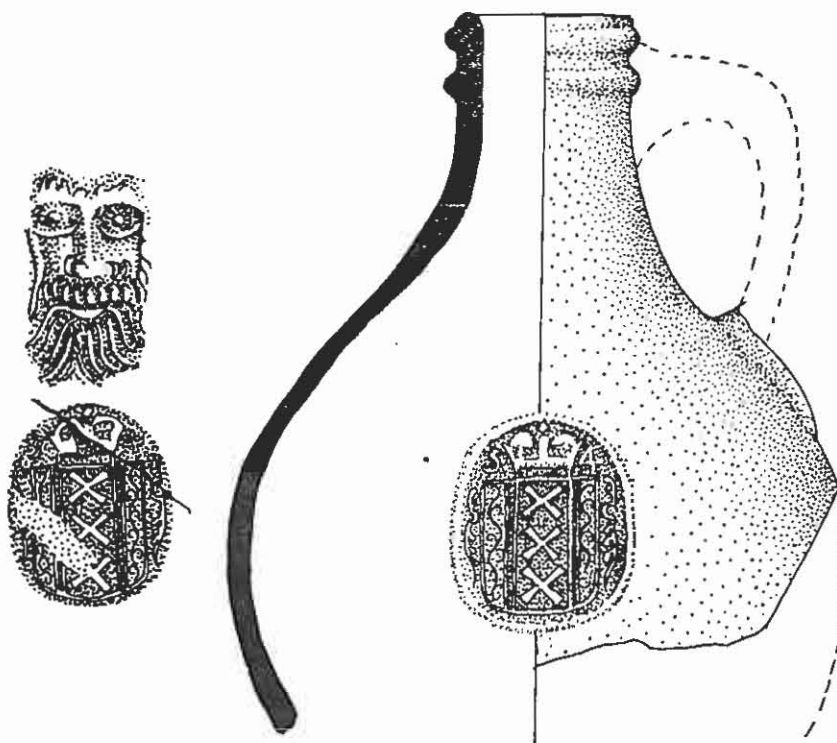


GT 873 Base and single medallion (possibly only 1 medallion): floral. Base 86mm.



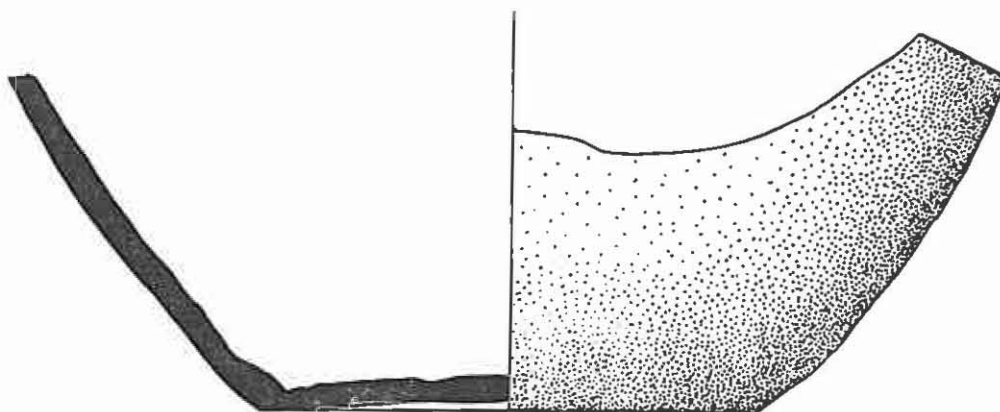
GT 757A Medallion fragment: rose-crown-heart.

GT 885 Part of wall of jug (3 medallions and part of mask):
rose-crown-heart.

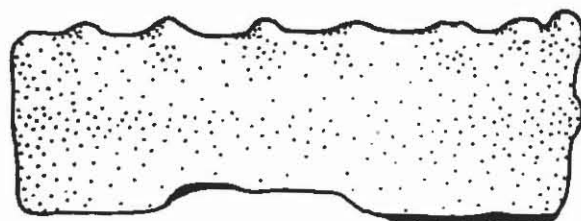
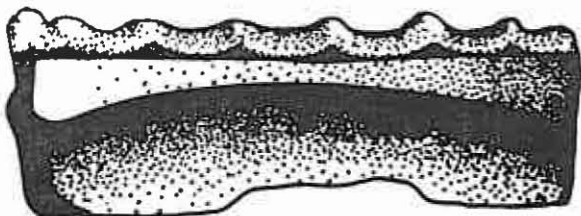
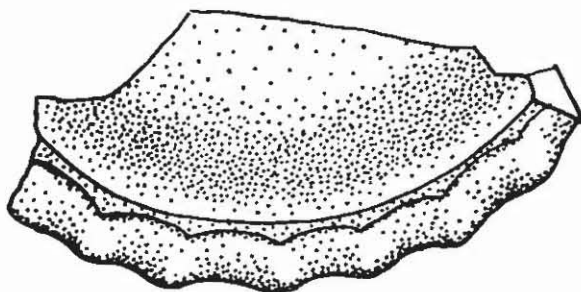


GT 380 Neck and part of body, no handle, Arms of the City of
Amsterdam, dated (16)54.

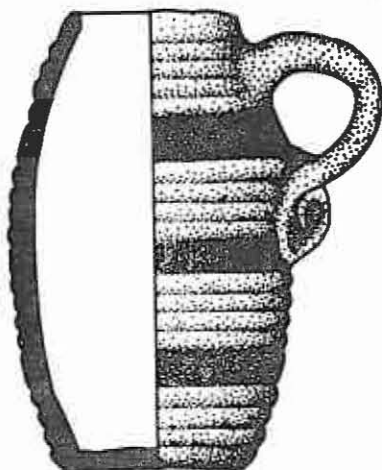
2.1.7. Miscellaneous stoneware



- GT 697 Base of large jug, without pronounced foot as in beardman jugs.
It is likely that this is part of a *Kugelbauchkrug* described in Von Bock (1971), no. 567. Fabric is pale and has a clear salt glaze (N.A.).

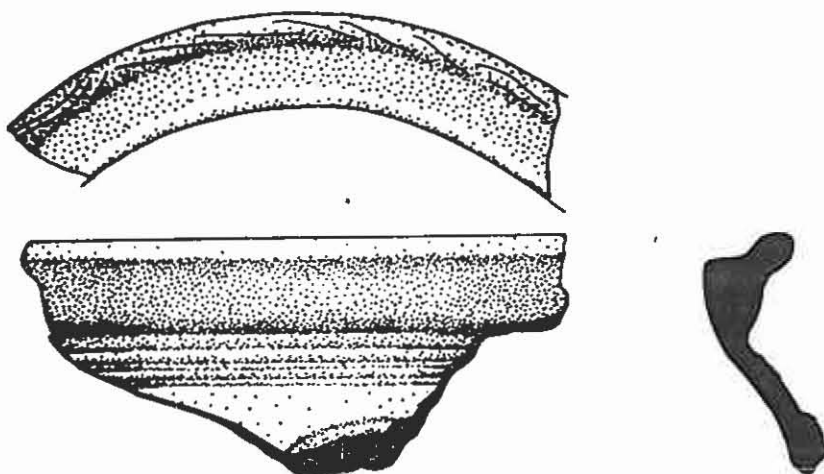


- GT 717 This unusual fragment is possibly part of the base of some stoneware vessel; it is unglazed (N.A.).

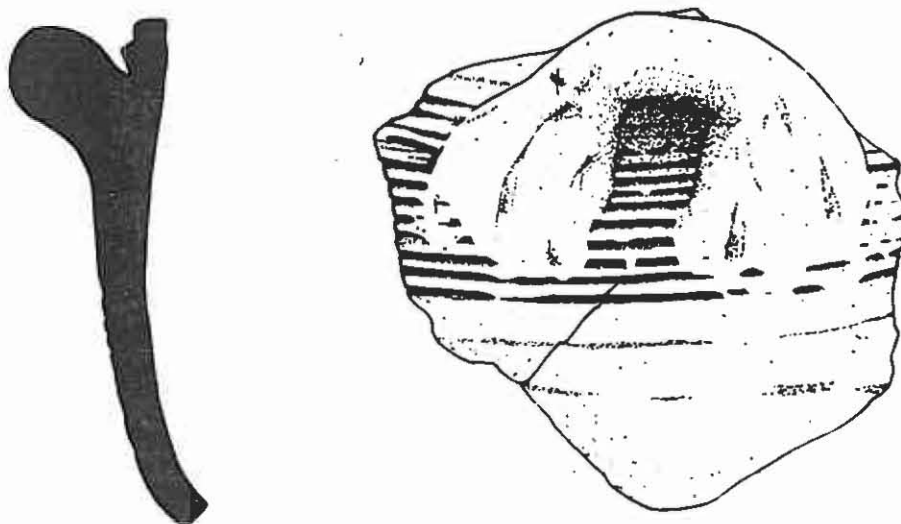


GT 813 Stoneware drinking mug with an ovoid shape and three cobalt blue bands.

This is almost identical to a series of vessels illustrated in Von Bock (1971), particularly no. 613, a mug from Westerwald but with a zig-zag pattern. These are attributed a date of c.1700 which would seem rather late; earlier Westerwald mugs, from the first half of the 17th century, are parallel-sided and more ornamental (275210).



GT 912 Rim fragment of stoneware pot. It is likely that this is one form of chamber pot, originally with a flat lid. Indication of some decoration or medallion on side of pot. Glaze is greenish, rim decorated with incised patterns (N.A.).

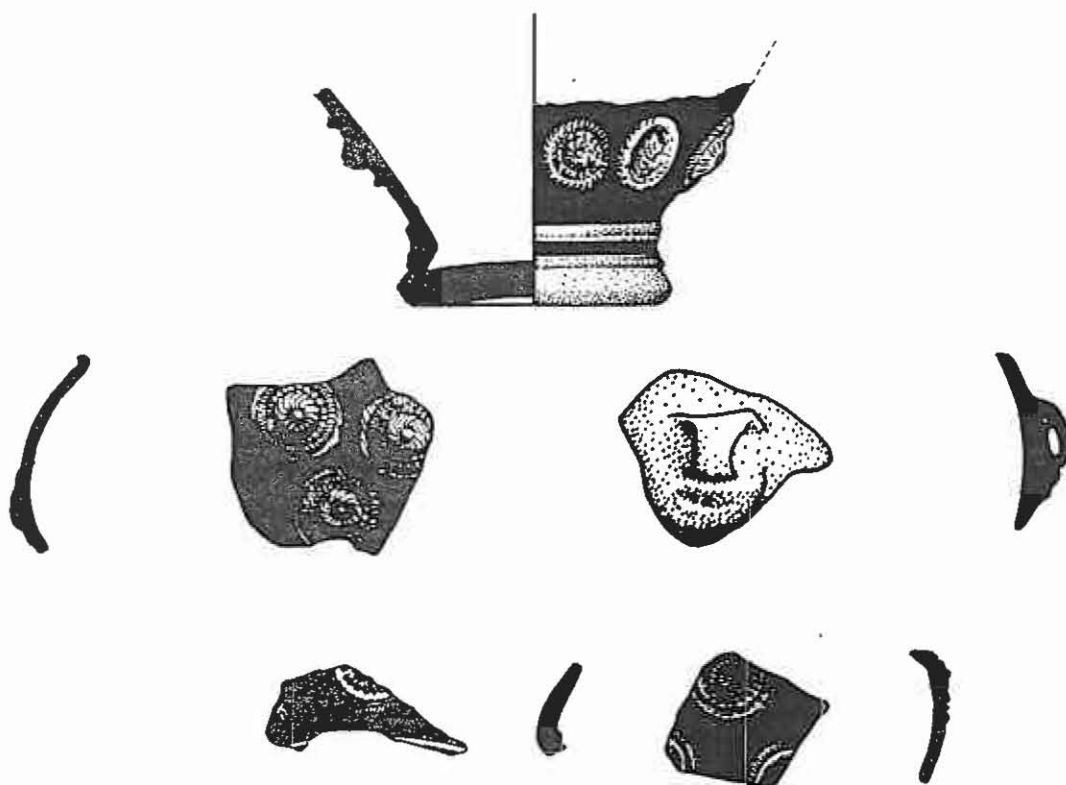


GT 913 Handle and ribbed wall sherd of coarse, thick, grey-purple unglazed stoneware, with pink inside fabric, plus eleven sherds, (275185).

The material is identical to similar group found on the BATAVIA. It is thought that this may have been the water jar kept near the steersman's position on the ship, Boudriot (1974), vol. 2, planche XXIX, coup E, no. 192. Kirkman (1974), fig. 70-16, illustrates a similar jug with same fabric which he attributes to a Kalong although it may also be a Sawankhalok from Siam, which was made from the 14th century, this particular type is usually dated around 1600, Moore (1970). Similar wares attributed to Sawankhalok appear to have been found on the Koh Khram wreck in Thailand, Brown (1975), figs. 9 and 12. Although she notes that there is no convincing chronology for Sawankhalok, it is suggested that the ship was lost in the 14th century. If this material is Sawankhalok, it indicates a rather later date than would normally be expected. It also appears that this type of material was found on the WITTE LEEUW, Mak van Waay (1977), no. 977, fig. p. 244. Possibly this material has been confused in the past with Spanish olive jars, and now appears to be common on many 17th century V.O.C. ships.



- GT 917A Fragment of lip of neck of jug with two cobalt-blue bands, similar to jugs illustrated in Von Bock (1971), no. 576, from Westerwald (N.A.).



- GT 722 Fragments of a stoneware jug with rosettes applied on
917 a background of cobalt-blue; it is possible that GT
974 917A is part of neck.
- This decoration is similar to Von Bock (1971), no. 554, particularly in the treatment of the end of the handle. A similar type is illustrated in the painting by Nicolaes Maes (1634-1693), "Old Woman saying Grace", in the Amsterdam Rijksmuseum (no. 1501). It may be that the type is more like the example in the Hoorn Museum, which has a mask on upper neck and identical rosettes (N.A.).

2.1.8. Uncatalogued stoneware, jug fragments

Stoneware sherds: medallions -

14 Rosette

20 Floral

22 Miscellaneous

Stoneware sherds: masks - 37.

Base Fragments - 85.

Neck, handle and rim fragments - 57.

Sherds - 614.

Worn sherds - 256.

2.2. Earthenwares with Brown or Green Lead Glaze

It is interesting to speculate about the use of these items, their most obvious purpose being for cooking. Examination of 17th century paintings, particularly of peasant scenes, shows many examples of cups, pipkins and skillets in domestic scenes associated with cooking.

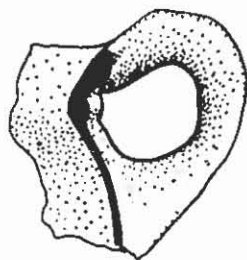
The vertical-handled cup is shown holding food in "The Woman Peeling Turnips and Man by the Fireside" by Esaias Boursse (1631-72), Bernt (1970), no. 167. However more commonly, paintings show handled cups associated with the smoking habit or with foot-warmers (for holding coals); but generally, these cups are slightly larger than GT 818 and have the rim pinched into four corners. Smokers using such cups are illustrated in "Interior of a Peasant's Cottage" and "Soldier Smoking", by Frans van Mieris the Elder (1635-81), Bernt (1970), nos. 766 and 768. The cup as a foot-warmer may be seen in "Man Reading a Letter" by Ludolf de Jongh (dated 1657), Mainz Museum, no. 800.

The pipkin is more commonly illustrated in the kitchen as a container, see "Old Woman Saying Grace" by Nicolaes Maes (1634-93), Rijksmuseum, Amsterdam, no. 1501; but it, too, is also used to hold coals for lighting, smoking-pipes, "Man with Wine Jug" by Constantyn Verhout (active second half 17th century), Bernt (1970), no. 1277.

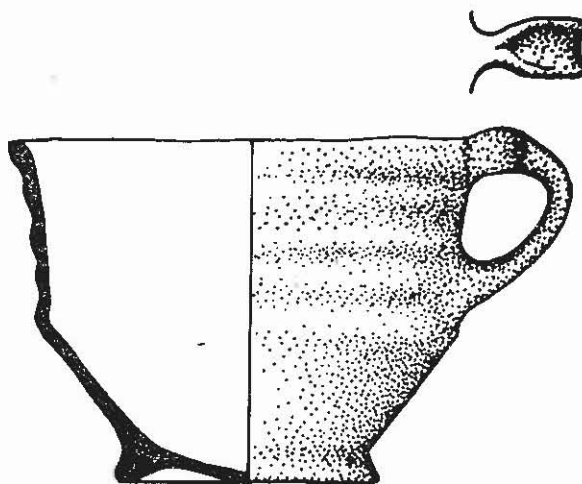
Similarly the skillet has a dual use; it is shown in "The Cook" by Reinier Coveyn (born 1636), Dordrecht Museum, being used to pour a liquid over fish. In view of its pouring lip, it is obviously associated with pouring liquids. However, in "Bad Company" by Cornelis Pietersz Bega (dated 1663), Staedel Institute, Frankfurt, no. 209, a rather high-sided skillet with a lip is being used for holding coals whilst nearby a woman is smoking a pipe. In "Interior with a Smoker and Drinker" by Johannus Natus (active 1662), Bernt (1970), no. 830, a skillet is being used to hold coals, but it is unclear if it has a lip.

Thus, although the four-cornered cup with vertical handle and three feet, is the most common coal-holder for smoking, other vessels associated with domestic use were used for this purpose, and also fitted in foot-warmers. It cannot be clearly demonstrated that the earthenwares from the VERGULDE DRAECK are purely for cooking or culinary purposes; they may have been used for smoking although obviously not for foot-warmers. Earthenwares on-board a ship are not necessarily associated with cooking utensils. There is no doubt that on land the main uses of earthenwares were for cooking, as well as holding coals for smoking, and for foot-warmers. However, on-board ship it is possible that they had a less important role for cooking, due to their fragile nature. Wooden and pewter plates and mugs were used at table by the ordinary men and officers, and copper and brass were used as cooking utensils in the galley. The presence of large numbers of smoking pipes, and the brass coal tongs and fork (GT 626), indicate an alternative and possibly important role for these earthenware containers.

It should also be noted that the fragile nature of earthenware tends to give it a low survival rate on a wreck site compared with the sturdier and ubiquitous stoneware. Thus it is likely that erosion has destroyed much of the earthenware on this and other wreck sites; one notable exception is the wreck of the Dutch galliot at Kvitsøy, Norway, Andersen (1974).

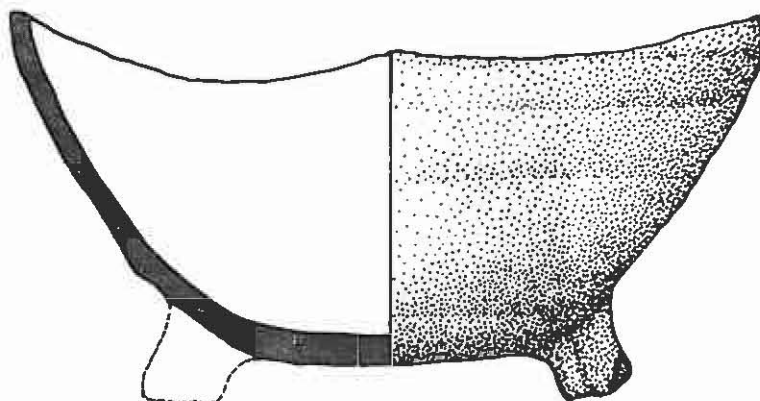


- GT 914 Part of rim and handle of pipkin (?)
 This type has also been found by Andersen (1974),
 fig. 4-5, and also on the V.O.C. ship KENNEMERLAND
 (1664), Price and Muckelroy (1974), fig. 9.

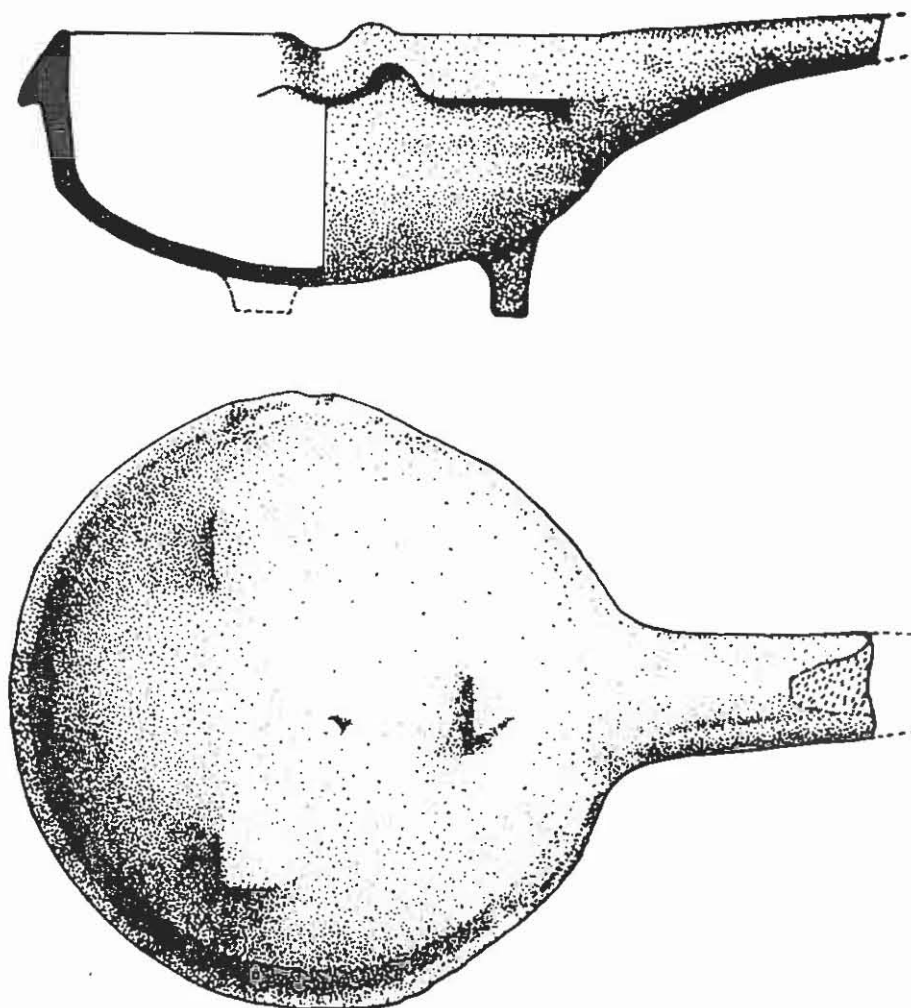


GT 818 Cup with vertical, pinched handle, brown-glazed on inside and partially on outside. Height 92mm, Dia. 105mm, Base 64mm, Volume 0.55 litres, Weight 316.2g (259292).

Similar to fragment from an English context and origin, Holling (1969), fig. 5. C5, but without pinching. The shape is similar to the horizontal-handled cup from the BATAVIA, Stanbury (1974), BAT 2334, and almost identical to Van der Heide (1971), fig. 24, which unfortunately does not have any provenance.

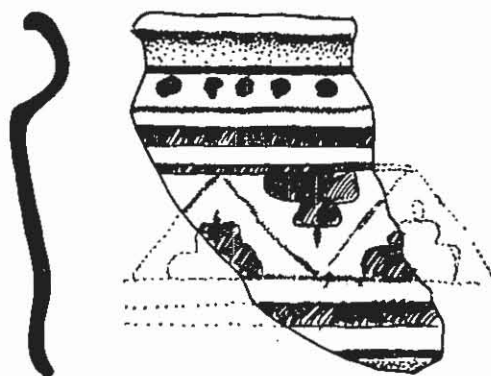


GT 840 Base fragment - pipkin with three short legs, brown glaze on inside only (270170).

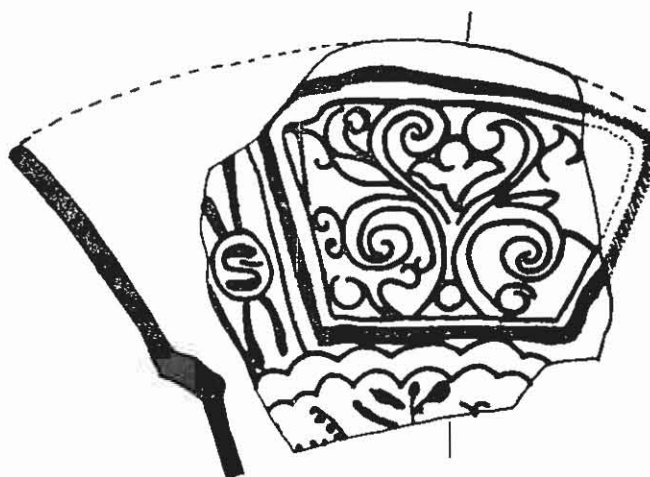


- GT 841 Skillet, brown glaze on inside and partially on outside (270195).
Height 71mm, Dia. 138.5mm-162.0mm, Base N.A.
Volume .68 litres, Weight 415.8g (270195).
- GT 856 Handle from skillet, green glaze (215200).
This is almost identical in size and shape to the skillet from the BATAVIA, Stanbury (1974), BAT 2333, and to the skillet illustrated in Andersen (1974), fig. 4-2, also from a Netherland context. This type of skillet has a long time range, an example being found in the Ijsselmeerpolder excavations of a small fishing boat from the 16th century, as part of the hearth, Van der Heide (1971), fig. 14.

2.3. Tin-Glazed Material (Majolica and Delftware)



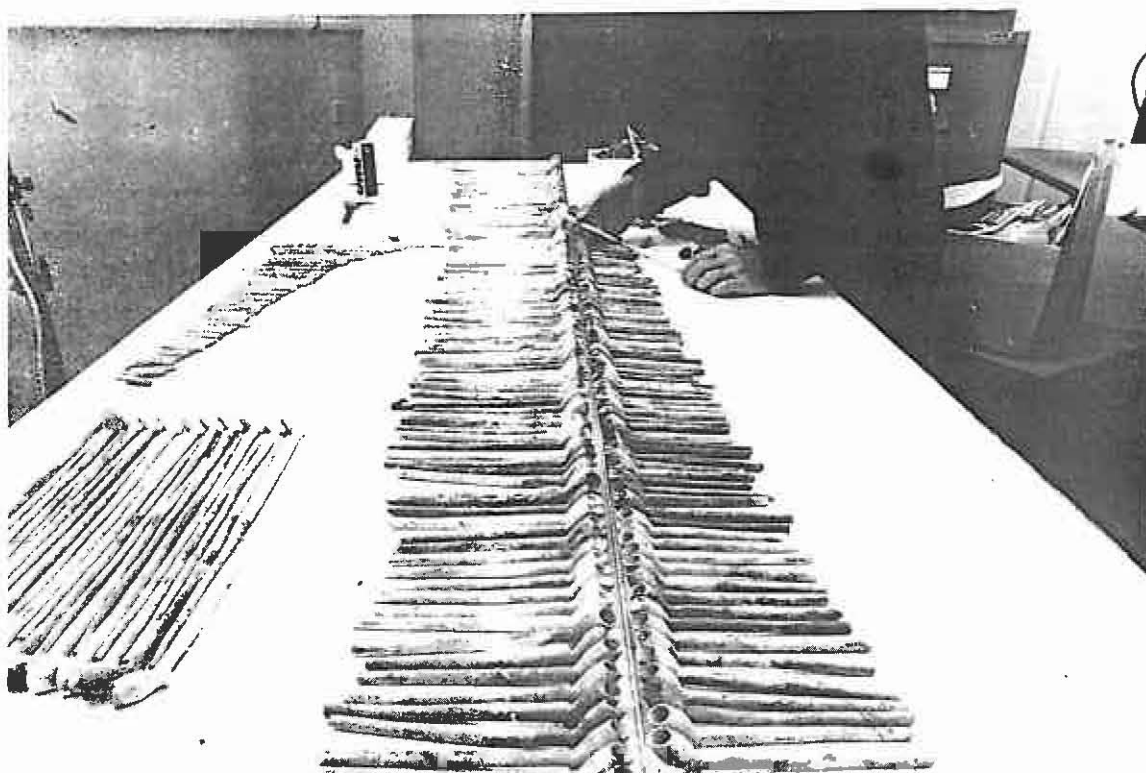
- GT 718 Blue and white fragment of Majolica drug jar or albarello (N.A.).
 Similar albarelli are illustrated in De Jonge (1947), fig. 46, and in Korf (1963), fig. 80, from North Netherlands. Similar items have been found on the BATAVIA, Stanbury (1974).



- GT 847 Delftware plate fragment, blue on white (N.A.).
 GT 650 Fragments of Delftware plate (085179).
 The edge decoration of the fragments resembles the mock-Chinese plates similar to Korf (1963), fig. 124.

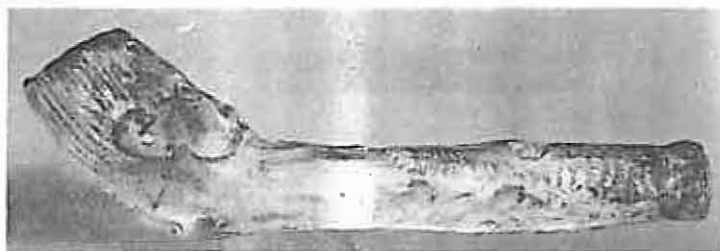
2.4 Clay Tobacco-Pipes

The clay tobacco-pipes from the VERGULDE DRAECK are of considerable interest, particularly the group of 223 unused pipes (GT 1028) found in a box on the site (location 165205), fig. 33. The box, unfortunately, was too fragile to recover, but the majority of the pipes were found intact, packed head-to-tail in what appears to be buckwheat. This group, together with the rest of the pipes, presents an ideal opportunity to study the various dating techniques on a unique collection of precisely dated clay pipes, see below.

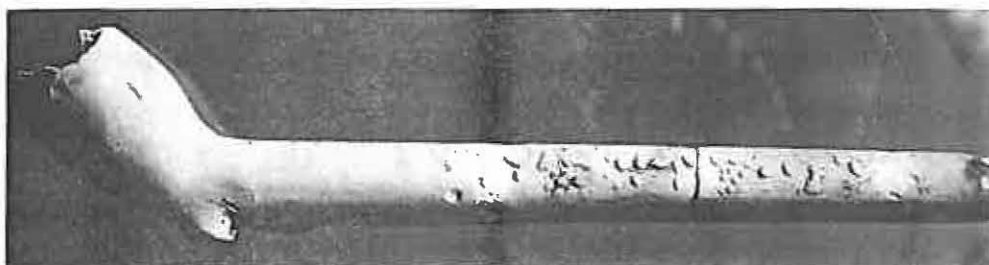


(33) Sorting clay pipes from box (GT 1028), complete pipes on left.

The majority of the clay pipes with the mark R.P. came from the general area around Arch No. 1, while the other pipes were scattered in the central excavation area. These latter pipes were possibly used by the crew, while the former were either cargo or possibly the personal possession of a crew member.



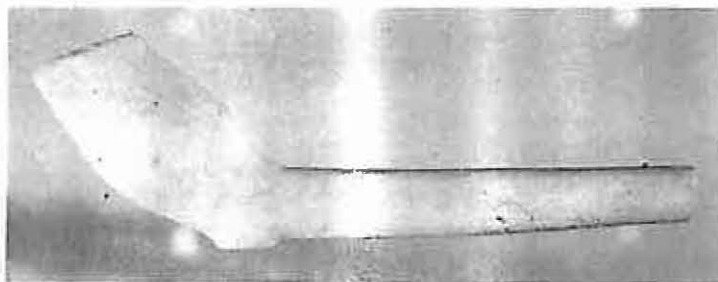
(34A) Profile of Sir Walter Raleigh pipe (GT 919). Scale 1:1



(34B) Profile of scroll and flower pipe (GT 1017). Scale 1:1



(34C) Profile of Tudor rose pipe without sepals (GT 1018). Scale 1:1



(34D) Profile of plain pipes (GT 1019). Scale 1:1



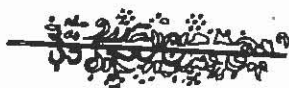
(34E) Profile of *fleur-de-lis* pipes (GT1020). Scale 1:1



GT 919 'Sir Walter Raleigh' clay pipe, a fragment including bowl and part of stem, slight heel and no mark, showing a bearded head being swallowed by a crocodile, fig. 34A (230205).

This scene is based on the legend of Sir Walter Raleigh being rejected by a crocodile, owing to his body being impregnated with nicotine. Oswald (1975), fig. 22-7, attributes a Netherland origin for 17th century examples found in England.

Friederich (1975) fig. 18-10, -24, illustrates 15 examples dating between 1625 and 1765. The face corresponds closely with no. 15, dated by Friederich as 1640, and the whole closely resembles fig. p. 40 (upper) and fig. 18-11, dated to 1625, although the decoration distal from the crocodile's head is different.



GT 1017 Pipe (damaged bowl), with scroll and flower decoration on the upper side of stem, 25mm from bowl, and extending 60mm along either side of the upper mould mark. No maker's mark on heel (270220).

This decoration closely resembles Friederich (1975), fig. p. 67, no. 171, dated 1618, and no. 201, dated to 1625, fig. 34B.



- GT 1018 Six clay pipes with stylised Tudor Rose, without 'sepals' on either side of the bowl, fig. 34C (245190, 220200).

This type is typical of the Netherlands, appearing first in the 1630s and lasting over 100 years, Atkinson and Oswald (1972), and Oswald (1975). The shape of this bowl resembles Atkinson and Oswald (1972), fig. 78-14, who date it to 1633. Friederich (1975) illustrates a variety of pipes with stylised Tudor Roses, the example with five petals, fig. 34-1, dated to 1670, has a much larger bowl, and milling on rim of bowl. The general shape, corresponds more with Friederich's examples dated *circa* 1630, particularly figs. 33-1 and 34-9, both dated to 1630. In general, the bowl shape of these VERGULDE DRAECK pipes corresponds to Atkinson and Oswald (1972), fig. 78-8, the so-called 'Sloterdijk' type, dated to 1625; and to Friederich (1975), fig. 11-15, dated 1632, from Amsterdam. Found also on the LASTDRAGER, Sténuît (1974), fig. 18 and Appendix 1 (below).



- GT 1019 Eight plain pipes with rouletting on the lip of bowl, fig. 34D (173200).

"Rouletting on the lip of the bowl continues on Dutch pipes throughout their history, but is usually absent on English ones after the early eighteenth century," Oswald (1975). In shape this corresponds with the unrouletted example in Friederich (1975), fig. 11-19, dated to 1640, from Haarlem; and less closely with Atkinson and Oswald (1972), fig. 78-9, dated to 1645, 'Sloterdijk' type.



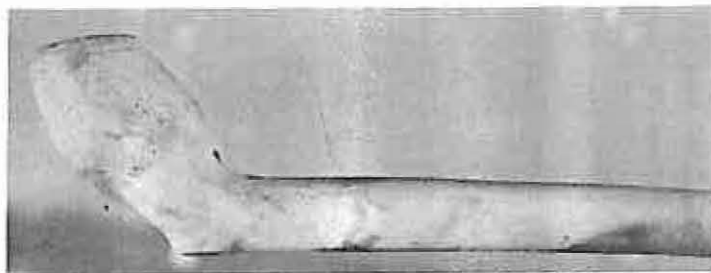
- GT 1020 Two clay pipes, rouletted on the lip of the bowl, 45mm from bowl three *fleur-de-lis* in diamond cartouches on the top of the stem, fig. 35A, extending 40mm, no stamp on heel. The bowls of these pipes are appreciably larger than previous examples, fig. 34E (N.A.). Friederich (1975) illustrates *fleur-de-lis* of this general type with a time range between 1620 and 1645. The bowl shape does not correspond closely with types shown in Friederich (1975). Atkinson and Oswald (1972), show a similar shape, fig. 78-12, dated to 1660.



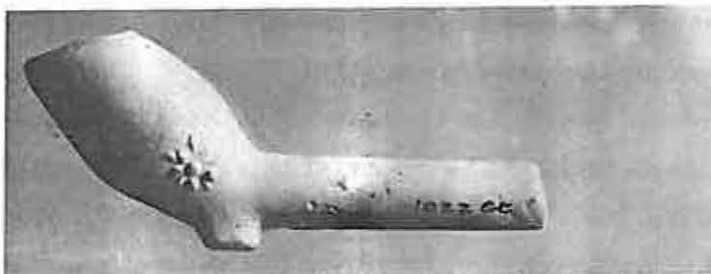
- GT 1021 Three pipes with rouletting on rim of bowl and CT stamped in relief on the unpronounced heel, fig. 36A and fig. 34F (N.A.).
In general shape, these pipes appear to be a more upright version of Friederich (1975), fig. 11-15, dated to 1632, from Amsterdam.



- GT 1022 Five pipes with stylised Tudor Rose with 'sepals' on either side of the bowl, fig. 34G.
This pipe closely corresponds with Atkinson and Oswald (1972), fig. 78-14, dated to 1633, the heel in these examples being smaller and the rose lower on the bowl; and with Friederich (1975), fig. 34-7, dated to 1650, only here with a smaller bowl and no marked rim.



(34F) Profile of CT pipes (GT 1021). Scale 1:1



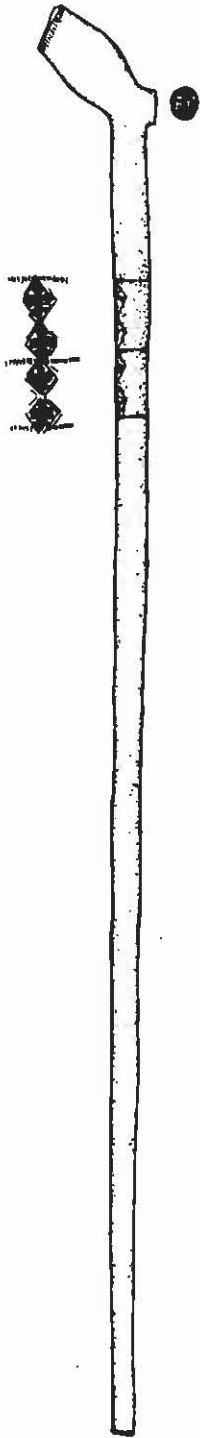
(34G) Profile of Tudor rose pipe with sepals (GT 1022). Scale 1:1



(34H) Profile of RP pipes (GT 1028). Scale 1:1

GT 1027 Ten pipes, fig. 25H, 380mm overall length, with rou-
 letting on the lip of the bowl, R.P. maker's mark in
 relief on the heel, fig. 36B, four *fleur-de-lis* in
 diamond cartouches in line on top of stem, fig. 35B,
 with three bands of rouletting. These examples were
 used in bore measurement, and are taken from GT 1028.
 Friederich (1975), fig. 16-146, illustrates an R.P.
 maker's mark from around 1600, and also lists an
 English pipemaker from London, Robert Pieterse, who
 married a Netherlands woman in 1623 and who had an
 R.P. heelmark. However, he does not list any maker's
 marks that correspond with the *fleur-de-lis*.

GT 1028



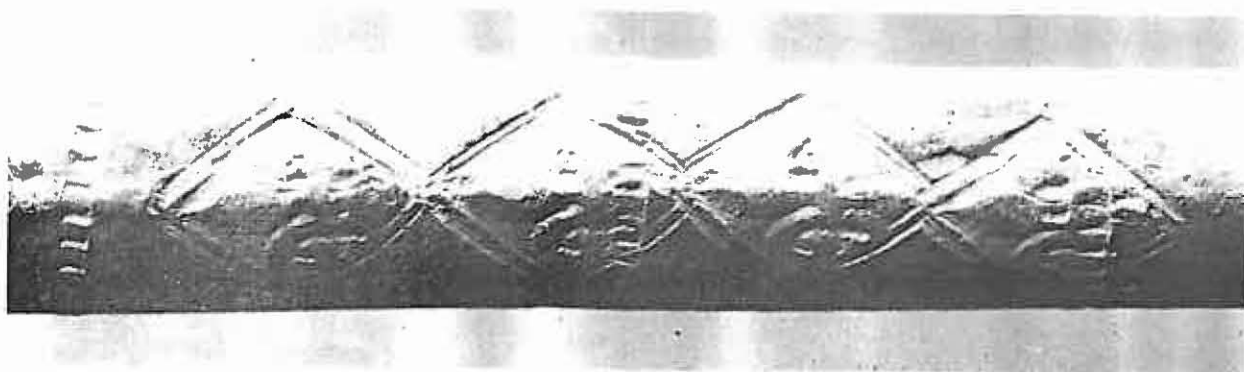
223 pipes as GT 1027.

This group was found intact in a box packed in buckwheat. The complete examples have an overall length of 380mm. The stems of three pipes have been repaired by rejoining the broken parts, and then applying rouletting over the join, fig. 37.

Friederich (1975) is unclear as to the exact date, but *fleur-de-lis* with rouletting ranges from 1625-1635; the closest correspondence with the bowl shape is Friederich (1975), fig. 11-15, dated to 1632, from Amsterdam, and Atkinson and Oswald (1972), fig. 78-10, dated to 1648.



(35A) *Fleur-de-lis* from GT 1020. Scale x4



(35B) *Fleur-de-lis* from GT 1028. Scale x4

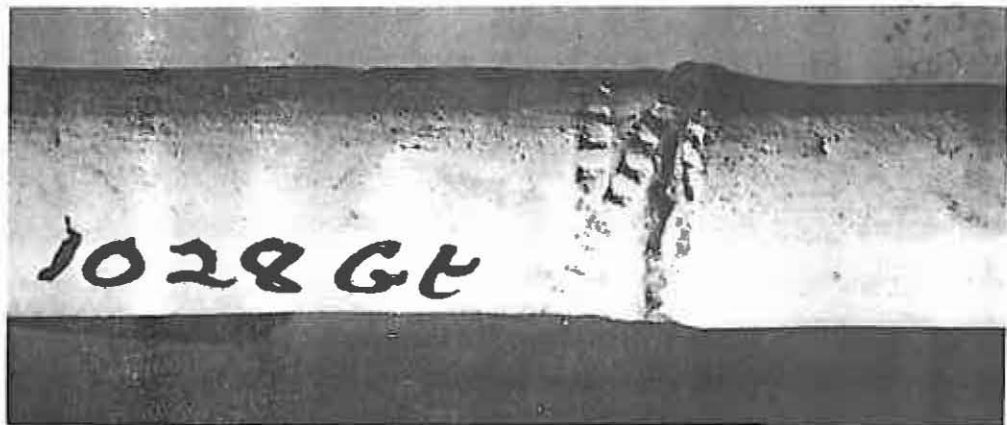


Scale x4



(36A) CT Maker's Mark from GT 1021

(36B) RP Maker's Mark from GT 1028



(37A) Repair work on stem of R.P. pipe (GT 1028). Scale x4



(37B) Mouth piece of R.P. pipe (GT 1028). Scale x4

- GT 1024 Miscellaneous fragments of unmarked pipe bowls rou-
 letted on the lip of bowl, possibly similar to GT
 1019 or GT 1028.
- GT 1026 Miscellaneous pipe stem fragments.
- GT 1029 Two pipes of GT 1028 type concreted (173200).
- GT 1030 Pipe stem fragments of GT 1028 type.
- GT 1031 Pipe stem fragments of GT 1028 type.
- GT 1032 Pipe stem and bowl fragments of GT 1028 type.
- GT 1033 Sample of buckwheat packing from GT 1028.

A variety of methods of dating clay smoking pipes has been proposed (see Oswald, 1975), but as noted by Atkinson and Oswald (1972), little has been published in English on Netherland clay tobacco-pipes. Basically, three methods are available for dating clay pipes: typology; statistical measurements of bore diameter (Harrington and Binford); and from volume calculations of bowl (Friederich).

The dating of Netherland pipes by typology has been published by Atkinson and Oswald (1972), which was based on Friederich's dating system. In the figures illustrated in this typology, figs. 78-8 and 78-9, dated to 1625 and 1645 respectively, correspond most closely to the VERGULDE DRAECK pipes rouletted on lip of the bowl; and figs. 78-15 and 78-16, dated to 1634, correspond to the Tudor Rose pipes. This would indicate that the VERGULDE DRAECK material appears about 20 years too early on the Atkinson-Oswald typology, based on Friederich's dating.

The dating of clay pipes on the statistical analysis of the bore diameter of the stem was originally described by Harrington (1954). This method was based on the observation that the bore diameter decreased steadily from 1620 to about 1800. The technique was criticised by Chalkley (1955), but verified by Omwake (1956). The Harrington Method was refined by Binford (1961), but has again since then been criticised by some authors and advocated by others. Walker (1967) gives a review of the development of the technique in America. Oswald (1975) sums up the present situation by saying: "The excavator may well feel that the

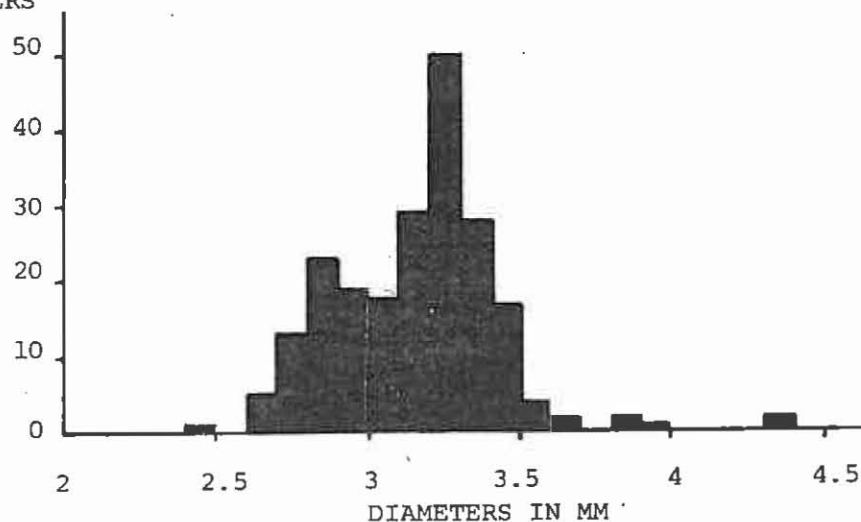
method is hardly worth the ingenuity required, ... The danger of the stem dating (system) lies in the temptation to arrive at a date on the basis of too small a sample, or even to quote a single stem bore as indicative of a certain period."

The Harrington Method was based on English material, and it was noted that Netherland pipes had shorter stems and smaller bores than English pipes.

Because the VERGULDE DRAECK pipes have a precise date, and were known to be a consignment from the same maker, some bore analysis was thought to be worthwhile. The bore diameters were not measured with a drill bit as is usually advocated, but with a standard travelling microscope, for greater accuracy. Two hundred and fourteen cleanly broken stems were selected first and their bore diameters measured; fig. 38 shows the frequency histogram. The measurements show two peaks - the main peak at 3.3mm, and a minor peak at 2.8mm. This bimodality would never have been observed using drill bits differing by 1/64" (0.40mm), and the use of the travelling microscope should be strongly recommended. In view of the possible contamination of this sample with unidentified types of pipes, 172 pipes showing the R.P. heel mark were used to further test the results. With this sample, the diameter of the bore was measured vertically across the stem, i.e. in the axis of the heel and bowl. The frequency histogram, fig. 39, shows the same peaks at 2.8mm and 3.3mm.

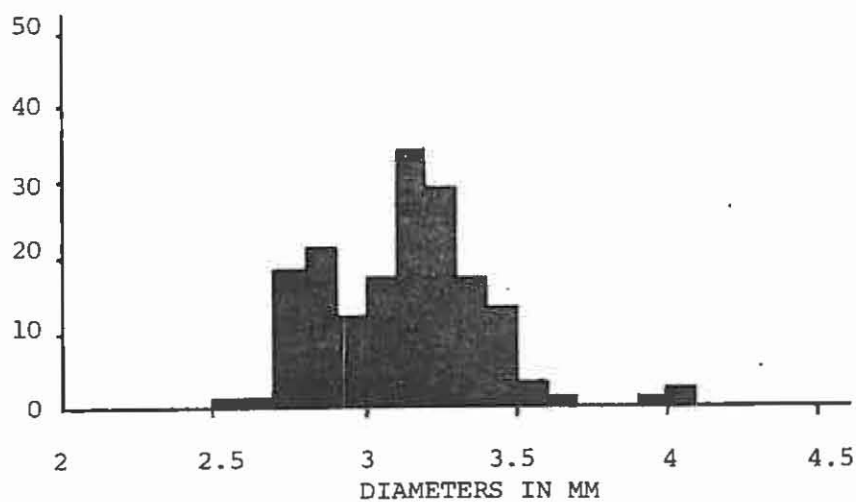
In order to check that the bimodality was not an effect of an oval shape to the bore, the bore diameters of ten R.P. pipes were measured at 30° intervals around each bore which gave the same bimodality, fig. 40. The stems of three R.P. Pipes were broken at 50mm intervals, and the bore diameters measured at 30° intervals around the bore. Fig. 41 shows that all the bores in this sample were of the 3.3mm type; fig. 42 shows the cross-sections of these bores. The results clearly show that two sizes of moulding wire were used to form the bore on the same type of pipe.

NUMBERS OF
DIAMETERS

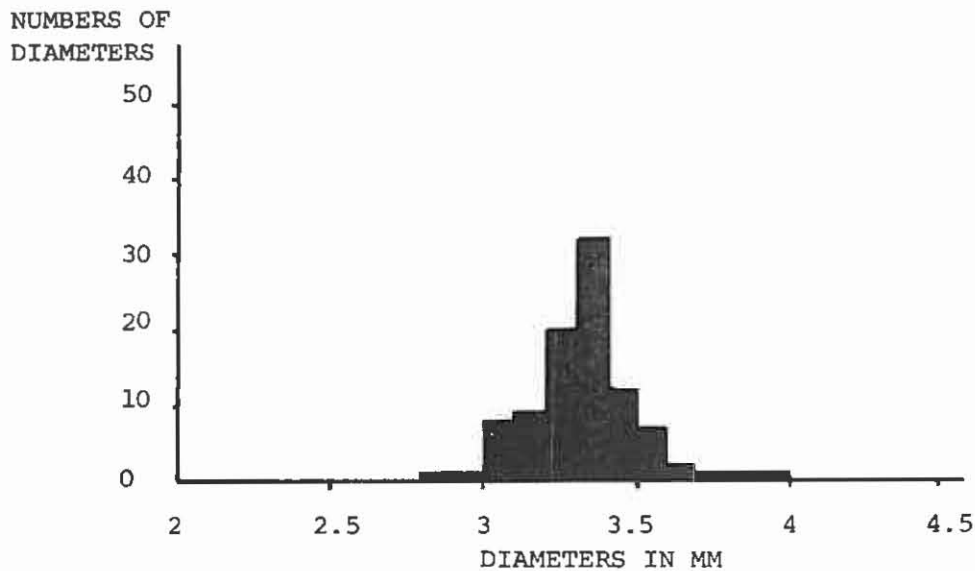


(38) Frequency histogram of bore diameter of 214 broken stems randomly orientated.

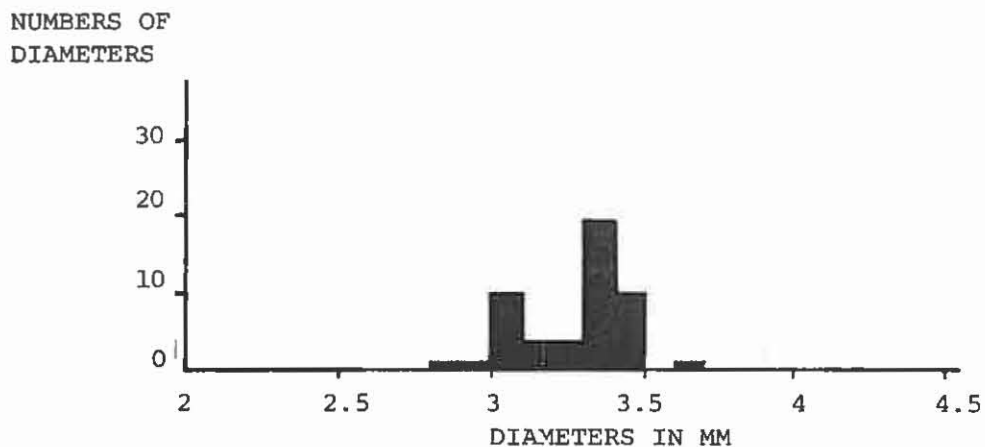
NUMBERS OF
DIAMETERS



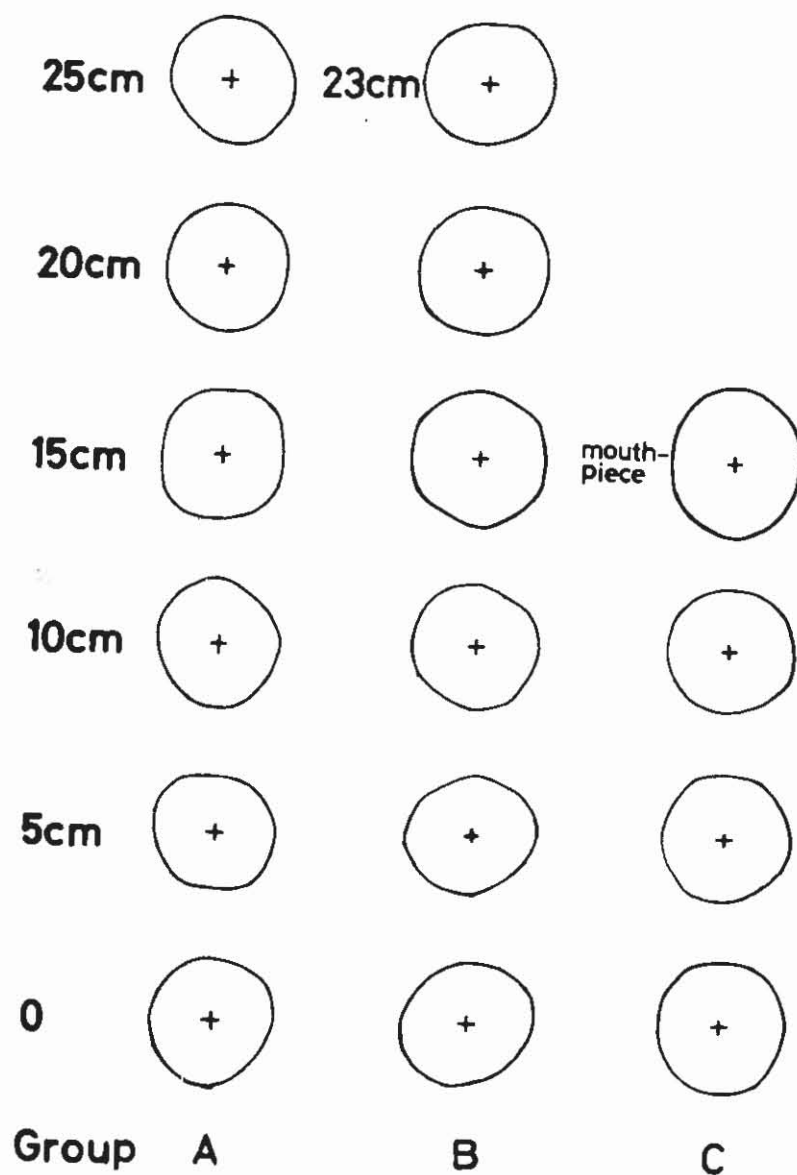
(39) Frequency histogram of bore diameters of 172 R.P. pipes measured parallel with axis of bowl, 0°.



- (40) Frequency histogram of bore diameters of 10 R.P. pipes measured at 30° angle intervals between 0° to 180° .



- (41) Frequency histogram of bore diameters of a sample of 3 R.P. pipes, broken and measured at 50mm intervals along their stems, diameters taken at 30° angle intervals between 0° and 180° .



(42) Cross sections of bores of 3 pipes used as example in fig. 41. Scale x5.

Binford's formula: $Y = 1931.85 - 38.26X$, which should be as Oswald (1975) correctly points out: $Y = 1932 - 38.3X$, where Y is the theoretical date of the pipe and X the diameter expressed in 64ths of an inch, may be modified for millimeters, $Y = 1932 - 96.4x$, where x is the diameter in millimeters. This gives the main peak (3.3mm) a date of 1614, and for the minor peak (2.8mm), a date of 1662, conveying some idea of the theoretical accuracy of the system. Oswald (1975) gives a modification of the Binford formula based on Hanson (1969), who pointed out that the date and bore diameter were non-linear. The metric formula for the date range 1620-68, is $Y = 1892 - 80.9x$, which gives the dates 1625 and 1666 for the major and minor peaks respectively. Friederich (1975) gives his own graph of pipe bore diameters and compares this with Harrington and Binford (the latter being incorrectly drawn, so that when $x = 0$, $Y = 1910$). Friederich gives a diameter about 0.3mm smaller than Binford for the same date in the mid-17th century, resulting in dates of 1608 and 1640 for the two R.P. pipe diameters.

The other method of dating has been devised by Friederich (1975), and is based on the relationship of the height H , breadth B , and bowl opening O , for a variety of clay pipe bowl types (fig. p.76). A series of complex graphs (fig. 4) is given for the 12 types of bowls illustrated, the product $H \times B \times O$ in mm^3 being plotted against date. This product when applied to GT 1028 gives 8208mm^3 . These pipes belong to Friederich's, fig. p. 76, group 2 pipes, which give a date of 1638. The results for the various types of pipe are as follows:

Example	H x B x O mm^3	Date	Friederich Dimensions		
			H	B	O
GT 1018	7128	1630	36	18	11
GT 1019	8424	1640	36	18	13
GT 1020	10660	1660	41	20	13
GT 1021	7980	1645	35	19	12
GT 1022	7980	1645	35	19	12
GT 1028	6732	1642	36	17	11
No no.	7733	1632			

Apart from GT 1020, it would seem that most of these dates appear to be about ten years too early. This finding is reflected in Atkinson and Oswald's typology which is based on this dating technique, but tends to indicate slightly earlier dates.

Sténuit (1974) and Appendix 1 (below) records nine bowls from the LASTDRAGER (1653), similar to GT 1018, and gives the dimensions H, B, and O, on the Friederich scheme. The products are as follows: 6426mm^3 , 7038, 7128, 7733, 7752, 7770, 7770, 7792, and 9240, giving a mean date of 1645, with dates of 1625 and 1650 for the minimum and maximum values. This is consistent with the VERGULDE DRAECK results.

Friederich (1975), fig. 3, also shows the bowl opening diameter of his own determinations, and those of Goedewaagen. The range of opening diameters for the VERGULDE DRAECK is 11-13mm with a mean of 12mm.

This gives from Friederich, fig. 3:

Diameter	Earliest	Latest	Mean
11mm	1609	1635	1624
12mm	1628	1642	1632
13mm	1630	1670	1654

(NB - LASTDRAGER material (Sténuit 1974 and Appendix 1, below) gives a mean of 12mm for nine pipes).

It can be seen that the scatter is such that the technique can only be expected at best to give a range of ± 10 years, solely for a given diameter.

Thus on this rather superficial analysis, the bore diameter dating technique gives a wide range for the same material *circa* 50 years, and an indicated mean date about 20 years too early, 1635 ± 25 years.

Friederich's volume method when applied to the VERGULDE DRAECK pipe, gives a more accurate date of 1642 \pm 15 years, and the bowl opening diameter gives a date of 1632 \pm 30 years. This analysis applies to six different types of pipe, and thus we are examining the accuracy of the method applied to pipes made by different makers at the same time. The stylistic dating system of Oswald (1975) and Atkinson and Oswald (1972) relies to some extent on Friederich's dating system. In Atkinson and Oswald, the VERGULDE DRAECK material corresponds just as closely to examples of 1625 as 1645. In Friederich, the range is 1632 to 1640, but in England, as pointed out by the former authors, a looser dating is preferred to the specific dating used by Friederich.

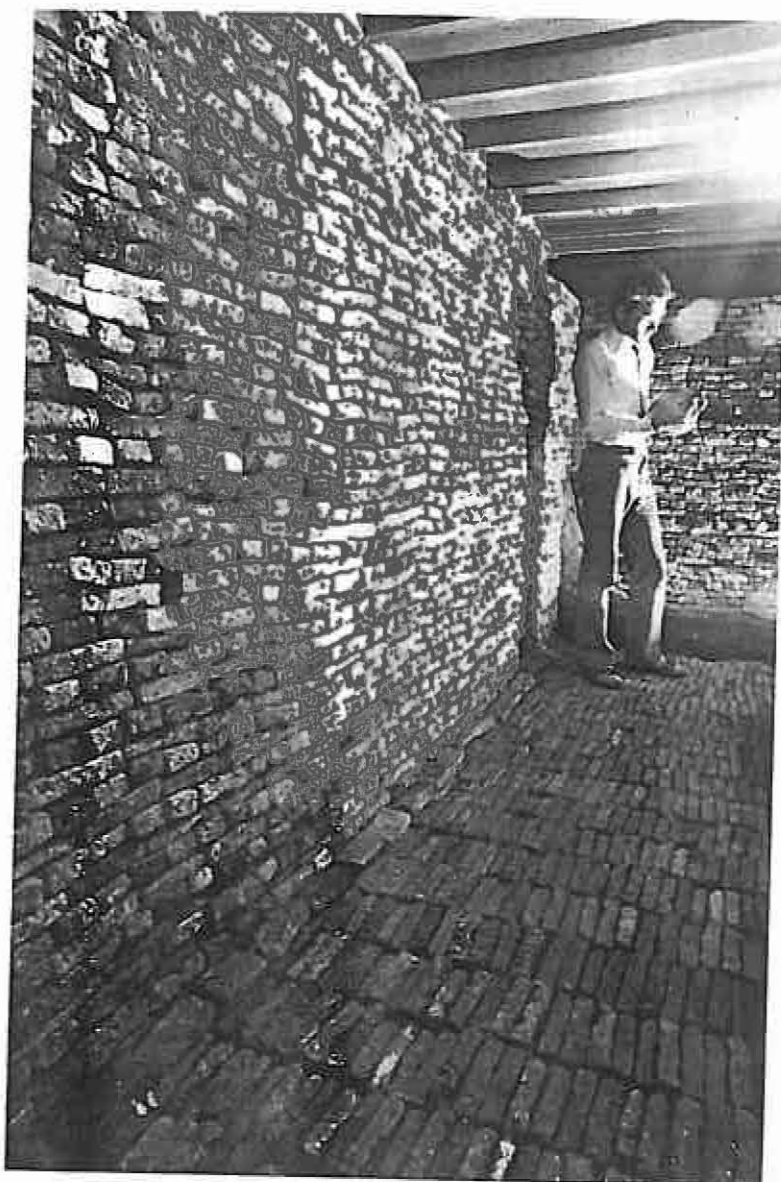
It should be emphasised that the above analysis is based only on this one particular site; the results of the analysis show purely the limitations of the systems when applied to this material. It is hoped that these findings will encourage greater attention to be paid to clay pipe material from wreck sites, and that study of this material will help to determine the limitations of the systems discussed above.

The discovery in a box of 250 clay pipes with the same maker's mark and two different bore diameters, lays open to question the accuracy of the bore diameter dating technique. Whilst the Harrington Method was based specifically on English pipes and excluded Netherland material, as they had a different bore relationship, it is not unreasonable to suggest that the methods of making pipes in the two countries were similar. If this was the case, it is possible that some makers may have produced two different bore diameters in the same batch of pipes, as found on the VERGULDE DRAECK.

Two points should be emphasised: firstly, measurement of the bore using drill bits is unsuitable for detailed bore analysis and would have not shown up the difference in the bore diameters found here; secondly, this is the first time (to the author's knowledge) that a large group of pipes with the same maker's mark has been found in an accurately dated context, and therefore although these findings should be treated with some caution, it does indicate limitation to the theoretical basis of the technique.

2.5 Bricks

Approximately 8,000 bricks have been recovered from the VERGULDE DRAECK wreck site, fig. 43. These bricks are all yellow, and rather crudely made. There has been some confusion by authors as to their purpose, as they are often referred to as ballast bricks. Undoubtedly, they were used as ballast but they were a paying ballast, and as such represented part of the outward-bound cargo. Requisitions of the *Gouverneur Generaal en Raden* in Batavia, to the V.O.C. at home, list quite large quantities of bricks. For example, requisitions to be received in the Indies in 1653-4, (KA 10072),



(43) Bricks from wreck site in display in Fremantle Maritime Museum.

included: 100,000 *Vries clijnkert* (Friesland bricks); 100,000 *grauwe leijs moppen* (grey Leiden large bricks); 50,000 *leijs cleijne grauwe clijnkert* (small grey Leiden bricks); and 50,000 *Goutse clijnkert* (Gouda bricks). The VERGULDE DRAECK, outward-bound on her first voyage in 1653, carried 26,000 *Vries clijnkert*, and the only other ship of that year's fleets that carried bricks, was the VREDE carrying 15,000.

In 1656, the year of the loss of the VERGULDE DRAECK, 100,000 bricks were ordered from *Patria* (KA 10061). Sixty-one thousand arrived from the Chamber of Amsterdam and 45,000 from the Chamber of Middelburgh on the following ships, (KA 10074):

Camer Amsterdam:

18,000 per <i>jacht</i>	MUIJDEN
23,000 per	WEESP
20,000 per	DEN HERCULES

Camer MIDDELBURGH:

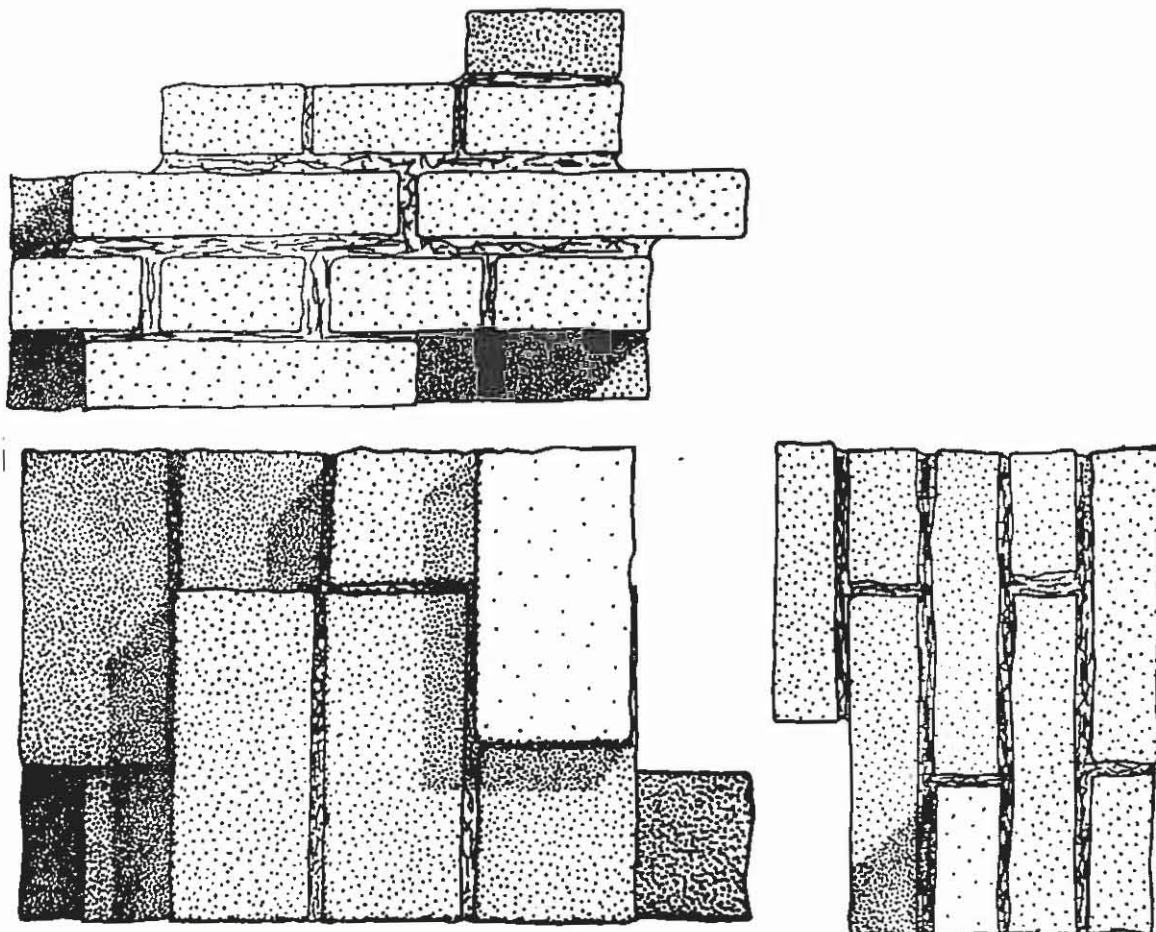
33,500 per <i>jacht</i>	DER SCHELLINGH
12,000 per <i>schip</i>	HENRIËTTE LOUISE
<hr/>	
106,500	

Thus, unfortunately, the Company despatched more bricks than originally requested, and it is not possible to determine the number lost on the VERGULDE DRAECK, since the quantity actually sent is not specified.

The mean size of the bricks is 176mm x 76 x 34, and the mean weight, 825 grams. Thus the VERGULDE DRAECK carried at least 21 tonnes of *Vries clijnkert* to Batavia in 1653, and this would have represented a cargo volume of about 12m³. The bricks from the LASTDRAGER, Sténuit (1974) and Appendix 1 (below), are very similar in size (mean 174mm x 76 x 35), and are observed to have the same yellow colour. The BATAVIA site has a variety of brick colours including grey, brown and yellow. The bricks are all of the same size, possibly the grey ones are *leijs cleijne grauwe clijnkert*. Bricks have also been found on the SLOT TER HOOGE (1724), Sténuit (1975);

the ADELAAR (1728), Martin (1972); and ZEEWIJK (1727), Ingelman-Sundberg (1977i).

A group of 22 bricks (GT 1454) found cemented together were obviously part of some sort of brick wall. It is possible that this could



have been part of the galley area although there was no sign of burning. The bricks are mortared together, in the typical 'Dutch bricklaying style'. Examples of this construction can be seen today in 17th century buildings in the Netherlands. A typical illustration of this is in the "Courtyard of a House in Delft" by Pieter de Hooch, the National Gallery, London, no. 835. In this painting, the use of different coloured bricks for ornamental purposes may be noted.

The bricks from the VERGULDE DRAECK vary considerably in size; the dimensions range as follows: 170-180mm x 70-80 x 30-38. Sténuit (1974) and Appendix 1 (below) noted a similar size range with the LASTDRAGER bricks. This results in a considerable weight range - 825 grams with a standard deviation of 55 grams - and probably reflects the rather crude method of making the bricks.

It is difficult to identify the sources of these small yellow bricks from the requisitions. The possible contenders are *Vries* or *Goutse clijnkert*. Quite a surprising variety of bricks were manufactured in the Netherlands during this period. In the provinces of Holland and Utrecht, there were numerous brick-works particularly along the Oude Rijn from Utrecht to Leiden, on the Utrechtse Vecht, on the Vliet near Rijkswijk and Delft, and on the northern branch of the Hollandse IJssel. In this latter area, the clay was dredged from the IJssel and the Lek. In these areas, red, yellow and grey bricks were produced, depending on the composition of the clay and the firing temperature. Because of the high water content of the river clay used to make *IJsselsteen* or *Goudsesteen*, the brick moulds were small, to prevent bursting, and the high chalk content produced a yellow coloured brick on firing.

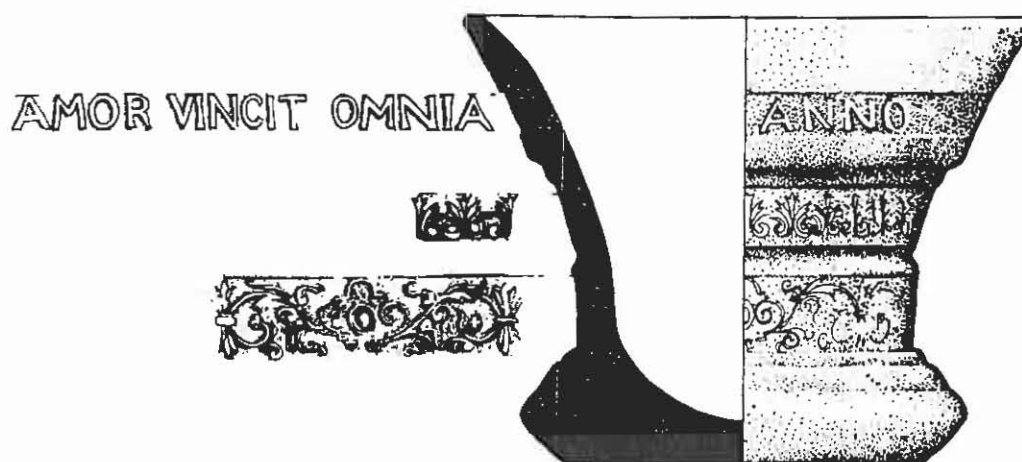
The northern provinces of Friesland and Groningen also produced large numbers of bricks, as well as Overijssel and Gelderland. These bricks could be either red or yellow depending on the clay. *Mop* or *mopsteen* were generally a larger size of brick; for example, in the 16th century there were two sizes of Leiden bricks, the *mop* being 216mm x 107 x 55 and the *klinkert* 189mm x 86 x 35.

The *IJsselsteen* or *Goudsesteen* in 1662 measured $6\frac{1}{4} \times 3\frac{1}{4} \times 1\frac{2}{3}$ duim or 180mm x 90 x 45, although the format could vary from 157mm to 180 x 78 to 95 x 35 to 45. The Friesland *Kleinsteen* (small brick) in 1646 were $7\frac{3}{4} \times 3\frac{3}{4} \times 1\frac{5}{8}$ duim. Both these types of bricks are yellow, but it would seem from the size of the VERGULDE DRAECK bricks that they were the slightly smaller *IJsselsteen*, Hollestelle (1976).

3. NON-FERROUS MATERIAL

3.1. Bronze

3.1.1. Mortars and pestles

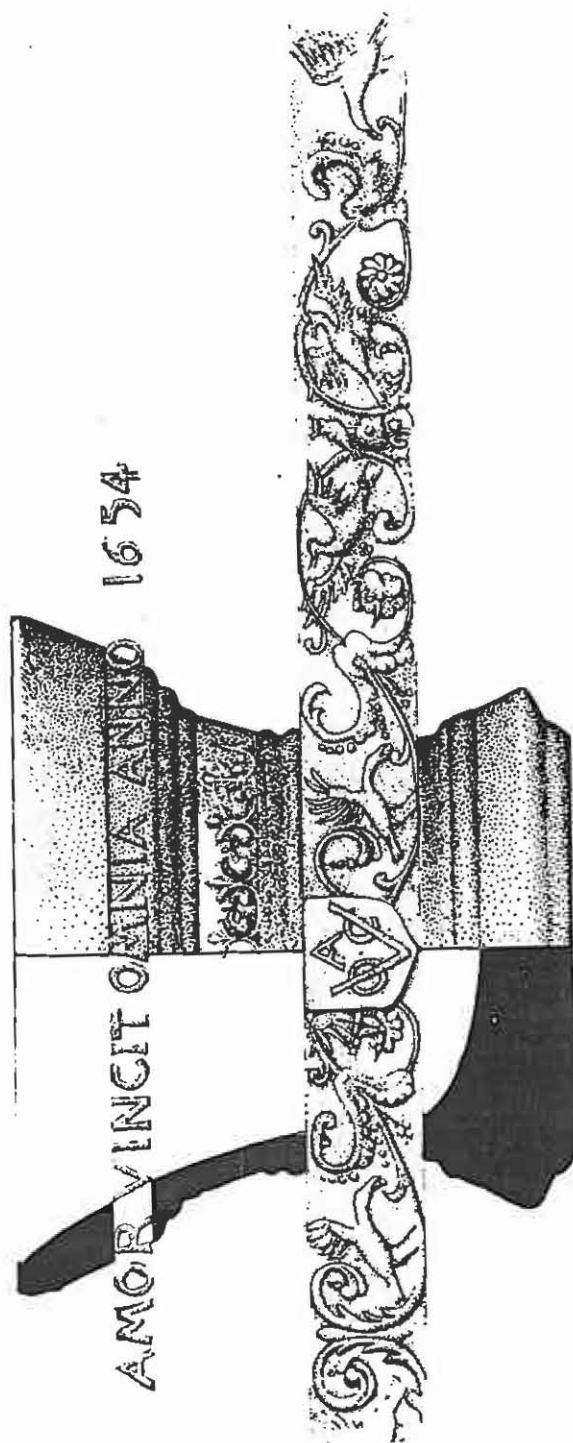


GT 6 Mortar (date obscure).



GT 613 Pestle.

These two mortars are similar to the two found on the BATAVIA (1629), Stanbury (1974), BAT 457, dated 1625, and fragmentary remains BAT 562 and 625. GT 74 has the A.V.O.C. mark, 'showing it was specifically made for the V.O.C. and has an interesting representation of an owl on the lower frieze. It is likely that these mortars were part of the surgeon's equipment. In the *"Order en Instructie voor de Chirurgyns"*, published for the V.O.C. in 1696, the list of equipment needs shows '1 Mortier en Stamper' (mortar and pestle). This style of mortar had a long time range; a similar one was found on the V.O.C. ship HOLLANDIA (1743), Cowan *et al.* (1975), and Mak van



GT 74 Mortar dated 1654.

Waay (1974), no. 92. Several contemporary illustrations show these types of mortars associated with the apothecary, although Matthews (1971) suggests that *Amor Vincit Omnia* (Love Conquers All) was associated with mortars given as wedding presents. Koning (1954), fig. 16, shows an illustration of a similar mortar in the painting "Interior of a Dutch Pharmacy", dated 1665, from the school of Terborgh. In "The Surgery" by Gerard Thomas (1663-1720), a similar mortar may be seen. However, the use of the mortar was not exclusively associated with this milieu. In the "Topsy-Turvy World" of Jan Steen (1626-1679), Kunsthistorisch Museum, no. 791, a mortar can be seen clearly associated with household use.

GT 617

Bronze or brass fragments - 5.



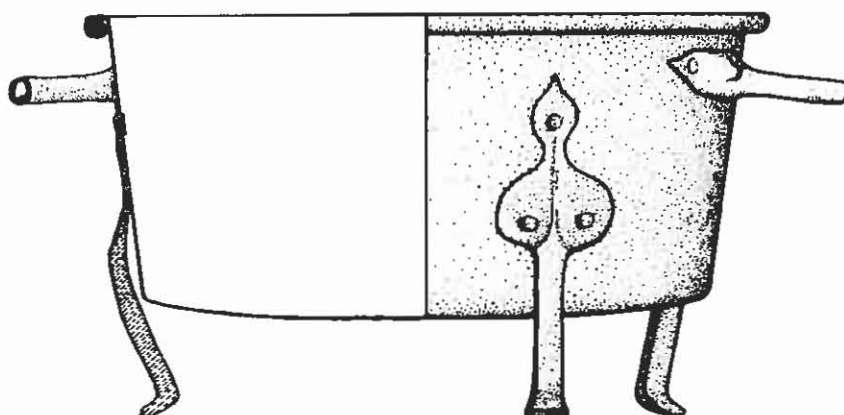
(44) Brass pot and elephant's tusk after removal of copper bucket.



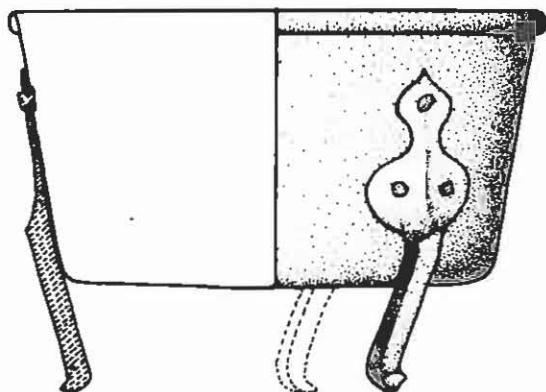
(45) Excavating candle snuffers (GT 849) from under Cannon No. 12 with chisel

3.2. Brass

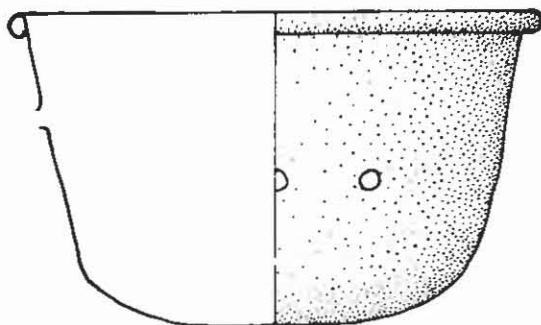
3.2.1. Cooking utensils, fig. 44.



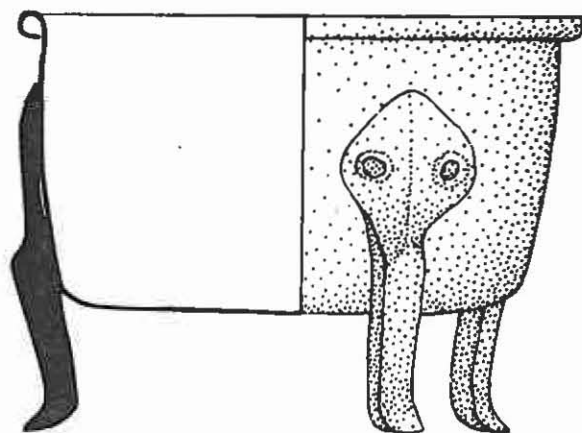
GT 99A Brass cauldron with two copper handles and three copper legs, Height 162mm, Dia. 363mm (N.A.). Scale 1:4



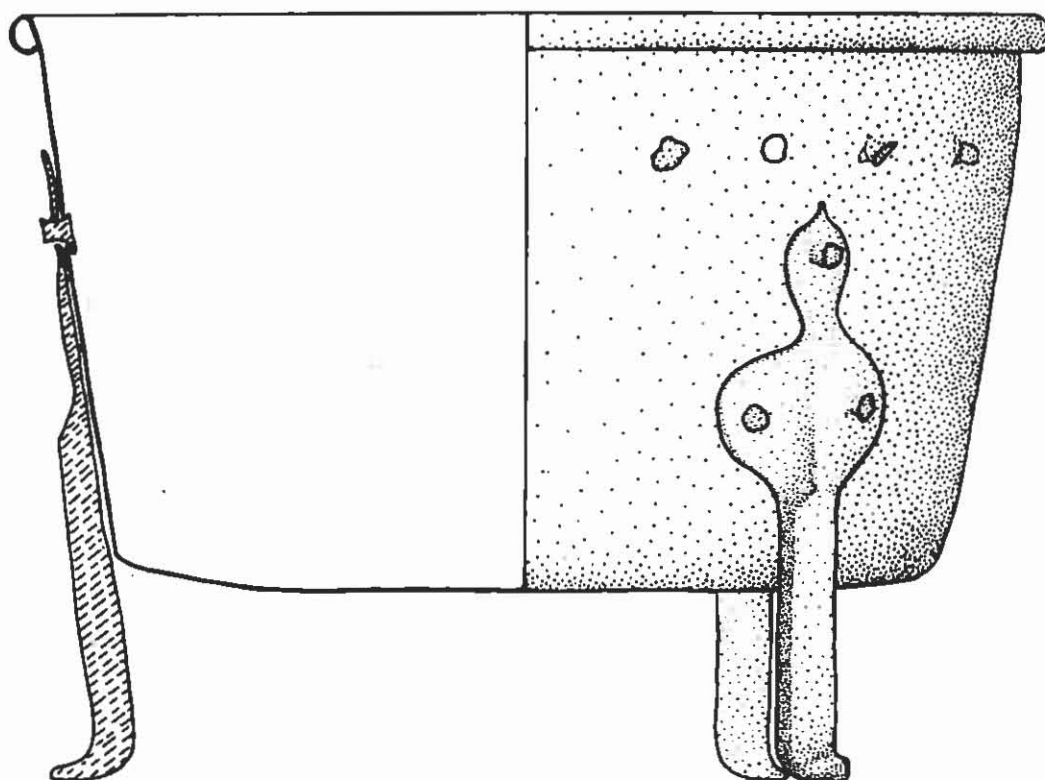
GT 99B As 99A, but without handles. Height 146mm, Dia. 280mm (N.A.). Scale 1:4



GT 905 As 1016, but legs missing, possibly had handle. Height 83mm, Dia. 140mm (N.A.).



GT 1016 Small cauldron with three copper legs. Height 78mm, Dia. 147mm (N.A.).



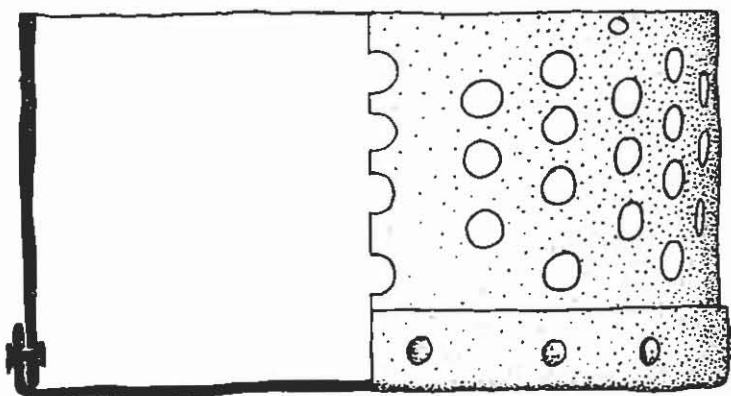
GT 1423 As 99A, but copper handles missing. Height 152mm, Dia. 275mm (215185).

GT 618 Copper legs - 2.

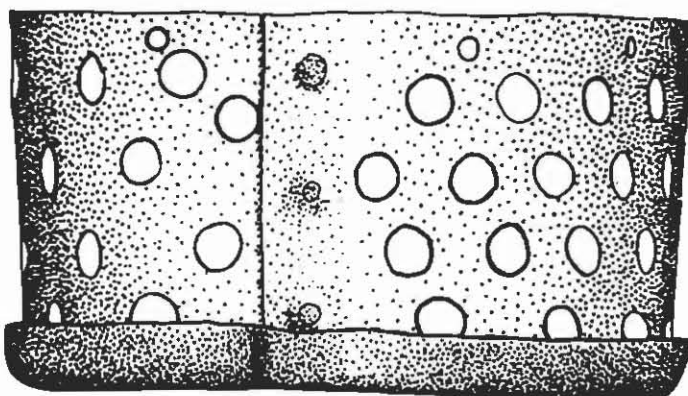
GT 906 Fragments of bowl (230190).

GT 962 Fragments of bowl (220195).

This material appears with section 3.3.1. to be largely cooking equipment as listed in Resolutions of 1656, see Table 6-8 Chapter 6, as part of the ship's equipment or in Table 6-20 for supplies for the Indies. Copper legs similar to GT 618 have been found on the BATAVIA, Stanbury (1974), BAT 644 and 654, so it would seem that this type of material may have been present on that ship. The painting "Brass Vessels" by Floris van Schooten, Bernt (1970), no. 1054, shows a three-legged cauldron with a loop handle across the top. Similarly, in the "Woman Frying Pancakes" by Pieter Gerritsz van Roestraeten, Bredius Museum, the Hague, is a small three-legged cauldron, with a single frying-pan type handle.



GT 633 Brass collander (?) (155220).

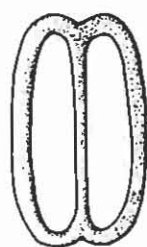


GT 1240 Brass collander (?) (215185).

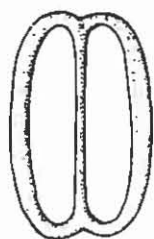
It is not clear if these two examples are in fact for culinary purposes or not. There is no evidence of handles although a set of small holes around the rim indicates some form of an attachment, possibly nails.

It is possible that it could have been a pump filter; Witsen (1690), fig. 6, illustrates a *pomp-keteltje*; Boudriot (1974), fig. 183, illustrates a pump-filter (*chaudron*) made of lead. Røding (1793) gives the English description of *pumpen kessel* as follows: "A plate of lead or copper, perforated with holes, to cover the bottom of a pump."

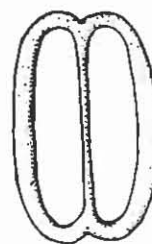
3.2.2. Buckles (brass or bronze)



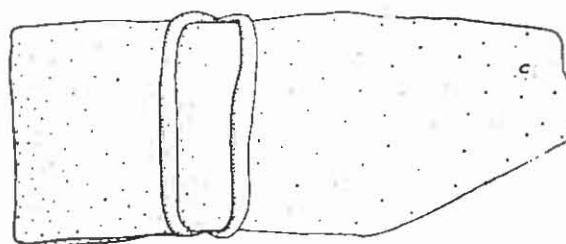
GT 9



GT 1351

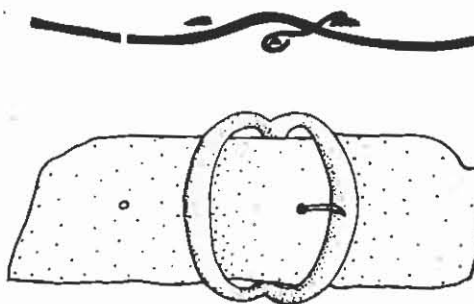


GT 1349



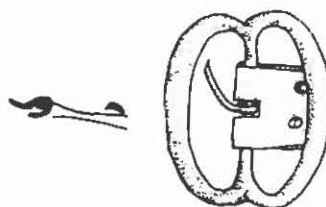
GT 1347

Wide belt or baldric buckle; is similar to one illustrated by Noël Hume (1969), fig. 20-11, from the second half of the 18th century. It is clear from GT 1347 with the leather strap *in situ*, that the buckle did not have a tang.

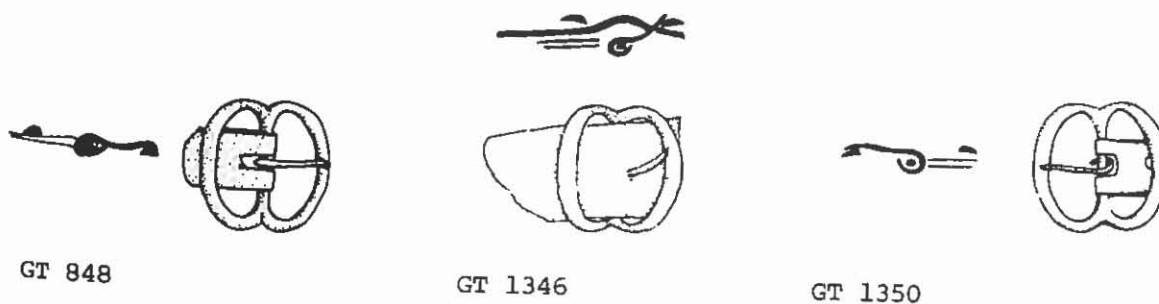


GT 1348 With tang but no plates.

This type is identical to GT 887, but does not have a metal plate, which may have broken off. In this buckle, the leather strap is *in situ*.



GT 887 With tang and plate (245195).



GT 848

GT 1346

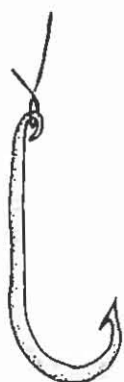
GT 1350

GT 887 has two rivet holes on the plate; the others which are all of the same size have one hole. A similar buckle has been found on the LASTDRAGER (1653), Sténuît (1974), fig. 27-11 and Appendix 1 (below).

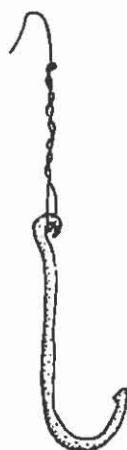
3.2.3. Fish-hooks



GT 850
(275195)



GT 851
(270230)



GT 852
(155230)



GT 902
(235205)
Copper

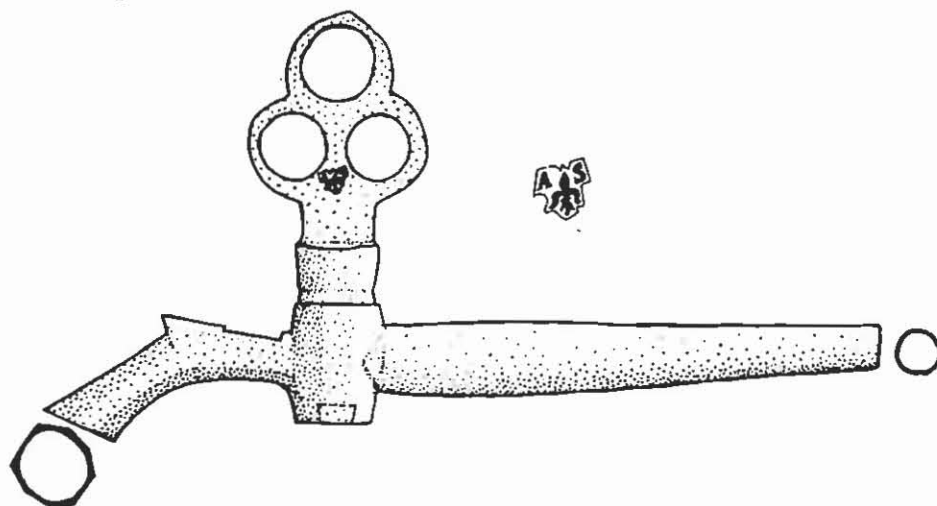


GT 903
(N.A.)

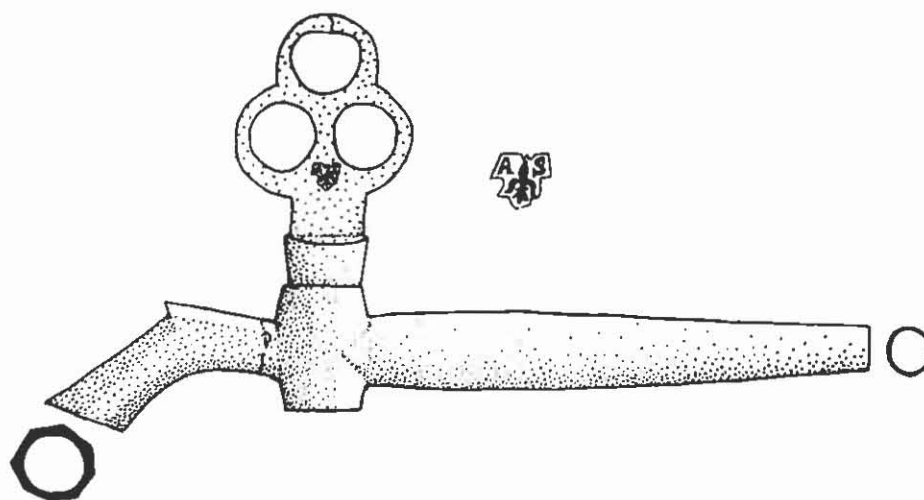
Three brass fish-hooks with wire traces, one without and one in copper (see 3.3.2.)

Brass fish-hooks have been reported from the ADELAAR site (1728), Martin (1972), and the ZEEWIJK wreck site, Ingelman-Sundberg (1977i).

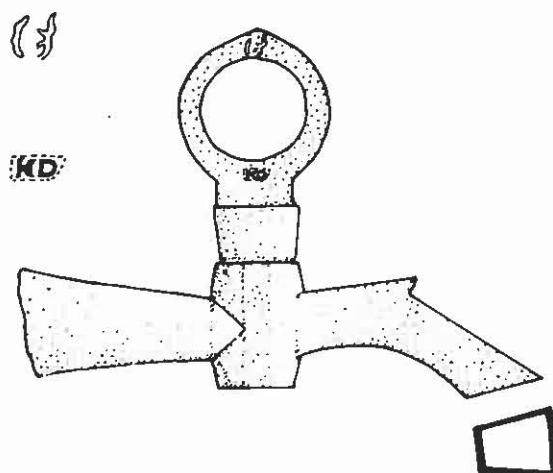
3.2.4. Taps



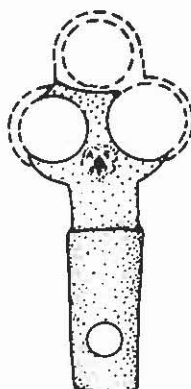
GT 608A Brass tap-maker's mark: *Fleur-de-lis* and 'AS', repairs to spout and tube (N.A.).



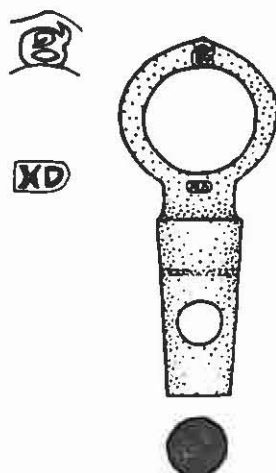
GT 608B Brass tap-maker's mark: *Fleur-de-lis* and 'AS' (N.A.).
These two taps resemble those illustrated in Baart
et al (1977). It is interesting to note that Baart
et al (1977), 661, has 'IS' and a *fleur-de-lis*.



- GT 608C Brass tap-maker's mark 'HD', with upper mark, possibly a head. The mark HD is the same as in Baart *et al* (1977), 663, without the bird. The upper mark on GT 608C resembles the head in the mark in Baart *et al* (1977), 668. (N.A.).



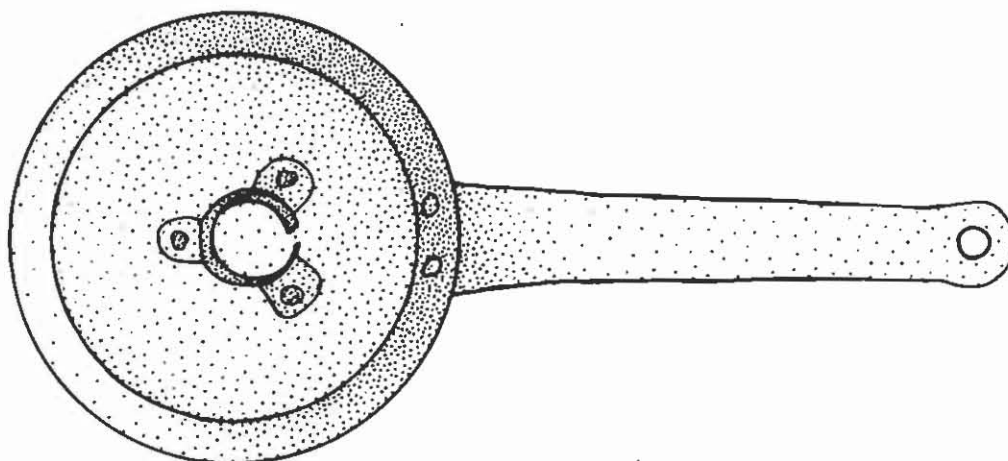
- GT 897 Brass tap spigot: *Fleur-de-lis* (165210).



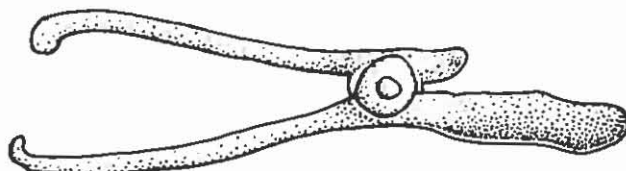
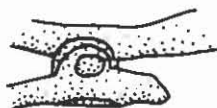
- GT 894 Brass tap spigot maker's mark 'HD' with unidentified mark (170200 approx.).
- GT 981 Possibly part of brass spigot (205200).

The 'HD' tap GT 608C has a square section on the spout whereas the 'AS' / *Fleur-de-lis* has an octagonal section on the spout. A tap similar to GT 608A and B has been found on the BATAVIA, Stanbury (1974), BAT 3260. Several taps and spigots have been found on the SANTO CRISTO DE CASTELLO (1667), Larn *et al* (1974), fig. 9; one spigot had a *fleur-de-lis* with a 'FF' mark, fig. 11. Another spigot was found on the LASTDRAGER (1653), Sténuit (1974) and Appendix 1 (below), with a crossed orb and 'HGW' maker's mark. The Nova Zembla Collection, in the Rijksmuseum, Amsterdam, has a tap of this general type, with three holes in the handle of the spigot, but with a square section on the spout, illustrated in Sténuit (1974), fig. 5B and Appendix 1 (below), fig. 78. A single ring-handled spigot was found by Sténuit (1975) from the SLOT TER HOOGE, but it is not illustrated in detail. Round section, single ring spigots (as compared to square here) have been found on the ZEEWIJK (1727), Ingelman-Sundberg (1977i); four examples have been found on the HOLLANDIA (1743): Cowan *et al*. (1975), fig. 13-13, tap and spigot with unidentified mark; and Lane (1973), no. 811; and Mak van Waay (1974), no. 100, with 'CT' mark, and a tap no. 116. A number of taps of this general type are found in large pewter cans, Haedeke (1973), fig. 89, etc., and as part of the V.O.C. resolutions of 1656, the *Bottliers kist* (see Chapter 6, Table 6-1). 2 *kopere wijjn kranen* (brass wine taps) were listed for the ship, but also 100 taps were requisitioned in 1653 for the Indies, Table 6-20, Chapter 6.

3.2.5. Lamps and accessories

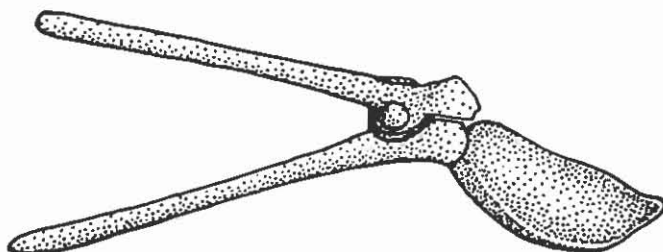


- GT 8 Sconce or candle-holder (N.A.).
- This simple and crudely-made candle-holder is widely illustrated in contemporary 17th century paintings. Similar holders are illustrated in "Brass Vessels" - a still-life by Floris van Schooten (1590-1655), Bernt (1970), no. 1054; and "An Old Woman Scouring a Pot" by Godfried Schalcken (1643-1706), National Gallery, London, no. 997.



GT 43

Large blade scissors - possibly a wick-trimmer (N.A.).



GT 607

Large blade scissors.

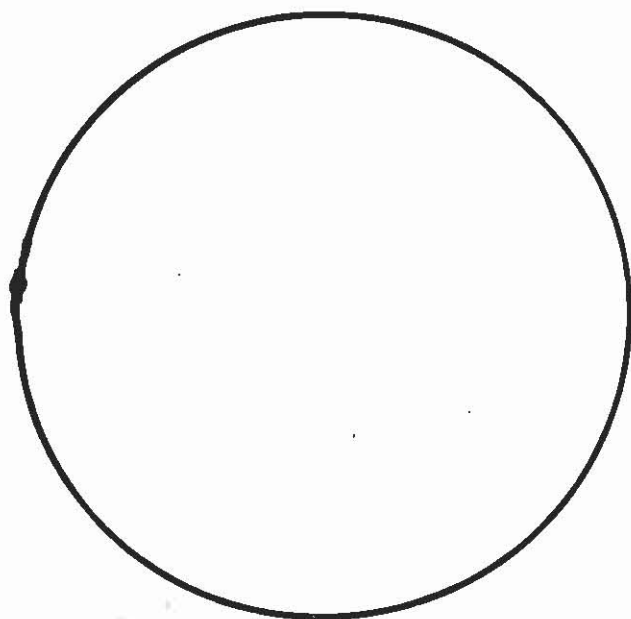


GT 849

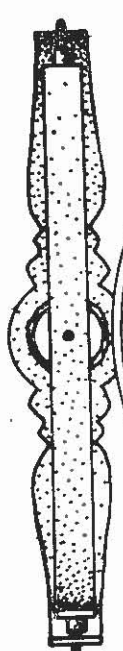
Candle-snuffers, fig. 45 (245100).

Similar to Baart *et al* (1977), 681. Again widely illustrated in 17th century paintings, notably in the "Still

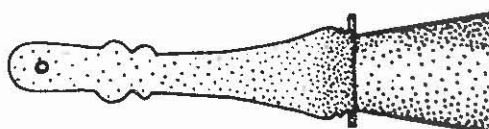
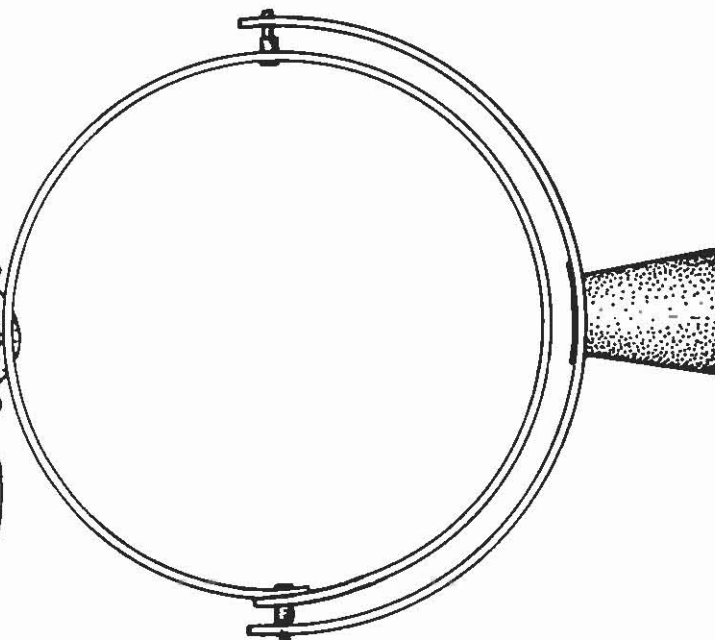
Life" by Gerard Bou (1613-1675), Dresden Gallery, no. 1708, and in the "Breakfast Still Life" by Jan Jansz. den Uyl (1595-1640), Bernt (1970), no. 1203.



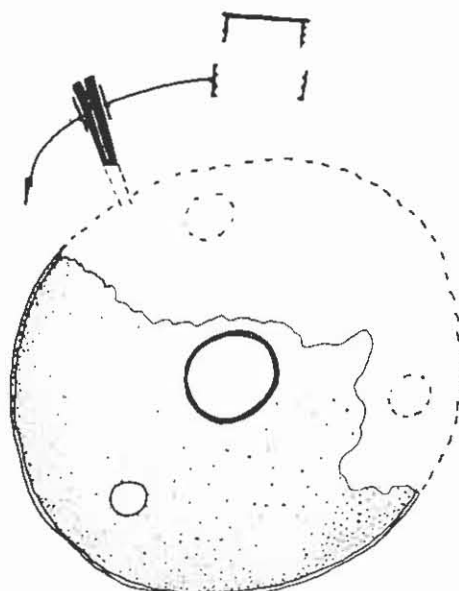
GT 909



GT 627



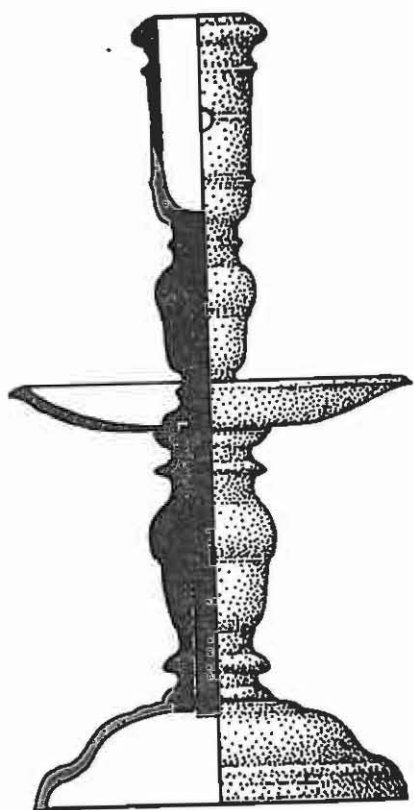
GT 675



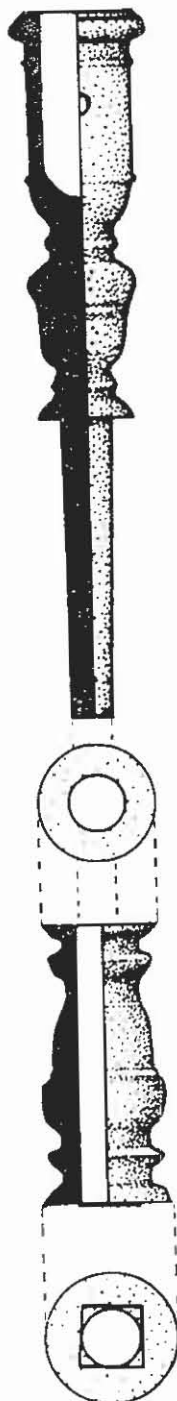
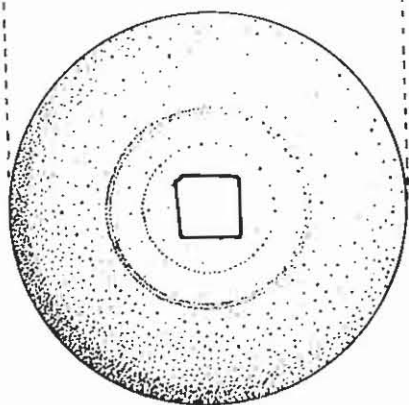
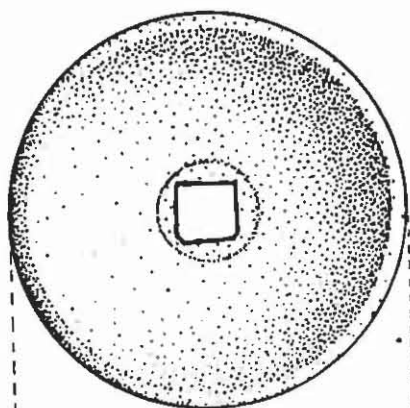
GT 893

GT 893 Parts of three-wick, gimble-mounted oil lamp. The remains
 GT 898 are fragmentary, but good examples have been found on
 GT 627 the BATAVIA, Stanbury (1974), BAT 3079 and 3634. An
 GT 1002 excellent intact example has been found by Sténuit on
 GT 1228 the WITTE LEEUW, lost in 1613 at St. Helena, Mak van
 GT 1323 Waay (1977), no. 1079, fig. p. 244 and 241. Another
 GT 909 has been found on the DARTMOUTH (unpublished). In the
 GT 675 Resolutions of 1656, under '*Lijste van de Botteliers Kiste*', is an entry: '*4 driekante lampen*', (three-cornered lamps), see Chapter 6, Table 6-2 below. (165210 and 160215).

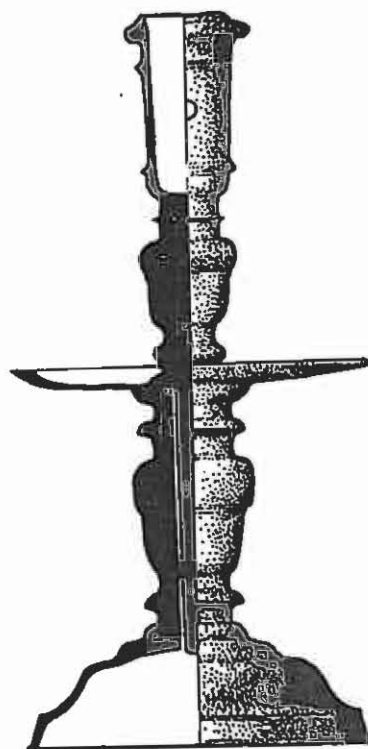
The lamp appears to have been mounted on a tube which was then attached to a 'U'-shaped fitting GT 675. The two ends of the arms were attached by pins to a ring, and the ring was then attached by two more pins to the lamp at right angles. This gave the gimble effect. On the lower section of the oil container, is mounted a lead counter-weight, from which the lead objects GT 13,1326 and 1158 could have come, see 3.4.3. and BAT 3634. The upper section of the lid has a central hole for filling the lamp, possibly with a screw-cap, and three wick-holders. The wicks consist of tapered wooden rods with slender holes down the centre; the oil passed up these holes by capillary action to the top where it burned on the surface.



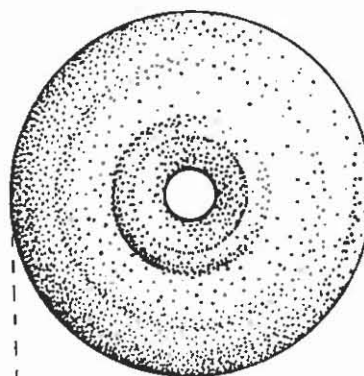
GT 795



GT 901



GT 734



Candlesticks:

The examples of at least 36 complete or semi-complete candlesticks appear to be of two basic types, both similar but one larger (e.g. GT 795) than the other (e.g. GT 734). Minor differences in the mouldings may be noted; for a description of the analysis of the composition and manufactures, see Appendix 2: "Metallurgical Report on a section from a corroded brass candlestick recovered from the VERGULDE DRAECK (GT 795)", (Owens). The candlesticks are all made in four parts, as illustrated in GT 901. The base is a flattened bell shape with a hole in the centre; the lower stem is moulded, with a hole running up the centre and a square raised flange on top; the wax tray is saucer-shaped, with a square hole to locate it in the flange of the lower stem; the upper stem and candle-holder has a long rod that runs through the wax tray and the lower stem, where it is riveted over the base to hold the whole together. The candle-holder has two holes in the side, to aid in removing the stubs of candles. It is clear from examination of the surface of these objects that they were turned as a finishing-off process. The type of construction is different from the more usual, where the tray and base are combined, and the upper holder screwed into this, Larne *et al.* (1974), fig. 8.

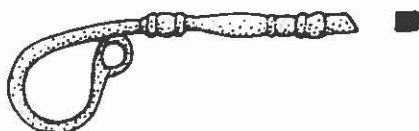
Dexel (1973), fig. 558, illustrates a number of brass candlesticks from the 16th, 17th and 18th centuries, the style appearing to change little through the three centuries. Contemporary 17th century Netherlands paintings show numerous candlesticks, all of which have a small pair of holes on either side of the candlestick holder, a typical feature of Netherlands manufacture.

GT 32	Complete (N.A.).
GT 003	Partly eroded - 4 pieces (N.A.).
GT 031	Partly eroded (N.A.).
GT 040	Partly eroded (N.A.).
GT 100	Partly eroded (N.A.).
GT 734	Complete.

GT 735 Partly eroded - 2 pieces (N.A.).
 GT 736 Partly eroded - 3 pieces; shank and overflow
 tray (N.A.).
 GT 737 Partly eroded (N.A.).
 GT 738 Partly eroded - 4 pieces (N.A.).
 GT 739 Partly eroded - 5 pieces (N.A.).
 GT 795 Partly eroded (N.A.).
 GT 798 Partly eroded - 6 pieces (N.A.).
 GT 807 Partly eroded (N.A.).
 GT 1150 Partly eroded (N.A.).
 GT 1230 Partly eroded (275210).
 GT 1315 Partly eroded (N.A.).
 GT 1316 Partly eroded (N.A.).
 GT 1318 Partly eroded (277187).
 GT 1319 Partly eroded, plus 1 fragment - 5 pieces total.
 GT 1321 Partly eroded - 4 pieces (N.A.).
 GT 1311 Partly eroded (N.A.).
 GT 1313 Partly eroded (280200).
 GT 1314 Partly eroded (250225).
 GT 1317 Partly eroded (N.A.).
 GT 039 Partly eroded (N.A.).
 GT 100 Partly eroded (N.A.).
 GT 1433 Partly eroded (N.A.).
 GT 1434 Partly eroded (N.A.).
 GT 1435 Partly eroded (N.A.).
 GT 038 Partly eroded, base missing (N.A.).
 GT 067 Partly eroded, base missing (N.A.).
 GT 708 Partly eroded, base missing (N.A.).
 GT 901 Partly eroded (N.A.).
 GT 886 Partly eroded, top of shank above wax tray missing
 (280205).
 GT 1232 Partly eroded, top of shank missing (250225).
 GT 1312 Partly eroded, lower half of candlestick and 2
 shank pieces (N.A.).
 GT 1320 Partly eroded, top of shank missing (N.A.).
 GT 734 Piece of candlestick - 1 shank (N.A.).
 GT 746 Pieces of candlesticks - 1 shank, 2 top pieces (N.A.).
 GT 1151 Piece of candlestick - 1 shank (N.A.).

- GT 1322 Pieces of candlesticks - 2 wax tray fragments (N.A.).
- GT 036 Piece of candlestick - 1 base (N.A.).
- GT 768 Piece of candlestick - 1 base (N.A.).
- GT 796 Piece of candlestick - 1 base fragment (N.A.).
- GT 969 Piece of candlestick - 1 base fragment (210200).
- GT 1001 Pieces of candlestick - 2 base fragments (N.A.).
- GT 1152 Piece of candlestick - 1 base fragment (N.A.).
- GT 1310 Piece of candlestick - 1 base fragment (275210).

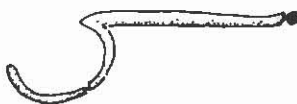
3.2.6. Miscellaneous



- GT 620 Two parts of a pair of ornate handles, 1 straight (N.A.).



- GT 1235 Part of key, similar to Baart *et al.* (1977), 707, and suggested by Price and Muckelroy (1977), p. 12 as a vent pricker or scourer (190200 approx.).

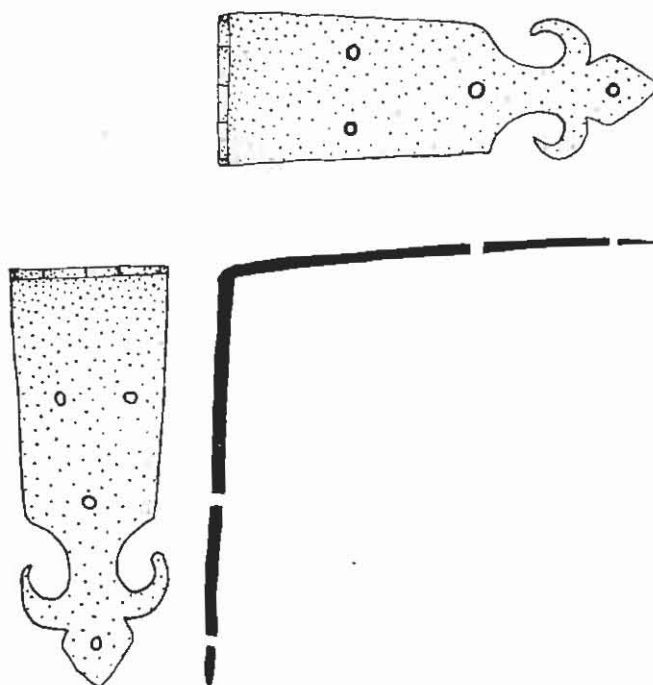


- GT 781 Part of scissors handle (?) (N.A.).



Scale 1:1

- GT 888 Brass button, similar to Sténuit (1974), fig. 27-6 and Appendix 1 (below), from the LASTDRAGER, and Baart *et al.* (1977), 282 from Amsterdam. (215195).



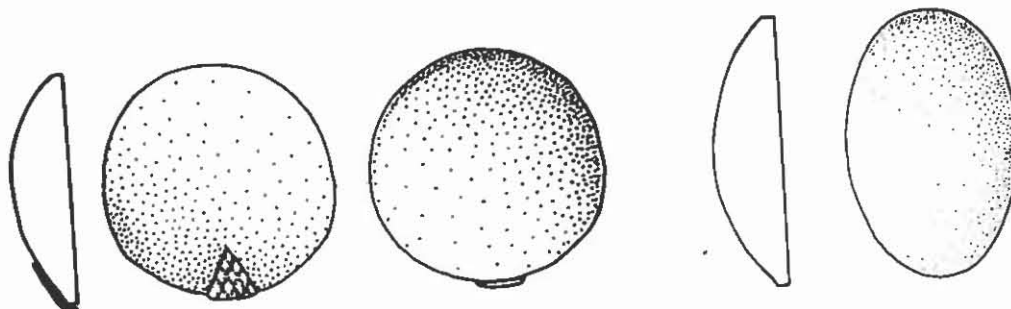
- GT 621 Brass right angle bracket - possibly corner of a box; possibly similar to Sotheby (1972), no. 493, from the HOLLANDIA (N.A.).



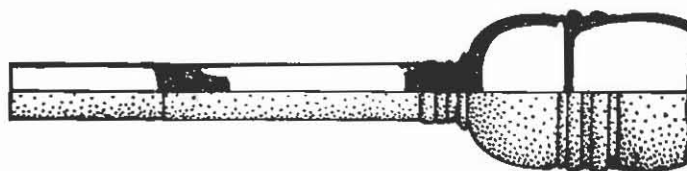
- GT 890 Brass corner fitting, with wood circular patterns (155220).



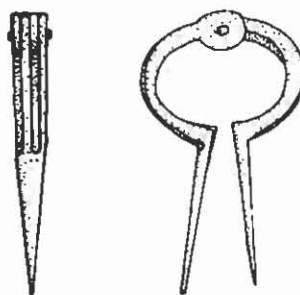
- GT 896 Small brass decoration (N.A.).



- GT 891 Two brass bowl-shaped objects, possibly lids (250200).



- GT 1331 Tubular brass object, unknown purpose, parts of which unscrew, fig. 46 (203160). Scale 1:1



- GT 1234 Pair of brass chart compasses, worn. Similar dividers have been found on a wide variety of wrecks: KENNEMERLAND, Price and Muckelroy (1974); LASTDRAGER, Sténuit (1974), fig. 14-1 and Appendix 1 (below); also reported by the same author on GIRONA, Sténuit (1971), CURAÇAO, Sténuit (1977), SLOT TER HOOGE, Sténuit (1975i and ii); the Jutholmen Wreck, Ingelman-Sundberg (1976); and other 17th and 18th century wrecks including the HOLLANDIA, Sotheby (1972), nos. 495 and 496.



- GT 094 Small square-shanked nail (N.A.).
GT 769 Brass nail from GT 769 (N.A.).



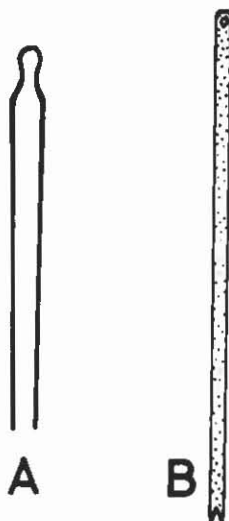
- GT 622 Brass rod (N.A.).



(46) Details of construction of brass object of unknown purpose (GT 1331). Scale 1:1



(47)
Copper bucket (GT 859)
in situ in large lump
on wreck site, brass
pot and elephant's tusk
in lower right.



GT 626 A - tongs (102mm) (N.A.).

B - fork (135mm).

The tongs are similar to Baart *et al.* (1977), 678 and 679, and are used for pulling wick upon a lamp. The tongs resemble Baart *et al.* (1977), 822, and said to be for removing fish-hooks from the mouth of a fish. However it may be more likely associated here with fire or smoking.

GT 628 Two fragments of brass wire (N.A.).

GT 904 Piece of curved brass wire (280200).

GT 889 Brass tube; part of trumpet (?) (N.A.).

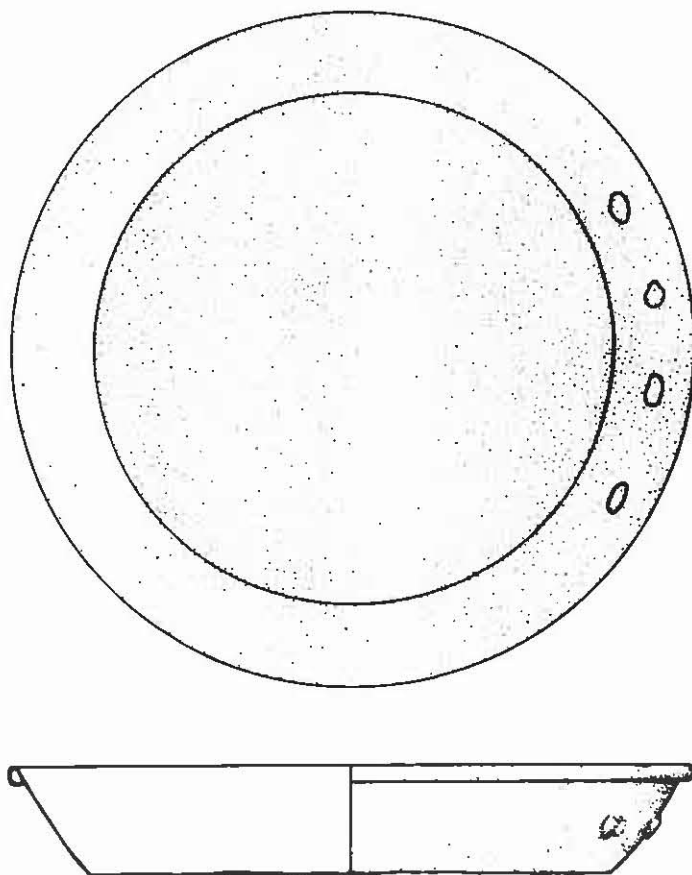
GT 931 Flat, square, brass pan weight (?) (N.A.).

GT 624 Brass fragments - 5 (N.A.).

GT 780 Brass fragments - 10 (N.A.).

3.3. Copper

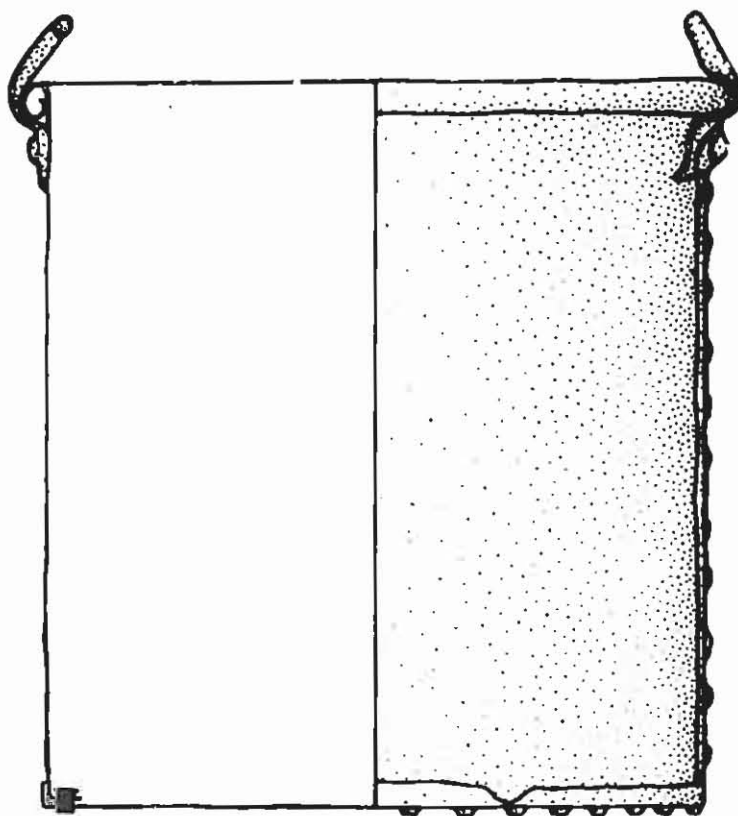
3.3.1. Cooking utensils



GT 1103 Copper frying-pan with rivets for handle (185195). Scale 1:4

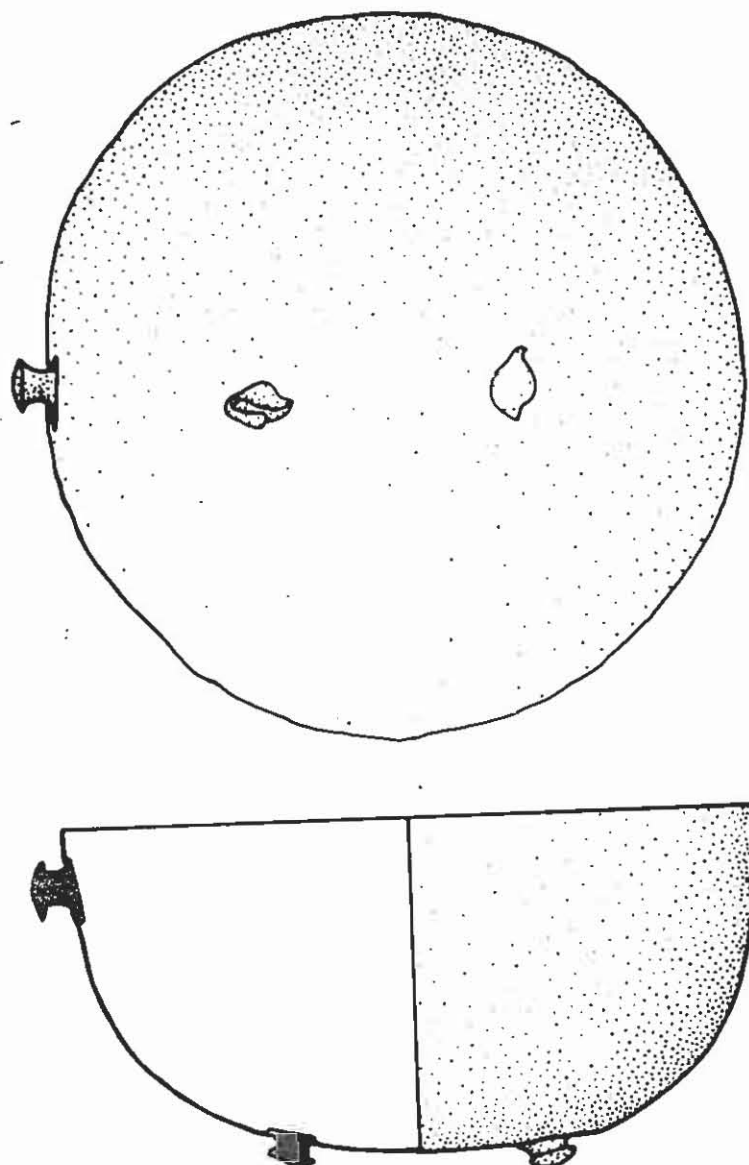
GT 857 Copper frying-pan with rivets for handle (165210).

Martin (1972) records a similar pan on the V.O.C. ship ADELAAR (1728), as part of a cargo of 600. These pans would have had an iron handle riveted onto the pan.

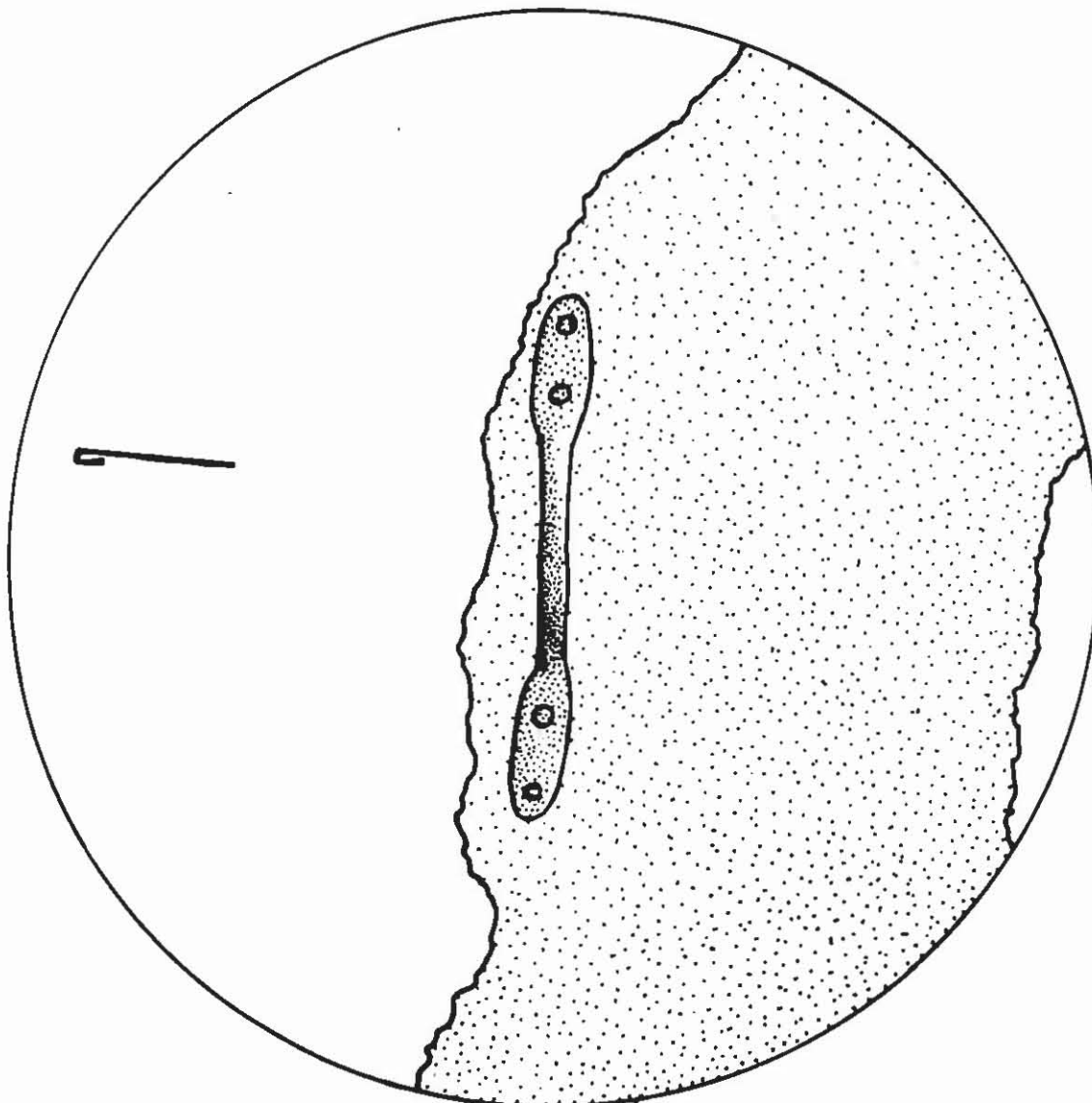


GT 859 Copper bucket with riveted seams and 2 fittings for attaching a hooped handle, fig. 47. Height 388mm, Base Dia. 350mm (210185). Scale 1:4

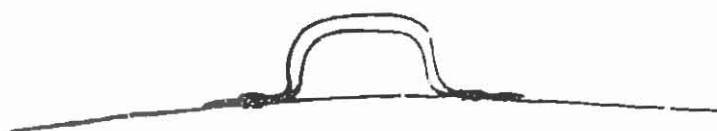
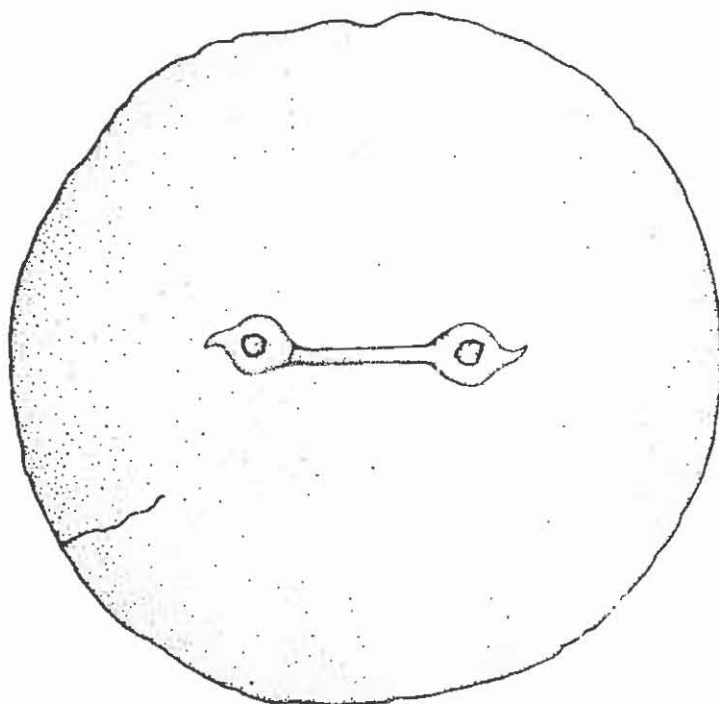
A similar bucket has been found on a Portuguese wreck, Kirkman (1972), and various buckets are shown in Van der Heide (1974), fig. 99, from first half of 17th century.



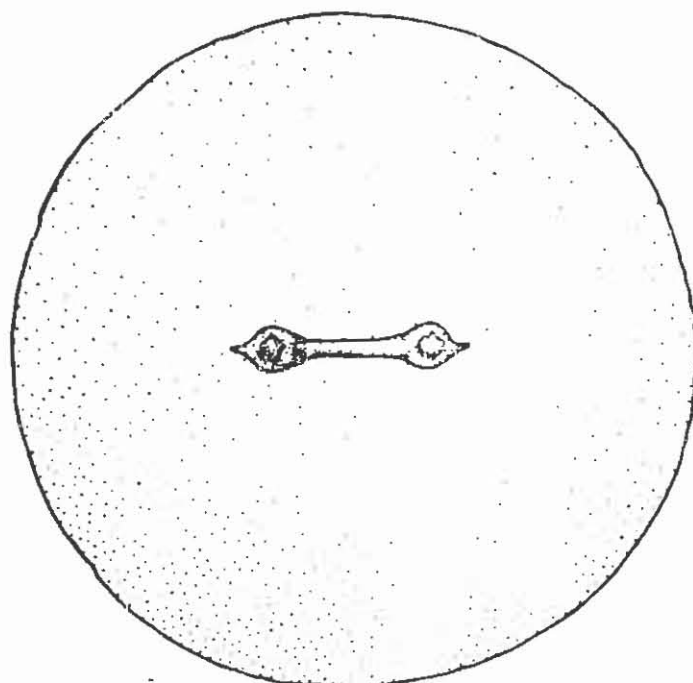
GT 858 Copper bowl or ladle; 2 rivets in base, 1 at side which would have been originally attached to the iron handle (210185).



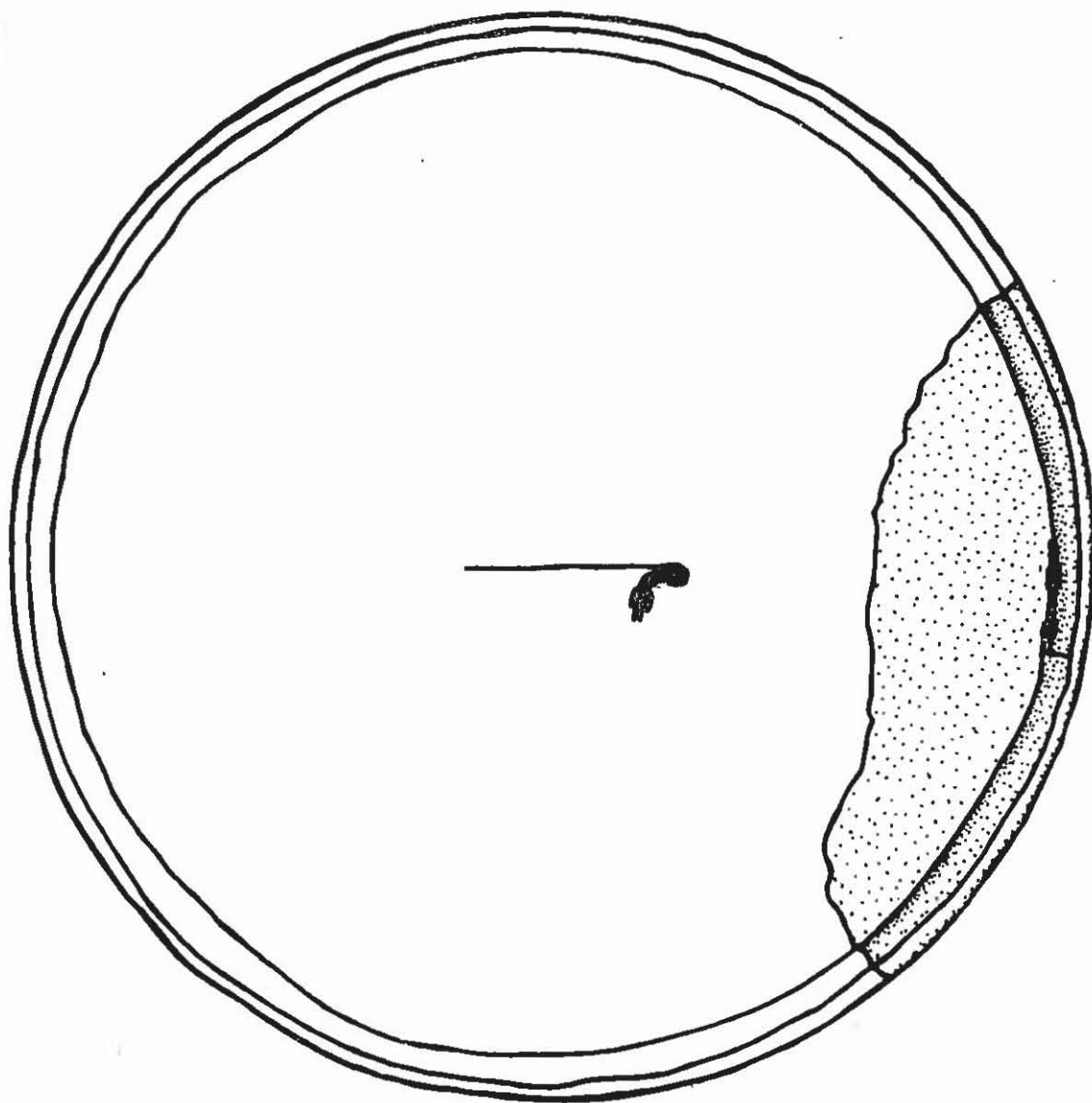
GT 015 Large copper lid and 2 parts of a large copper rim
(same dia.) (N.A.). Scale 1:4



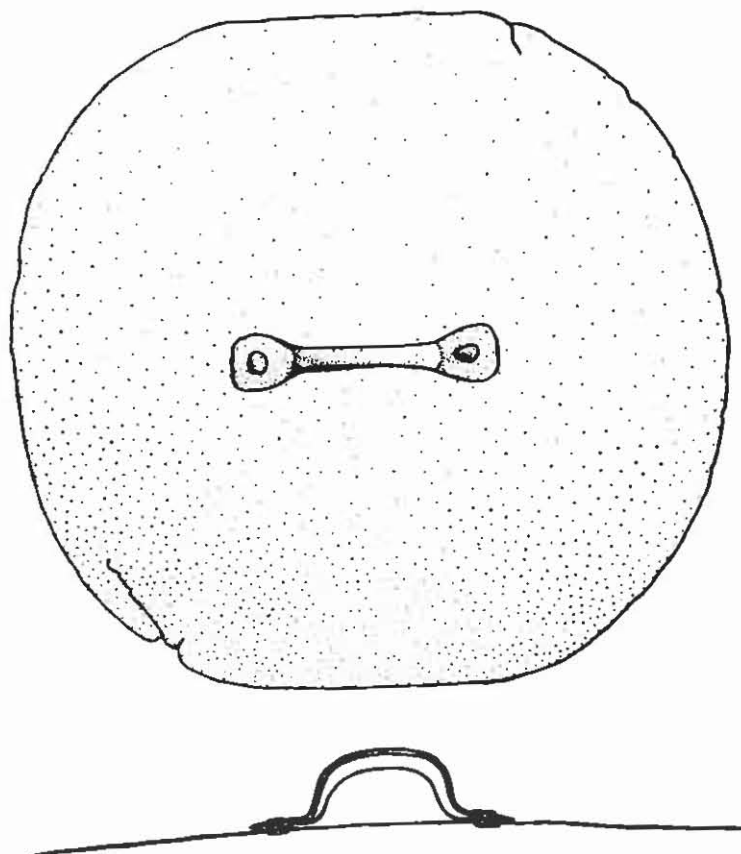
GT 602 Copper lid, dia. 365mm (N.A.). Scale 1:4



GT 602A Copper lid, dia. 375mm (N.A.). Scale 1:4



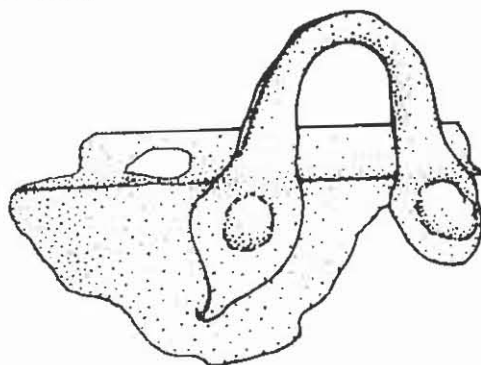
GT 960 Copper lid (N.A.). Scale 1:4



GT 677

Copper lid, dia. 382mm (N.A.).

It is possible that these lids originally fitted on the copper buckets. Scale 1:4



GT 860

Parts of copper bucket (190195).

GT 918

Base fragments of copper pot or bucket (210165).

GT 959

Eight fragments of copper container, rivets and holes around edges (N.A.).

GT 961

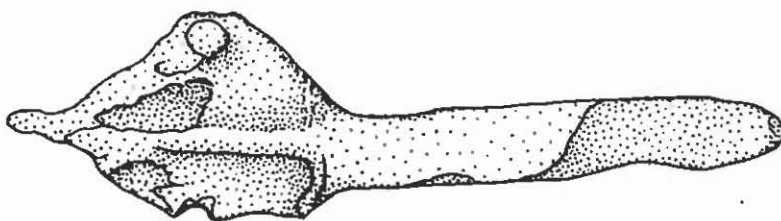
Four pieces of copper cauldron (235205).

GT 1239

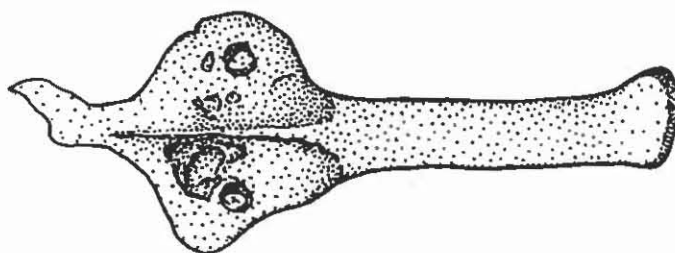
Copper pot fragments with rivets (245220).

GT 661

Base of pot with rivets and 23 copper fragments (N.A.)



GT 012 Leg of brass cauldron (N.A.).



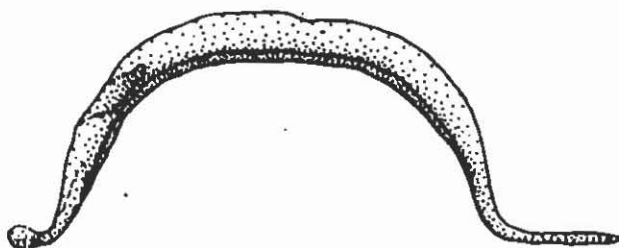
GT 623 Leg of brass cauldron (N.A.).

GT 965 Leg of pot (200180).

GT 966 Leg of pot (N.A.).

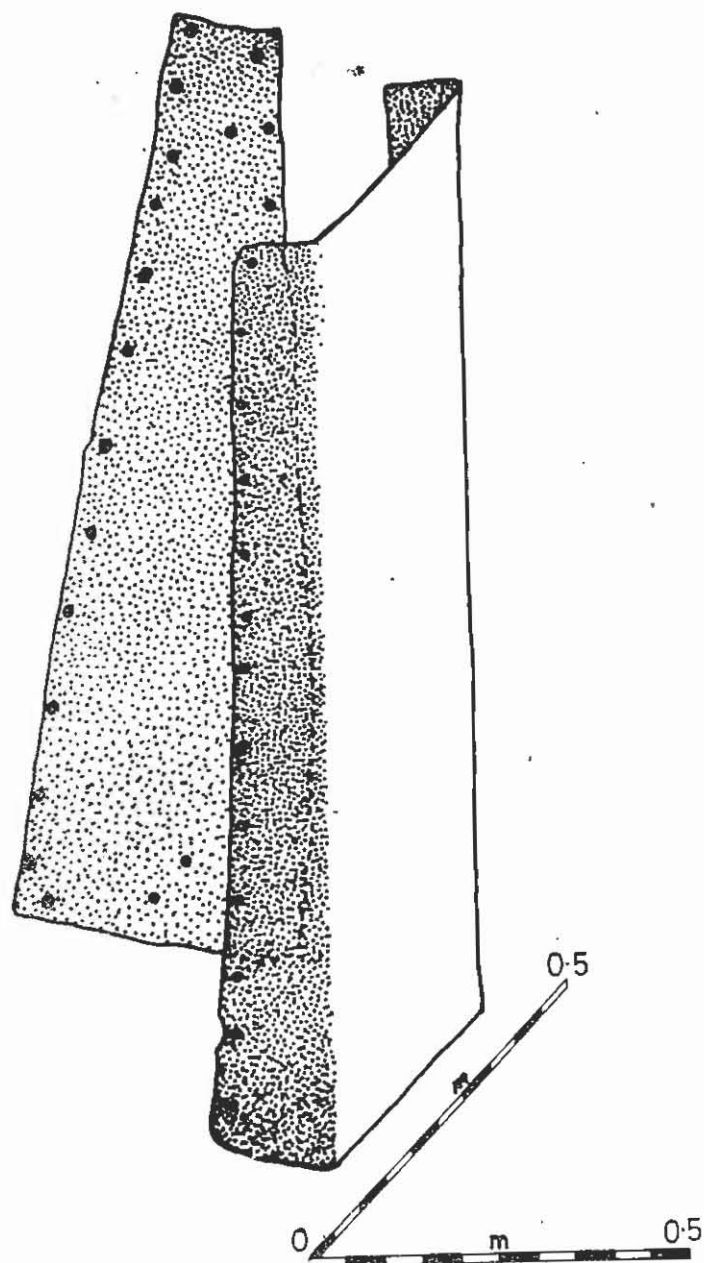
These legs would originally have fitted brass cauldron (see 3.2.1.).

GT 967 Leg and 2 fragments with rivets (N.A.).



GT 899 Handle from cauldron (N.A.).

GT 900 Handle and rim fragments (240200).



(48) Isometric drawing of copper sheeting, possibly part of the stern post.

3.3.2. Miscellaneous

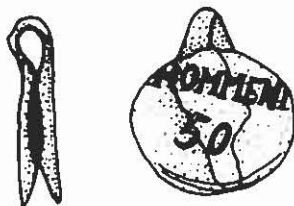
- GT 063 Nail (N.A.).
- GT 995 Nail (N.A.).
- GT 1325 Nail (N.A.).
- GT 902 Fish-hook (see 3.2.3.) (200200).
- GT 968 Copper corner-fitment (small) (275210).

- GT 907 Pieces of copper with nail holes - 2 (210185).
- GT 908 Sheets of copper with rivet holes - 3 (N.A.).
- GT 964 One box of copper fragments (18) (N.A.).
- GT 970 Pieces of flat copper sheet with rivet holes - 2 (N.A.).
- GT 091 Large pieces of copper - 7 (N.A.).
- GT 092 Pieces of copper - 7 (N.A.).
- GT 774 Small fragments of copper - 2 (N.A.).
- GT 1013 One box of concreted copper fragments (215190).
- GT 601 Piece of copper - 1 (N.A.).
- GT 619 Pieces of copper - 2 (N.A.).
- GT 643 Small pieces of copper - 4 (N.A.).
- GT 644 Pieces of copper - 4 (N.A.).
- GT 645 Large piece of copper (N.A.).
- GT 646 Pieces of semi-rectangular copper - 2 (N.A.).
- GT 648 Number of small copper fragments (195200).
- GT 727 Small fragments of copper (N.A.).
- GT 741 Pieces of copper - 2 (N.A.).
- GT 769 Pieces of copper object with rivets; concertina-shaped (see also GT 769A - brass nail) (N.A.).
- GT 774 Pieces of copper - 2 (N.A.).
- GT 810 Piece of copper - 1 (N.A.).
- GT 017 One piece of copper, 128mm square; 1 large piece of copper.
- GT 1439 Eight sheets of copper with rivet holes, thickness 1.6mm (N.A.).
- GT 1442 Two large rectangles of copper with 2 layers of lead inside (N.A.).

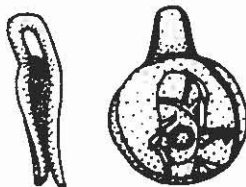
It is interesting that some of the large sheets of copper (GT 92 and 921) appear to have been joined together, since the nail holes overlap. The reconstruction, fig. 48, indicates that this may have been part of the sheeting on the stern post, as was found on the BATAVIA, Green (1975).

3.4. Lead

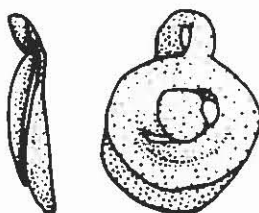
3.4.1. Baling seals



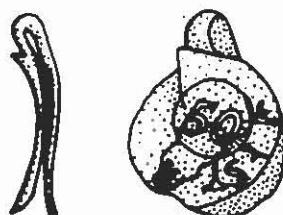
GT 895 Large lead seal - inscription: 'ROMMENI 50' (200200). Scale 1:1



GT 972 Lead seal - writing on one side (175195). Scale 1:1



GT 1064 Lead seal (215200). Scale 1:1

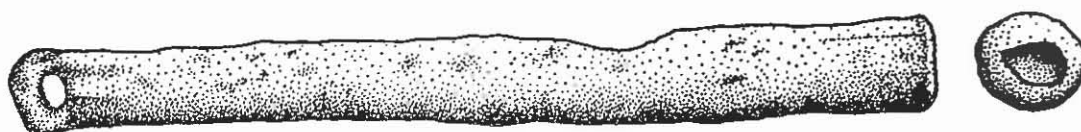


GT 1241 Lead seal - inscription partly visible: 'WEST - R---' (208200). Scale 1:1

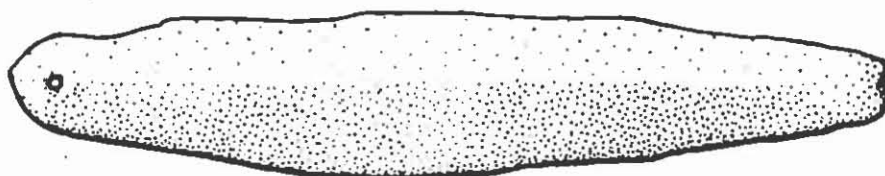
Of the four lead seals, three examples have the number '50' and various inscriptions including 'ROMMENI' and what could be WEST (F) R (IESLAND). The seals are made of two flat discs of lead joined by a short bar; one disc has a hole in it, the other has two prongs sticking out from the centre of the disc. These prongs are inserted into the hole by bending the discs together, through the material to be sealed, and the prongs folded over. A crimping tool or stamp is then used to seal the whole together with the maker's mark embossed on it. Other seals have been found on the

HOLLANDIA (1743), Cowan *et al.* (1975), with the same '50' stamped on it; Marsden suggests these are bale seals for cloth. Twenty-one seals have been found on the BATAVIA site, Stanbury (1974), some with house-marks, or the A.V.O.C. mark and a variety of numbers on the reverse: 4, 4D, 41 and 413. Larn *et al.* (1974), fig. 16, illustrates another seal from the SANTO CRISTO DE CASTELLO. Baart *et al.* (1977) suggests that the numbers refer to the length of the cloth in *ellen*. Presumably West Friesland is origin of cloth, the seals being applied during various stages of manufacture to denote they had been inspected.

3.4.2. Deep-sea sounding leads



GT 007 Sounding lead (N.A.). Scale 1:4



GT 998 Possibly a sounding lead or fishing sinker (290175).



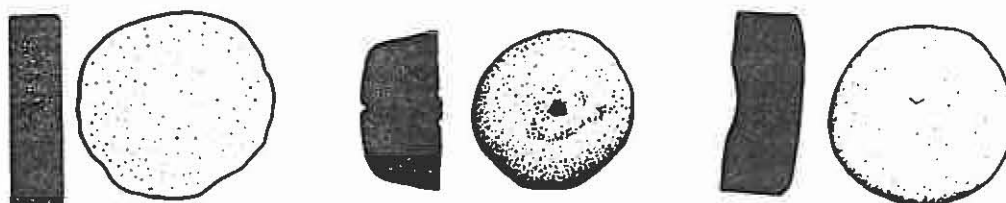
GT 1342 Sounding lead: XIII mark, 6.3kg (N.A.). Scale 1:4
These are typical deep-sea lead, with hollow in base for tallow. Smith (1627) calls these:

"Dipsie line, which is a small line some hundred and fifty fadome long, with a long plummet at the end, made hollow, wherein is put tallow, that will bring vp any grauell." Manwayring (1644) describes it: "Deep-sea-lead: Is the lead which is hung at the deep-sea line, to sinck it downe; the waight whereof is commonly 14 pounds; this hath some hard white tallow laid upon the lower end of it, which brings up the ground." Witsen (1690) mentions a variety of deep-sea lead: a *peil-loot* or deep-sea lead, is heavier than 36 *ponden*, and has a line of 800 or 1,000 *vadem*, together with 6, 8, 10 and 12 *ponden* leads for different depths up to 200 *vadem* in various weather conditions. He also mentions in the requirements of a ship of 134 *voet* under *Kleinigheden* (trifles), 7 *dieplooden* weighing 150 *ponden*, see Chapt. 6, Table 6-13.

It is noted here that GT 1342 has 14 marked in Roman numerals, presumably the weight in pounds. Similar leads have been found on the BATAVIA, Stanbury (1974), BAT 380, marked XIII weighing 6.88kg, and another, BAT 381, unmarked weighing 6.93kg. Others weighed 5.6kg, 2.6kg, 2.7kg, and 2.55kg, and together with two more made a total of 9. Sténuit (1974) and Appendix 1 (below), records a 6.55kg lead from the LASTDRAGER which he equates to 13 Amsterdam *ponden* or 6.41kg, although it is more likely that it is 14 Amsterdam *ponden* or 6.91kg, having had some lead lost due to erosion. Other leads have been found on the HOLLANDIA, (unspecified number), one illustrated in Cowan *et al.* (1975), fig. 13-11, inscribed with the weight XII lb (?) said to be the true weight, whatever that may mean. Four sounding leads from the Jutholmen wreck, Ingelman-Sundberg (1976), have been reported, and described as conical; also Lane (1975) records a square sounding lead from H.M.S. ASSOCIATION (1707); a five pound lead was recorded

on DE LIEFDE (1711), Bax and Martin (1974); and three were reported on the KENNEMERLAND, Price and Muckelroy (1974), but with no weight recorded; and from the EVSTAFII (1780), Sténuit (1976), one with no weight.

3.4.3. Assorted weights

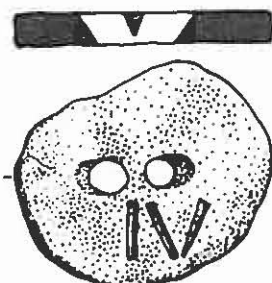


GT 1326

GT 013

GT 1158

Possibly part of counter-weight of gimble oil lamp
GT 893 etc. (see 3.2.5. above), (N.A., N.A., 235205).



GT 1328 Lead top of a four pound iron weight (1705).

GT 1327 Remains of same.

This type of weight had a cylindrical iron base with an iron ring; a lead top was then cast on to it, so that the weight could be accurately adjusted. When the weight was precisely four *ponden*, it was stamped with the Roman numerals 'IV' and a proof mark. Subsequently, when immersed in water, preferential electrolytic corrosion resulted in all the iron corroding away, leaving the disc of lead with two holes in it corresponding to the ring of the weight. A similar weight was found on the BATAVIA, Stanbury (1974), BAT 3308, stamped with 'IIII' and a *fleur-de-lis*. It is interesting that the *fleur-de-lis* appears on many objects, and may be associated with a proof mark; for example, on a set of

avouirdupois weights from BATAVIA, Stanbury (1974), BAT 3219; navigational dividers, LASTDRAGER: astrolabe, BATAVIA; and taps (above). It would seem that the unidentified lead object from the pink EVSTAFII, Sténuit (1976), fig. 6 (left), is almost certainly the top of a weight of the same type. A good example of one with an iron base but with the ring missing, has been found on the MERESTEYN (1702), Marsden (1976), inscribed 'III' and dated 1701. Other examples have been found on DE LIEFDE, Bax and Martin (1974), fig. 8, inscribed 'VIII' and dated 1711; AMSTERDAM, Marsden (1974), fig. 28, no. 106 - inscribed 'V' and 'IR', dated 1748, no. 107 - inscribed 'III' and 'IR', dated 1748, and no. 108 - inscribed 'III' and 'IR', dated 1748. These examples all had their iron bases intact. There is a complete example in the Nova Zembla Collection in the Rijksmuseum, Amsterdam.



- GT 984 Square weight (?) with cross on one side, according to Baart *et al.* (1977), those were playing discs for 'heads or tails'. See Baart (1977), 869. (165210).
- GT 1327 Rounded weight with hole (N.A.).
- GT 1328 Part of weight with hole (170205).

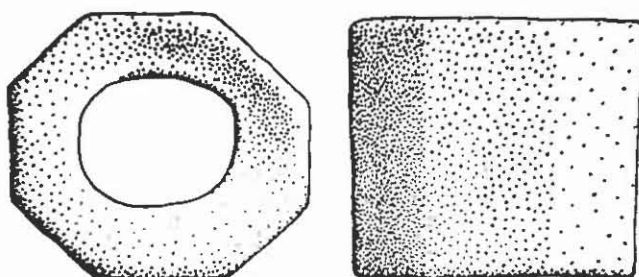
3.4.4. Light lead-shot

- GT 10 19 shot dia. 16mm (N.A.).
- GT 093 2 shot dia. 16mm (N.A.).
- GT 996 1 shot dia. 16mm (180195).

Van Dam (1701) states that it was resolved in 1659 that the old proof lead ball of which 12 made one Amsterdam *pondt* i.e. 19.1mm diameter, was to be changed to a proof ball of 14 in an Amsterdam *pondt*, and the normal ball of 14 in an Amsterdam *pondt* i.e. 18.1mm diameter, was to become 16 i.e. 17.3mm diameter.

The caliver was introduced in the late 16th century. Initially it was lighter than the musket with a bore of 15.9mm compared with 18.6mm for the musket. During the 17th century, the musket was replaced by the caliver which gradually lost its own name and became known as the musket, Kist *et al.* (1974). Thus it seems that here we are dealing with caliver shot, as also appears from the shot moulds, GT 1259 and 1260 (see 6.4.2. below), with 16mm diameter.

3.4.5. Vessels (possibly pewter)



- GT 636 Possibly an inkwell. Octagonal-sided container with an oval hole in the slightly depressed top. A similar inkwell is illustrated in the "Double Portrait" by Nikolaes de Helt-Stocade, dated 1647, in the Old Men's Home in Nijmegen. However, more ornate versions appear on the eating table in 17th century pictures, and may be salt or condiment containers. (N.A.).



- GT 983 Small cup, very badly corroded.

3.4.6. Miscellaneous objects

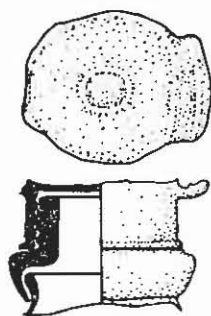
- GT 632 Lead-coated iron cylinder with square bore (N.A.).
 GT 1329 Tube-shaped object with square hole at one end (155220).
 GT 1033 Small cylinder (275185).
 GT 1441 Two pieces of lead piping, possibly scupper pipes (280200).

GT 1440 Lead scrap - 1 sack (N.A.).
 GT 082 Red lead compound (N.A.).
 GT 1356 Lumps of lead - 2 (185195).
 GT 1357 Lumps of lead ore - 2 (265200 approx.).
 GT 1425 Small round lump (N.A.).
 GT 1330 Lead scrap (200200).
 GT 065 Piece of lead with round holes (N.A.).
 GT 016 Lead - 8 pieces, thickness 2.5mm (N.A.).
 GT 034 Lead - 2 pieces, thickness 2.0mm (N.A.).
 GT 066 Lead - 1 piece (N.A.).
 GT 075 Lead - 3 pieces, thickness 4.0mm (N.A.).
 GT 603 Lead - 13 pieces (N.A.).
 GT 639 Lead - 9 pieces, thickness 3.0mm (195200).
 GT 647 Lead - 9 pieces (085179).
 GT 662 Lead - 5 small fragments (N.A.).
 GT 671 Lead - 5 small fragments (N.A.).
 GT 687 Lead - 3 fragments (N.A.).
 GT 708 Lead - 4 small pieces (N.A.).
 GT 709 Lead - 1 piece (N.A.).
 GT 744 Lead pieces (N.A.).
 GT 775 Lead - 1 piece (N.A.).
 GT 785 Lead - 1 piece (N.A.).
 GT 789 Lead - 5 pieces (N.A.).
 GT 792 Lead - 4 pieces (N.A.).
 GT 805 Lead - 1 piece (N.A.).
 GT 806 Lead - 1 piece (N.A.).
 GT 808 Lead - 3 pieces (N.A.).
 GT 973 Small pieces of lead scrap (N.A.).
 GT 1442 Two rectangular sheets of lead within 2 of
 copper (N.A.).

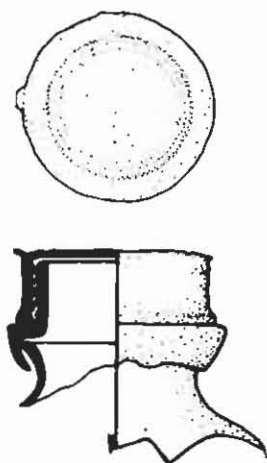
Much of the lead sheeting may have been for use as patches for repairing leaks. It has been suggested by Olds (1977), that Spanish ships were sheathed in lead. However, not only is the lead sheeting here too small in size and quantity, but also the V.O.C. used wooden sheathing system known as *verdubbeling*. Alternatively it may have been part of the large quantity of lead exported to the Indies each year, see Table 6-18, Chapt. 6 below.

3.5. Pewter

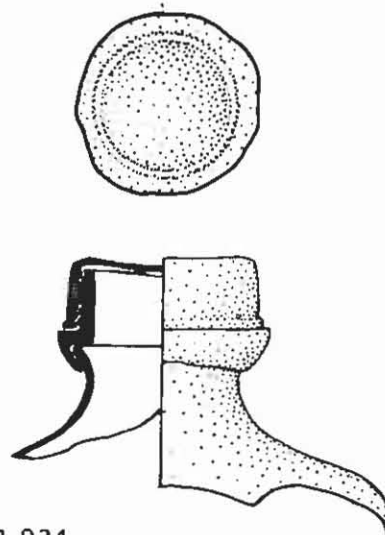
3.5.1. Bottle caps



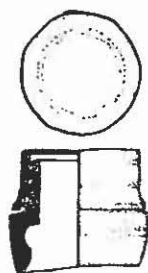
GT 613A



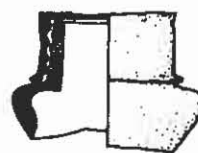
GT 935



GT 934



GT 763



GT 1338



GT 1339



GT 930

- GT 046 A - bottle cap with blue glass *in situ* (N.A.).
 B - bottle cap with glass *in situ* (N.A.).
- GT 631 Bottle caps - 4 (N.A.).
- GT 631A Bottle cap (N.A.).
- GT 763 Bottle cap (N.A.).

- GT 669 Bottle caps - 2 (N.A.).
- GT 930 Small bottle cap with ring (173200).
- GT 934 Bottle cap with glass neck *in situ* (230160).
- GT 935 Bottle cap with glass *in situ* (230160).
- GT 1056 Large bottle cap with glass fragments *in situ* (290175).
- GT 1162 Bottle cap (N.A.).
- GT 1332 Large bottle cap (220205).
- GT 1334 Bottle cap and rim fragment (185195).
- GT 1336 Bottle cap (208200).
- GT 1337 Bottle cap (200180).
- GT 1338 Bottle cap (195200).
- GT 1339 Bottle cap (N.A.).
- GT 1340 Bottle caps - 2 (230160).
- GT 1340 Bottle caps - 2 (230160).
- GT 047 Top of bottle cap (N.A.).
- GT 044 Part of bottle cap (N.A.).
- GT 1424 Bottle cap (N.A.).
- GT 742 Fragments of bottle cap (N.A.).
- GT 1333 Rim of bottle cap (165210).
- GT 1335 Part of bottle cap (165210).
- GT 994 Fragment of bottle cap (N.A.).

There are three basic types of bottle caps in this collection. The largest has a diameter of 50mm and is clearly associated with the green glass case bottle (see below, GT 1399). The caps GT 931A, 934, 935, have a screw-threaded top which screws onto a collar attached to the rim of the neck of the bottle (for discussion of bottles see Section 4.1.2.). This type does not occur on the BATAVIA, but similar caps have been found on the LASTDRAGER, Sténuit (1974), fig. 21 and Appendix 1 (below); the SANTO CRISTO DE CASTELLO, Larn *et al.* (1974), fig. 14; a rather flatter type on DE LIEFDE, Bax and Martin (1974), fig. 6B; and also on the PRINSES MARIA, Mak van Waay (1974), no. 13-15. Pewter caps have been mentioned from other wrecks but not described or illustrated. Also, they have been found on the SANTO ANTÓNIO DE TANNÁ, Sassoon (1977),

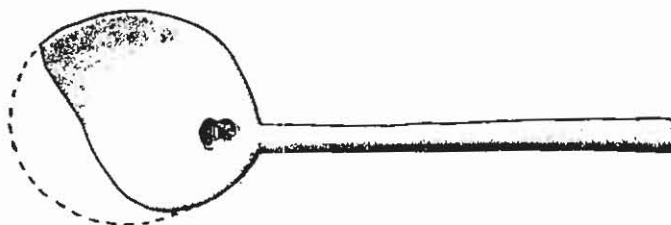
associated with green glass case bottles, and at Port Royal, Marx (1971).

The second type has a diameter about 35mm, GT 763 and 1338; these seem to be smaller versions of the above type and possibly are onion bottle tops. Similar types have been found on the BATAVIA, Stanbury (1974), BAT 3285, 3286 and 3319. It is not clear if similar types have been found on the LASTDRAGER from fig. 21, Sténuit (1974) and Appendix 1 (below), and the DARTMOUTH, Holman (1975).

The third type, GT 1339 and top only GT 930, has diameters approximately 20mm, and numerous examples have been found on the BATAVIA. The top of the cap has a loop through which fits a small ring.

The pewter caps were widely used as stoppers for glass containers. It is clear the larger caps were fitted on square case bottles, however, the use of the medium and small is unclear. It may be that they were fitted on schnaps flasks as in Dexel (1973), fig. 677 etc., for the medium size caps; the small caps, which are similar to the tops on pewter bottles of the period, may have been fitted to small glass flasks.

3.5.2. Spoons



GT 606 Spoon decorated with rose and crown and maker's mark 'PV' in crown, fig. 49A (N.A.).



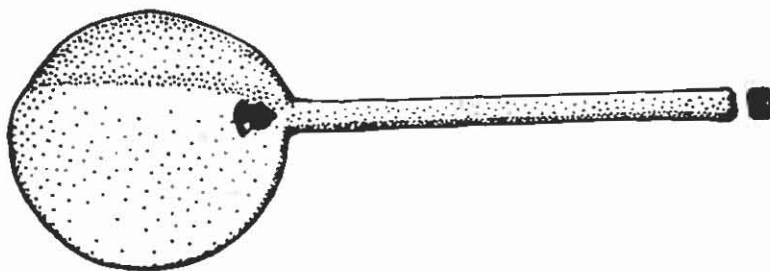
(49A) PV mark on spoon GT 606.



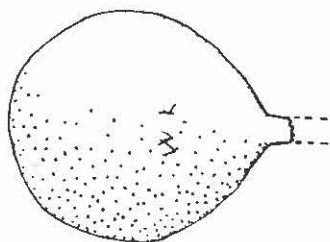
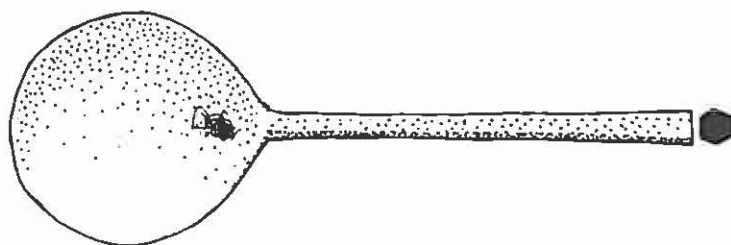
(49B) VW mark on spoon GT 963.



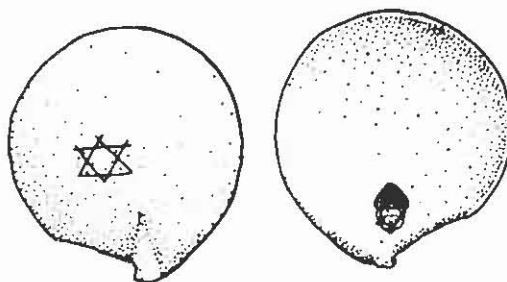
(49C) Unknown mark on spoon GT 892.
Scale x5



GT 929 Spoon (290175).



- GT 963 Spoon decorated with rose and crown, and maker's mark 'VW', fig. 49B; inscribed on back are the letters 'W.K.' (N.A.).

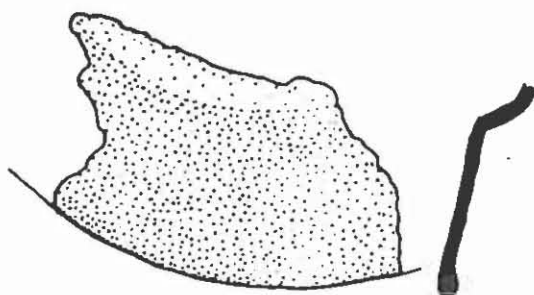


- GT 892 Spoon bowl inscribed with Star of David graffiti on back; maker's mark is not clear, fig. 49C, (N.A.).
- GT 927 Spoon bowl (275210).
- GT 1237 Spoon handles - 2 (275185).
- GT 932 Spoon handle fragment (165210).
- GT 637 Spoon handle (N.A.).
- GT 1341 Spoon handle (N.A.).

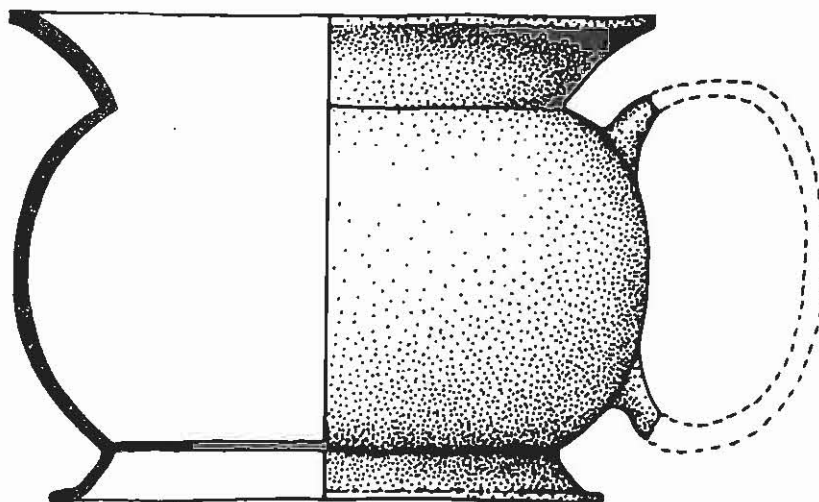
The crowned rose is the mark for fine quality tin. It originated from the Tudor Rose which was introduced into Antwerp in 1523. Approximately 1613, the original old fine tin mark, the hammer and crown, was replaced by the rose and crown, and the maker's initials were incorporated in the crown, or on either side of the rose, Dubbe (1965). The maker's initials on these spoons have not been identified, but marks similar to these occur extensively on plates and spoons of this

period. The shape of the spoons are likewise typical of the 17th century. The graffiti on the back of the spoon is again a common finding from wreck sites, the owner carving his initials on the back as in GT 963. The Star of David on GT 892 may signify that the spoon was owned by a Jewish person. In the Resolutions of the V.O.C. on 11th October 1656, the mess for a *retourschip* of 250 men includes 400 wooden spoons, Table 6-4 Chapt. 6, below, and for the cabin of the *schipper*, 20 *tinne lepels*, Table 6-10, Chapt. 6, below. It is likely that the spoons found here were part of the officers' equipment, for if they were supplies for the Indies, they would not be marked. It is interesting to note that the BATAVIA had four spoons all with the same maker's mark, and all found at the stern cabin area of the wreck, indicating that they were V.O.C. property; it is unlikely that individuals would have all bought spoons from the same sources.

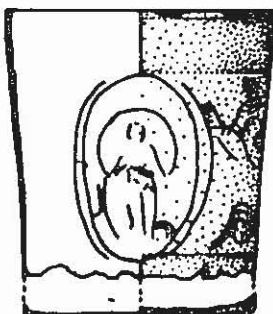
3.5.3. Plates, pots and beakers



- GT 982 Fragments of pewter plate - 8 (230160).
- GT 629 Plate fragments - 17 (N.A.).
- GT 663 Plate fragments - 4 (N.A.).
- GT 629 Base of plate or bowl (280200).
- GT 047 Hinge fragment from stein lid (N.A.).
- GT 776 Fragments of pewter - 18 (N.A.).
- GT 783 Fragment of pewter (N.A.).
- GT 797 Fragments of pewter - 4 (N.A.).



GT 1359 Pewter chamber-pot - encrusted (N.A.).



GT 048 Engraved pewter mug (N.A.).

The plate fragments are too badly corroded either to determine the original shape or locate any pewter marks; it is noted that in the list of pewter for the cabin of a *retourschip*, there were two plates each of 3 lbs., 2½ lbs., 2 lbs., and 1½ lbs., see Table 6-10, Chapt. 6, below.

The chamber-pot is similar to BAT 3031, Stanbury (1974); others have been found on other wrecks, but none are exactly similar. The handle on this pot is made in a different fashion than is usual. The use of the chamber-pot must have played an important part in shipboard life, particularly where illness made it impossible for a person to visit the heads. A clear association of the chamber-pot with sickness is in the painting "The Doctor's Visit" by Jan Steen, Mauritshuis, the Hague, no. 168, which shows the pot prominently placed next to the patient's bed. Again, in the list

of pewter for the cabin of a *retourschip* are the *waterpotten* or chamber-pots, Table 6-10, Chapt. 6, below. It seems the crew was not given the luxury of such items.

The engraved pewter mug GT 048, is very badly corroded and the engraving on it is only barely discernable. The scene in the cartouche appears to be of Aphrodite riding on a shell, although this is not clear. Flowers, birds and scroll-work can also be seen around the cartouche. A similar beaker is illustrated, Kohlmann (1972), fig. 106, only with a relief decoration, and it is of 18th century manufacture. The general shape corresponds to Cowan *et al.* (1975), fig. 15-19, but that is without decoration.

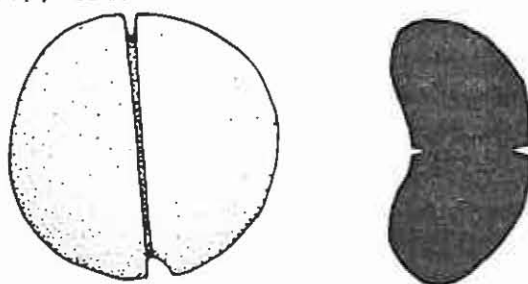
4. MISCELLANEOUS MATERIAL

4.1. Glass

4.1.1. Miscellaneous



GT 853 Rosary medallion (brass), 22 beads (glass) (230160). Scale 1:1
 The rosary medallion is oval with a suspension point on the top. The surface of decoration is worn, although the deeper parts are quite crisp. The wear resembles that found on coins, and indicates that it was quite an old item at the time of the loss. Other medallions have been found on the SANTO CRISTO DE CASTELLO, McBride *et al.* (1975), fig. 11, and on the NUESTRA SENORA DEL CARMEN or GENOVES (1730), Horner (1971); others are illustrated in Kirkman (1974), from Fort Jesus, Mombasa. The black glass beads are not described in Karklin (1974) 17th century Netherlands bead typology, although a torroidal or circular black bead, 11a7, is mentioned. They resemble Baart *et al.* (1977), 414.

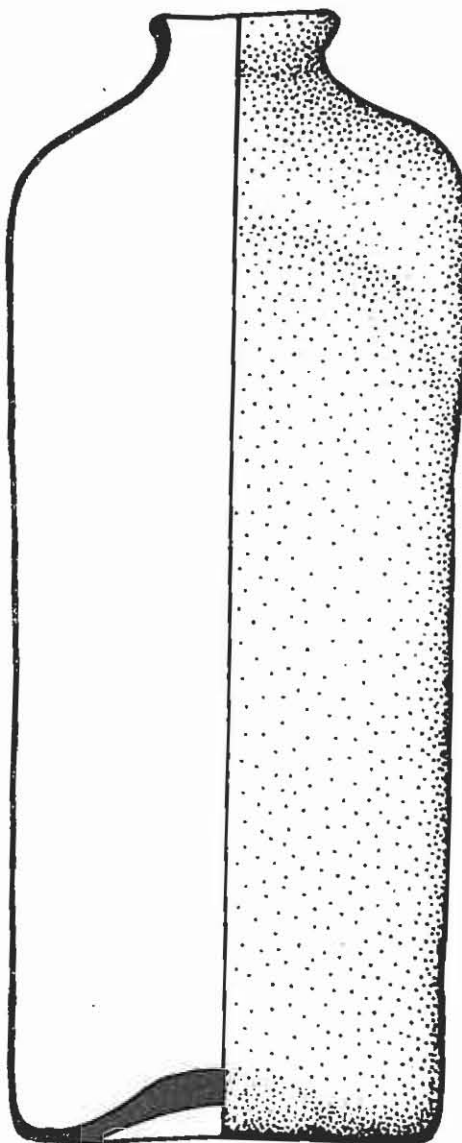


GT 1353 Glass iron.

Similar irons are illustrated in Glissman (1970), fig. 19, who indicates a long period of manufacture (c 700AD to 17th century); Baart *et al.* (1977) illustrates several of these (153, 154 and 155). They are referred to as *strijkglazen*. They were barely heated and were used to press small pieces of damp linen.

4.1.2.

Bottles



- GT 1399 Square green glass bottle - base 112mm x 113mm, height 300mm (230160).
- GT 935 Green bottle neck (N.A.).
- GT 937 Base of dome-shaped drinking glass (180195).
- GT 936 Base of square, green bottle 110mm x 110mm (280200).
- GT 945 Base of square, green bottle 107mm x 105mm, cross etched on bottom (210165).
- GT 951 Base of square, green bottle 106mm x 107mm (N.A.).
- GT 952 Base of square green bottle 105mm x 105mm (N.A.).
- GT 953 Eleven bases of square, green bottles and three fragments - 105mm x 103mm, 96mm x 81mm, 104mm x 103mm, 105mm x 101mm, 106mm x 86mm, 106mm x 104mm, 107mm x 105mm, 109mm x 104mm, 110mm x 109mm (N.A.).

GT 950 Base of square, green bottle 109mm x 108mm (N.A.).
 GT 939 Base of square, green bottle 85mm x 100mm (N.A.).
 GT 947 Base of square, green bottle 85mm x 95mm (200250).
 GT 948 Base of square, green bottle 107mm x 85mm (N.A.).
 GT 611 Three bases of square, green bottles and eleven
 fragments, 87mm x 108mm, 102mm x 84mm (N.A.).
 GT 944 Part of a base of a square, green bottle (155220).
 GT 029 Part of a base of a square, green bottle (N.A.).
 GT 1432 Base of square, green bottle (N.A.).

In the collection of glass, there appear to be no examples of onion bottle fragments and the collection seems entirely to comprise case bottles. The two basic base sizes are about 110mm x 110mm and 100mm x 85mm; the only bottle from which a complete profile can be taken, GT 1399, has a height of 300mm, and thus a volume of approximately 3.5 litres. Sténuit's suggestion that these bottles could have been mercury containers, Sténuit (1974) and Appendix 1 (below), is discussed in Appendix 3.

Marx (1969) illustrates a similar-shaped bottle, no. 104, which he describes as a snuff or medicine bottle; it seems likely that the scale is in error on these drawings and that they should be half scale rather than quarter. If this is the case, the bottle mentioned would stand 260mm high and be 140mm square, which would be similar in shape to our examples. Thus, it is possible that Marx's example is in fact 17th century rather than 19th as he suggests. Price and Muckelroy (1974) found similar bases on the KENNEMERLAND, and noted two sizes 112mm square and 80mm square; Sténuit (1974) and Appendix 1 (below), records square case bottles and onion bottles on the LASTDRAGER; Holman (1975) records a broken case bottle from the DARTMOUTH with a pewter screw top, but does not record the full height - the base appears to be 80mm x 42mm. Others have been found on the SANTA ANTONIO DE TANNA, Sassoon (1977), and the ZEEWIJK, Ingelman-Sundberg (1977i).

In view of the common occurrence of this type of bottle on other mid-17th century V.O.C. ships, they may have been containers for wine, since this was a regularly ordered item for the Indies. In 1656, 170 *leggers* of Spanish wine and 50 *leggers* of French wine were ordered for the Indies; the case bottles may have held either, although the requisitions refer to barrels (*leggers*) rather than cases of bottles. Noël Hume (1972) suggests that the square-sided case bottles pre-date the mid-17th century globular-bodied 'onion' bottle, and that these were stored in cases or 'cellars' generally holding a dozen bottles. These square bottles as Noël Hume notes: "... represent a very large part of the English bottle output of the first half of the 17th century", as well as being of Netherlands origin. It seems most likely therefore that these case bottles were part of the personal possessions of the senior officers who, in addition to their sea chests, were allowed 2 *fleskelders* (bottle cellars) holding 15 case bottles each, see Chapt. 6.5 below. There seems little doubt that these bottles were used for storing wine, despite the suggestion that the pewter tops are incompatible with wine.

There are few contemporary 17th century paintings showing square case bottles associated with wine. In most drinking scenes, the wine appears to have been decanted into a stoneware or silver (?) jug, from whence it was poured into the glass. Anthonie Leemans' "Vanitas Still Life" (1655), Rijksmuseum, Amsterdam, no. 1429, shows a case bottle with an ornate pewter top, and a full wine glass nearby.

GT 083	Green glass - 93 pieces (N.A.).
GT 030	Green glass - 11 pieces (N.A.).
GT 638	Green glass - 11 pieces (N.A.).
GT 666	Green glass - 8 pieces (N.A.).
GT 667	Green glass - 15 pieces (N.A.).

GT 704 Green glass - 5 pieces (N.A.).
 GT 705 One box: fragments - round bottle's base and 3 neck
 fragments (N.A.).
 GT 665 Green glass - 2 base fragments (N.A.).
 GT 713 Green glass - 13 pieces (N.A.).
 GT 716 Green glass - 13 pieces (N.A.).
 GT 762 Green glass - 3 pieces (N.A.).
 GT 773 Green glass - 6 pieces (N.A.).
 GT 938 Green glass - 51 pieces (N.A.).
 GT 940 Green glass - 36 pieces (N.A.).
 GT 943 Green glass - 3 pieces (245220).
 GT 949 One box of green glass pieces (230160).
 GT 1155 Green glass - 2 pieces (N.A.).
 GT 1400 Green glass - 6 pieces (N.A.).
 GT 761 Fragmented green bottle neck (N.A.).
 GT 941 Seven rim fragments of green bottle necks (N.A.).
 GT 946 Neck fragment and rim - green glass (N.A.).
 GT 954 Two pieces of concreted glass - possibly from a
 drinking vessel (N.A.).
 GT 1015 Piece of yellow glass in concretion (N.A.).
 GT 1401 Glass caps - 2 (275210).
 GT 942 Clear glass fragments - 4 (N.A.).
 GT 725 Glass fragments - 3 (N.A.).
 GT 1154 Base fragments of glass - 2 (N.A.).

4.2. Stone Material

4.2.1. Slates and pencils



GT 922 Slate pencil (N.A.).



GT 924 Slate pencil (215200).

GT 681 Slate pencil, broken (N.A.).

GT 664 Pieces of slate - 3 (N.A.).

GT 915 Pieces of slate - 3 (230160).

GT 925 Pieces of slate - 18 (N.A.).

GT 1149 Triangular piece of slate (265180).

This method of writing - for taking notes and doing calculations - is still in use in Holland today, and the slate pencils used now are similar to those found here. Four similar pencils have been found on the BATAVIA, Stanbury (1974), BAT 4202, 4203, 4204, 4205, together with a collection of slate fragments similar to those found here. Barton (1969) records two slate pencil fragments from an 18th century well in Hants. Similar to Baart *et al.* (1977), 731.

4.2.2. Schist whetstones



GT 028 Whetstone (N.A.).



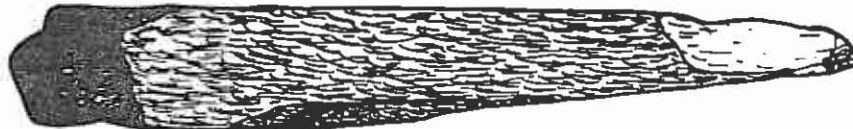
GT 609 Whetstone (N.A.).



GT 706 Whetstone (N.A.).



GT 911 Whetstone (N.A.).



GT 923 Whetstone (265200).



GT 971 Whetstone (N.A.).



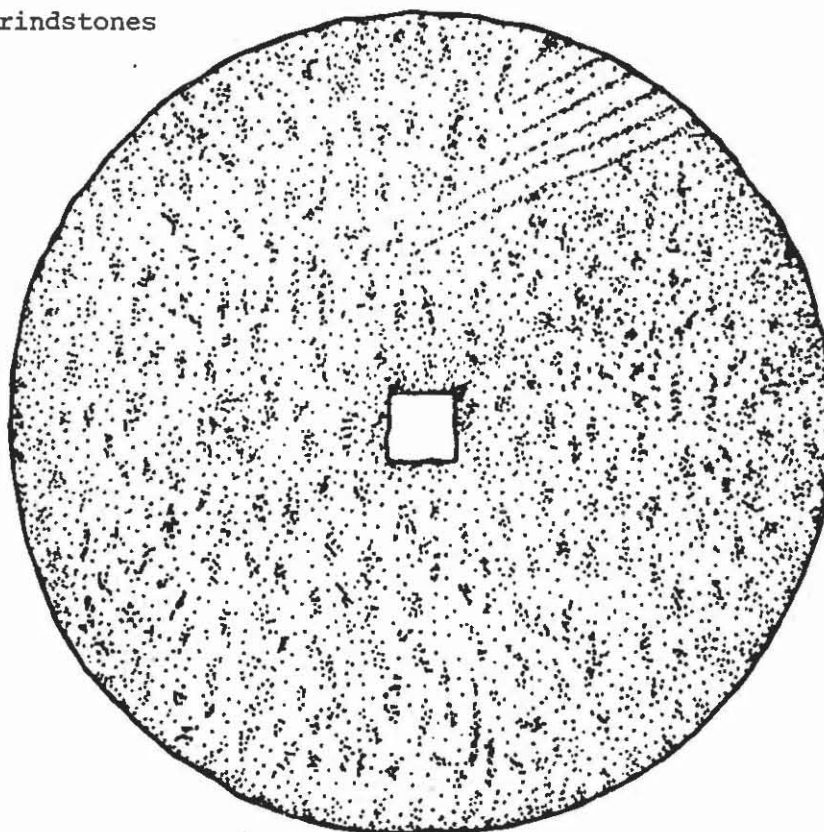
GT 971A Whetstone (N.A.).



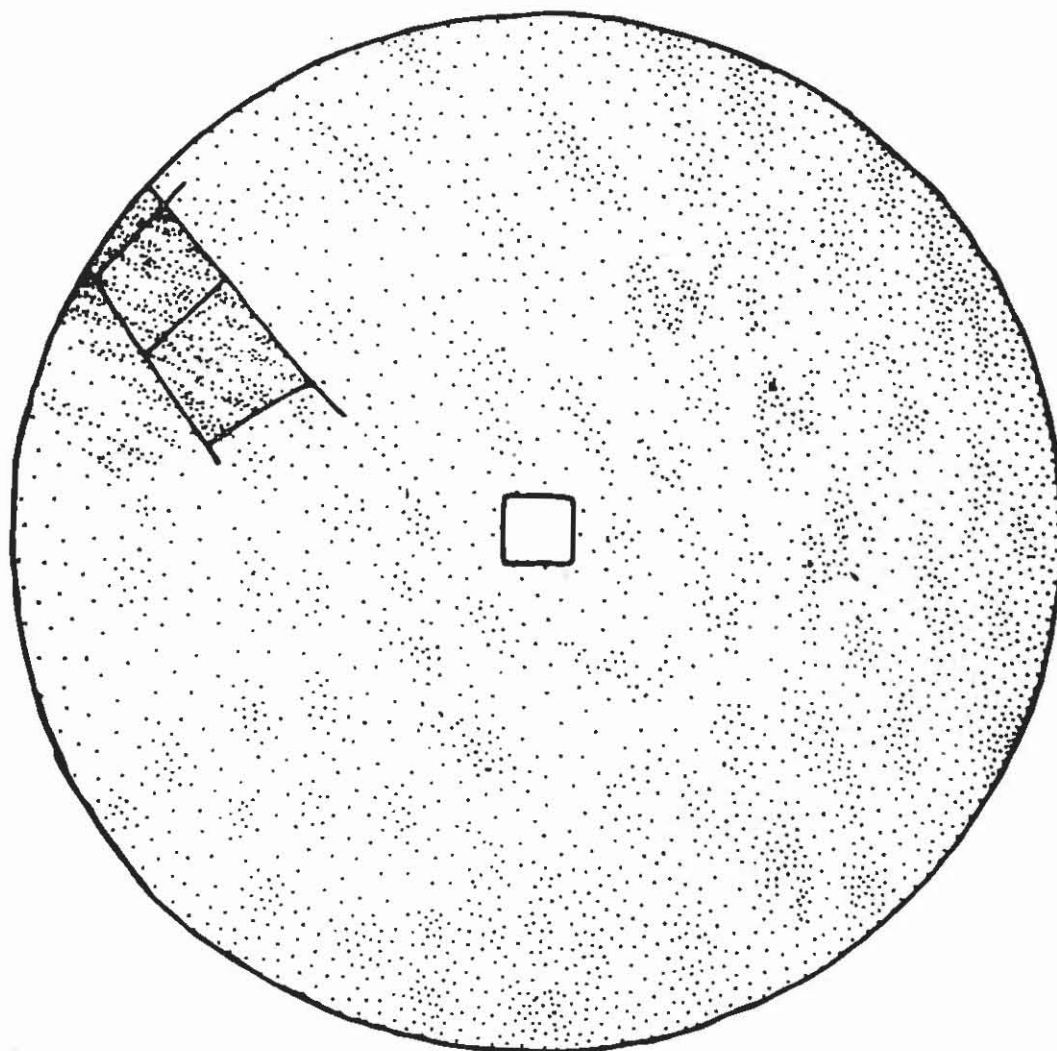
GT 1344 Whetstone (235205).

Holden (1963) suggests that schist whetstones generally had a suspension hole in them, but it is interesting that none of these examples have such holes, nor do the 20 examples found on the BATAVIA, Stanbury (1974). The examples from the VERGULDE DRAECK appear to be relatively new and unused, except GT 028. Holden (1963) also indicates sources of schist as from Brittany and the Rhineland. Huggins (1969) records three micaschist hones which were found in mediaeval and later deposits at an excavation at Waltham Abbey. Fragmentary schist hones attributed to the late 16th or 17th century have been found at St. Neots, Addyman and Marjoram (1972). A single whetstone was found on the LASTDRAGER, Sténuit (1974) and Appendix 1 (below), and various whetstones were found on the HOLLANDIA, Cowan *et al.* (1975). 40 whetstones were requisitioned for the Indies in 1653, Table 6-20, Chapt. 6, below.

4.2.3. Grindstones



GT 1429 Sandstone grindstone. Dia. 0.872m, Thickness 0.112m, Hole size 0.060mm (N.A.). Scale 1:8

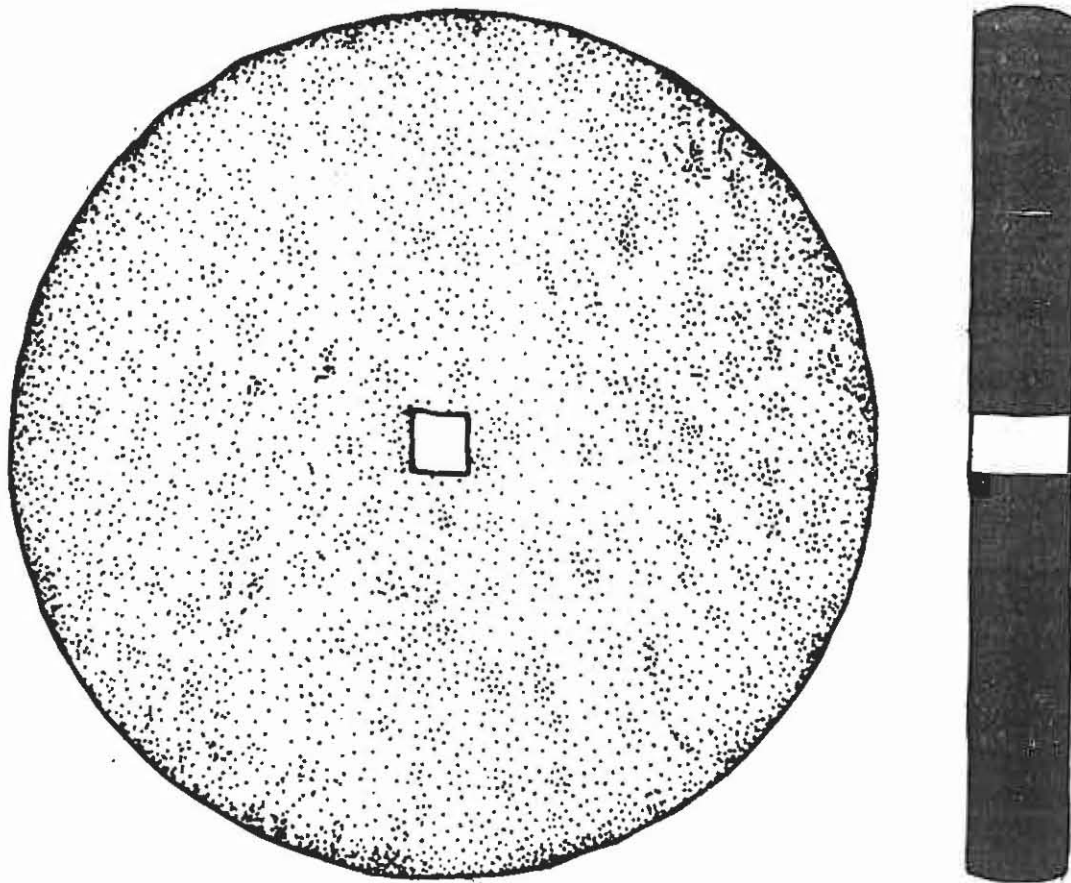


GT 1427 Sandstone grindstone. Dia. 1.096m, Thickness 0.120m,
Hole size 0.072mm (175200). Scale 1:8

The three millstones all have square drive holes, but do not seem to conform to any pattern in diameter, thickness or hole size. There are no records of millstones in the requisitions, and it is not clear what was the purpose of these. It is possible that they were grindstones rather than millstones. If they were grindstones they would be termed *slijp-steen* and would

be turned vertically by hand, Witsen (1690), fig. 75-32. Grindstones were commonly requisitioned. The thickness of these stones is very small (120mm) however, and the diameter very large. It seems more likely that these were, in fact, millstones which were used horizontally, Nooms (1970), fig. 1, for grinding corn, etc.

In Batavia at this time, there was a powder mill and several sugar mills which were driven by water power. The grindstone found on the KENNEMERLAND, Price and Muckelroy (1974), was about the same size as the three here; however, their conclusion that, as only one was found, it was for use on-board during the voyage, seems to be wrong. The grindstone was very large, and would have needed extensive equipment to operate it. Also, there was only one, not two as would be usual.



GT 1428 Sandstone grindstone. Dia. 0.920m, Thickness 0.104m, Hole size 0.060mm (100200). Scale 1:8

4.2.4. Miscellaneous

GT 616 Coal (N.A.).

This was a common item requisitioned for the Master Smith. In 1656, 1500 hods of forge coal (*smits coolen*) were requisitioned, KA 10061, and Table 6-20, Chapt. 6, below.

GT 751 Large piece of flint (N.A.).

GT 958 Small piece of flint (275210).

Five hundred flints were requested for the general demand for the Indies in 1656, KA 10061, and Table 6-20 (2000 for the *Wapen Camer* in 1653), Chapt. 6.

GT 777 Piece of chalk (N.A.).

GT 975 Pieces of chalk - 3 (210185).

GT 976 Lumps of chalk - 3 (265200).

GT 977 Lumps of chalk - 3 (207200).

GT 978 Pieces of chalk - 3 (225200).

GT 979 Lump of chalk (210185).

GT 980 Large lump of chalk (265180).

GT 1007 Lump of chalk (265200).

GT 1161 Large of lumps of chalk - 2 (N.A.).

Eight *vaten* of chalk (*kalk*) for the requirements of general equipment in the Indies, 1656, KA 10061, and 10 *tonnen* of chalk was ordered in 1653, see Table 6-20, Chapt. 6, below.

5. ORGANIC MATERIAL

5.1. Wood

5.1.1. Miscellaneous small artefacts.

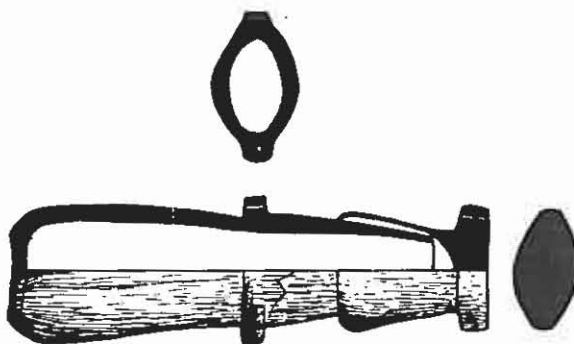


GT 1143 Drumstick, complete, hard wood - possibly ebony (175195). Scale 1:4



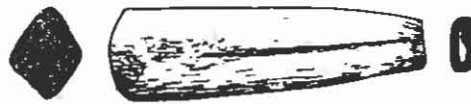
GT 1144 Drumstick, broken (N.A.).

Drumsticks were not specifically mentioned in the requisitions for the Indies for 1656, KA 10061, although in the lists were 40 drums, 300 drumskins, 200 snares, 200 strings, 200 brace strings and 50 drum carrying-bands. So it would seem that it is not impossible that these drumsticks were provisions for the Indies. However, they could also have been for shipboard use; generally the *Constapel* had at least one drum under his charge.

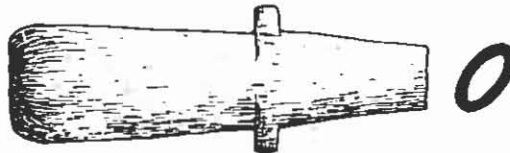


GT 1036 Powder flask and cap, complete - wood with leather (215200).

GT 1088 Powder cap - wood (215200).

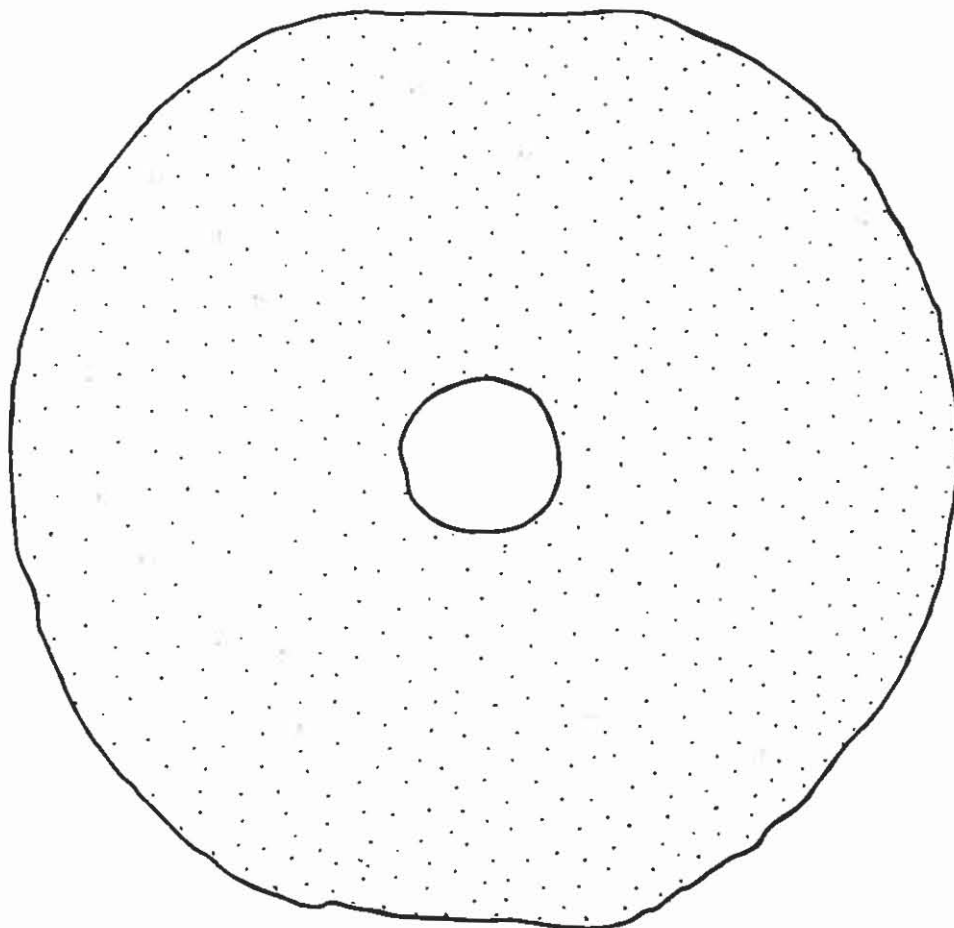


- GT 1004 Powder flask - wood with leather (215200).
 GT 1037 Powder flask - wood with leather (215200).



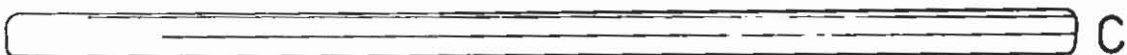
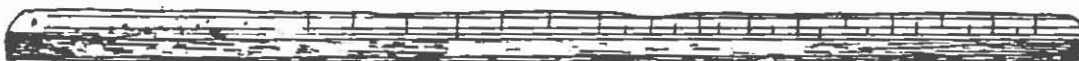
- GT 1051 Powder flask - wood with leather (215200).
 GT 1089 Powder cap - wood (215200).
 GT 1091 Powder cap - wood (215200).

Twelve of these charges were originally fitted with leather strings to a musketeer's bandolier. Examples of various charges may be seen in Kist (1971), plate 70; and are shown being used by a musketeer in de Gheijn (1607), fig. 23. The examples from the VERGULDE DRAECK appear to be leather-covered, and the wood is in a very fragile condition. The requisitions for the Indies, KA 10061, include 200 shoulder belts for calivers. The latter was a lighter version of the musket (which was a matchlock of 6.5kg weight, firing 18.6mm bullet), and weighed about 4kg, with a calibre of 15.9mm. The lead musket-balls found on the wreck site and the diameter of musket balls that the musket ball mould GT 1260 would have made, both give diameters around 16.5mm. Thus, by 1659, the V.O.C. was using shot around 17 to 18mm in diameter (see 3.4.4. above). 500 bandoliers were ordered in 1653 for the Indies, see Table 6-20, Chapt. 6, below.



GT 1395 Pulley sheave - wood (275210).

The only example found on the wreck site.



C
B ■ D
A

GT 1145 Measuring stick, the eight most obvious graduations are all 25.5mm long - about an inch apart; these units are subdivided into quarters (275210).

The value of the various inches, Van Dale (1970), is

as follows:

Amsterdamse *duim* - 25.73mm

Rijnlandse *duim* - 26.16mm

English inch - 25.4mm

The two obvious possibilities for the type of inch used here is either the Amsterdam or English. The rod appears to be unbroken, although slightly worn and, therefore, is almost certainly a foot ruler slightly longer than 282mm. The values for the foot, Van Dale (1970), is as follows:

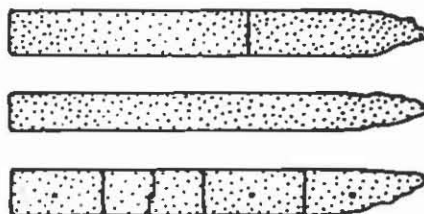
Amsterdamse *voet* - 283mm

Rijnlandse *voet* - 314mm

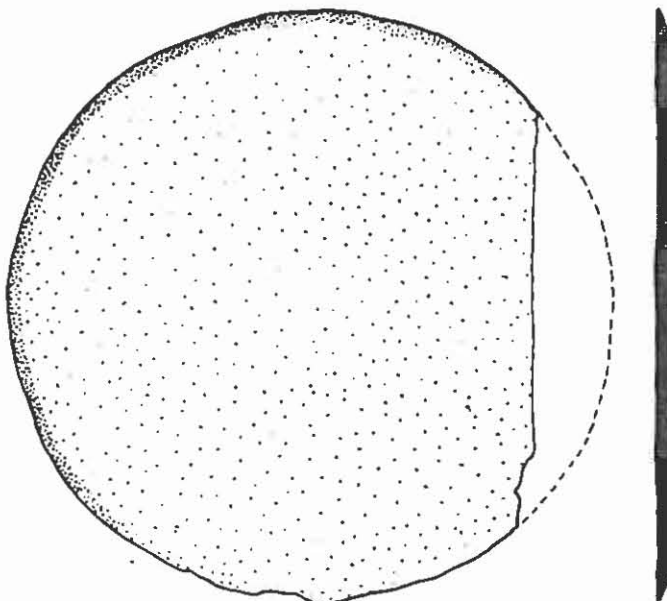
English foot - 305mm

The ruler, therefore, is clearly an Amsterdamse *voet* of 283mm made up as usual of 11 Amsterdamse *duim*.

GT 1146 Long wooden rod with square cross section, possibly a dipstick (N.A.).



GT 1133 Graduated wooden rod, graduations at 24mm intervals, unknown graduation on reverse (170205).



GT 1125 Circular plate of wood, possibly lid of cask (N.A.).

- GT 1041 Dowel (245220).
 GT 1054 Dowel and wedge (180195).
 GT 1068 Wedge (220205).
 GT 1130 Bung (265180).
 GT 1137 Bung, 45mm diameter (235205).

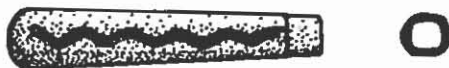
5.1.2. Handles (also bone)



- GT 1034 Ivory knife handle, 85mm long (235205).



- GT 1039 Ivory knife handle with brass ferrule, 95mm long (290175).



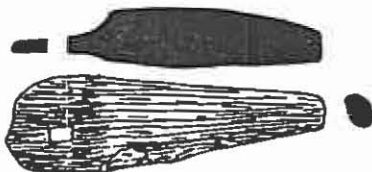
- GT 1136 Bone knife handle with wavy-line decoration, 82mm long (N.A.).



- GT 985 Wooden tool handle, 110mm long (215200).
 GT 1004 Wooden handle, 80mm long (215200).

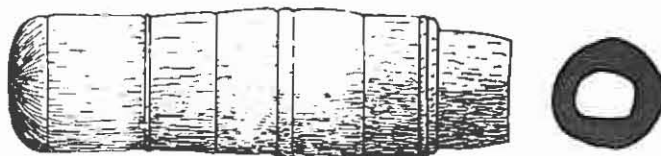


- GT 1005 Wooden knife handle with diamond pattern, 85mm long (215200).



- GT 1006 Wooden peg (?) with square hole at one end, 85mm (215200).

- GT 1044 Wood, with brass wire whipping, broken, possibly part of sword handle (175195).



- GT 1052 Wood, 132mm long tool handle (290175).

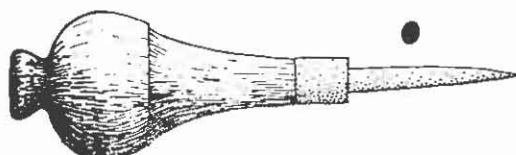


- GT 1069 Wood, 160mm long (225200).

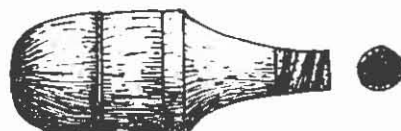


- GT 1072 Wood, small tool handle, 75mm long (215200).

- GT 1079 Wooden rod (?) part of handle (?) (280200).



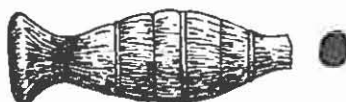
- GT 1134 Wooden handle with brass spike (235205).



- GT 1138 Wooden bodkin handle, 85mm long (235205).



- GT 1139 Wooden tool handle, 140mm long (215200).



- GT 1352 Wood, bradawl handle, 74mm long (N.A.).

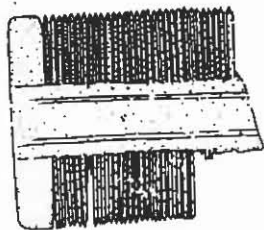
- GT 1061 Wooden nails or sprigs (215200).

- GT 1055 Wooden fragments (290175).

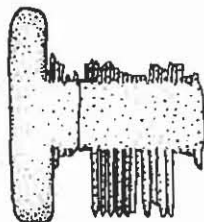
- GT 1099 Wooden fragment (290175).

- GT 1397 Wooden tube with grooves on outside (265180).

5.1.3. Combs and fan (also bone)



GT 986 Bone comb (210190).



GT 1129 Wooden (?) comb (245220).



GT 1131 Wooden (?) comb (N.A.)

GT 1354 Fan and fragments (200200).

These combs are common finds, and several are illustrated in Baart *et al.* (1977), 110.

5.2. Bone

5.2.1. Elephant tusks, fig. 44.

Elephant tusks were an important cargo carried by the V.O.C. to the Indies, being about the third largest item by weight. On average, the annual requisitions were about 40,000 Amsterdamse *pondt per annum* between the years 1634 and 1664, see Table 6-18, Chapt. 6, below. In some years, tusks were not requisitioned; but at other times, the orders increased to as much as 90,000 Amsterdamse *pondt per annum*. The tusks were from African elephants, and were imported to the Netherlands by the *Geoctroyeerde West Indische Compagnie* (G.W.C.) from West Africa, Menkman (1947) and Goslinga (1971). Only a limited number were available at the Cape of Good Hope. Van Riebeeck records that it was forbidden to kill any elephants or other 'big game' because of alarming depletion in numbers of these animals in the first few years of settlement at the Cape. However, he notes that the tusks of dead elephants were often discovered, KA 456 f. 58. Thus, it would seem that the tusks almost certainly came from West Africa, particularly as such large quantities were commonly exported to the Indies as early as 1634. Elephant tusks have also been found on the slave ship FREDENSBORG (1765) in Norway, Svalesen (1974), and the ZEEWIJK.

GT 002 A - F - A,B,D,E, - Sections of tusks

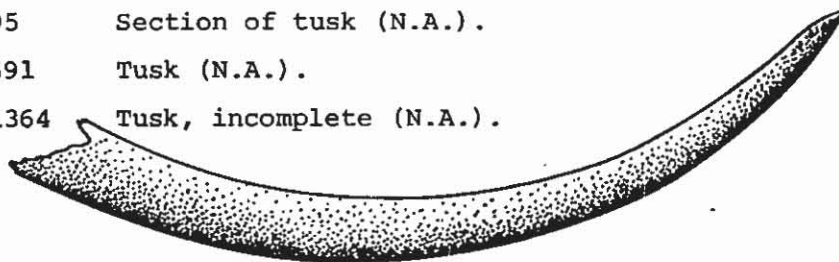
C, - tusk

F, - fragments of tusk (N.A.).

GT 95 Section of tusk (N.A.).

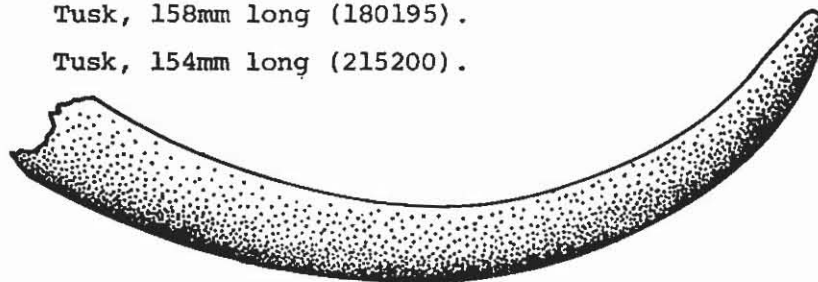
GT 691 Tusk (N.A.).

GT 1364 Tusk, incomplete (N.A.).



GT 1366 Tusk (230160).

GT 1367 Tusk, tip damaged (245195).
 GT 1365 Tusk, 158mm long (180195).
 GT 1370 Tusk, 154mm long (215200).



GT 1371 Tusk, 158mm long (265200).



GT 1372 Tusk, 190mm long (N.A.).
 GT 1374 Tusk, large (N.A.).
 GT 1375 Tusk (N.A.).
 GT 1376 Tusk (N.A.).
 GT 1377 Tusk, large (N.A.).
 GT 1378 Tusk (N.A.).
 GT 1384 Tusk, 1.6m long (285210).
 GT 1363 End of tusk - 2 pieces (255205).
 GT 1373 Tip of tusk and 2 pieces (255205).
 GT 1391 Tip of tusk (N.A.).
 GT 1392 Tusk (N.A.).
 GT 1393 Tusk (N.A.).
 GT 1394 Part of elephant tusk (N.A.).
 GT 062 Fragment of tusk (N.A.).
 GT 670 Ivory fragments - 3 (N.A.).
 GT 726 Ivory fragments - 14 (N.A.).
 GT 760 Ivory fragments (N.A.).
 GT 785 Ivory pieces - 4 (N.A.).
 GT 787 Ivory pieces - 2 (N.A.).
 GT 788 Ivory pieces - 3 (N.A.).
 GT 809 Ivory pieces - 3 (N.A.).
 GT 1003 Ivory piece (N.A.).
 GT 1166 Ivory pieces - 2 (155220).
 GT 1362 Ivory piece (215200).
 GT 1379 Piece of tusk (N.A.).

5.2.2. Animal and fish

- GT 1101 Rat skull (215200).
- GT 1102 Rat skull (215200).
- GT 1066 Lower jawbone of rat (215200).
- GT 1085 Lower jawbone of rat (215200).
- GT 1084 Bone from jaw of rat (215200).
- GT 1087 Rat bone? (215200).
- GT 1067 Rat bones - 2 (215200).

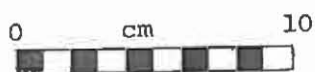
The two skulls have been identified by Mr. A. Bains, of the W.A. Museum, as those of *Ratus Ratus*, the brown or ship's rat. This skeletal material is of interest, particularly as we know this was the second voyage of the ship and, therefore, it may be reasonably assumed that there were many more rats on-board. Almost certainly some would have survived the wreck itself; the question has been raised that should a few rats have reached shore, that this may have been the introduction of *Ratus Ratus* into Australia.

- GT 998 Fish-bone (180195).
- GT 1063/65 Fish-bones - 3 (215200).
- GT 1073/74 Fish vertebrae - 9, and other fish bones (220205).
- GT 1360 Fish vertebrae and 2 bone fragments, 1 with charred end (235205).
- GT 1361 Fish vertebrae - 2 (215200).
- GT 1083 Fish-scale (215200).

It is questionable if this material was, in fact, on-board the ship at the time of the loss, or if it is intrusive material from fish that have died in the area. It should be noted, however, that these bones were buried in deep organic layers of the site, under the overhang, in an area where other animal bones were found.



(50) Longitudinal half of barrel associated with bones.



(51) Pig Bones, (from left to right GT 1165, 1368, 1368, 1167, 1179, 1368, 1183, 1179, 1368).

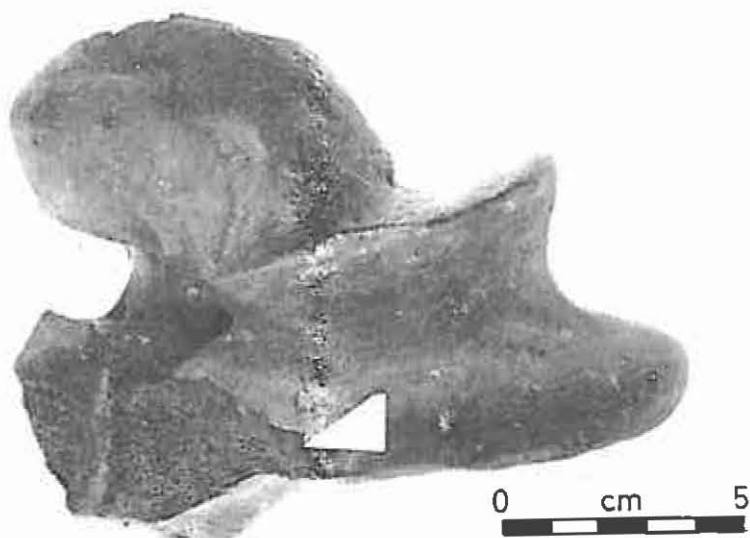
Cow and pig:

All the bone material in this section has been tentatively identified by Mr. G.D. van der Heide, as being from the domestic cow and pig. This material was found associated with the remains of barrels, fig. 50; in every case, only vague remnants of the barrels were found, but it is clear that they were originally the containers for this matter. It was noted that particular barrels contained certain sorts of bone, i.e. vertebra, thigh-bone, etc. The contents may have been the *speck* (pork), fig. 51, and *vleesch* (beef), figs. 52A, B, and C, referred to in the requisitions. The record of goods arriving in the Indies for 2656, KA 10074, shows that 1,257 *vaaten speck* and 1,785 *vaaten vleesch* arrived in the Indies. In 1653, the VERGULDE DRAECK carried 27 *vaaten vleesch* and 41 *vaaten speck*, KA 10072, Table 6-21, Chapt. 6, below. However it may have equally been part of the ship's provisions, see Table 6-17, Chapt. 6.

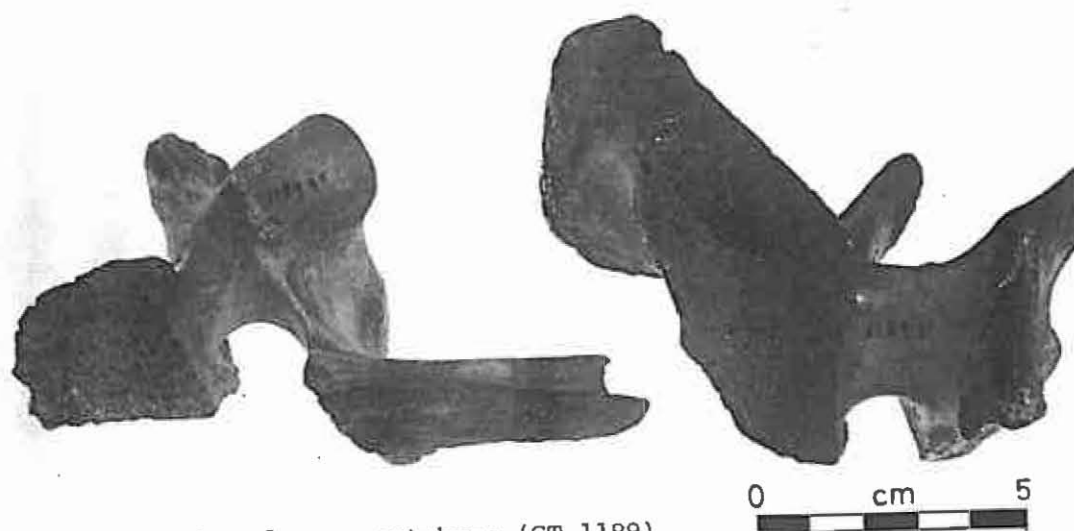
GT 1147	Animal bones - 24 pieces (275210).
GT 1148	Animal bones - 39 pieces (N.A.).
GT 1163	Animal bones - 33 pieces (275185).
GT 1164	Animal bones - 33 pieces (N.A.).
GT 1165	Animal bones - 12 pieces (215200).
GT 1167	Animal bones - 44 pieces (255205).
GT 1168	Animal bones - 1 rib (N.A.).
GT 1169	Animal bones - 5 (155220).
GT 1170	Animal bones - 2 scapulae (290175).
GT 1171	Animal bone - leg (280200).
GT 1172	Animal bones - 11 (280200).
GT 1173	Animal bones - 2 (170205).
GT 1174	Animal bones - 3 pieces (275185).
GT 1175	Animal bones - 19 (225200).
GT 1176	Animal bones - 5 (220205).
GT 1177	Animal bones - 3 (165210).
GT 1178	Animal bones - 10 pieces (245220).
GT 1179	Animal bones - 19 pieces (245220).



(52A) Cow Bones (GT 1452 above, and 1147) note butchering mark on knuckle of GT 1147.



(52B) Detail of butchering mark on GT 1147.



(52C) Butchered cow vertebrae (GT 1189).

GT 1180 Animal bones - 4 (N.A.).
 GT 1181 Animal bones - 21 (165210).
 GT 1182 Animal bones - 36 (235205).
 GT 1183 Animal bones - 36 (215200).
 GT 1184 Animal bones - 8 (215200).
 GT 1185 Animal bones - 16 (N.A.).
 GT 1186 Animal bones - 4 (N.A.).
 GT 1187 Animal bones - 10 (275185).
 GT 1188 Animal Bones - 24 (180195).
 GT 1189 Animal bones - 26 (N.A.).
 GT 1190 Animal bones - 7 (N.A.).
 GT 1191 Animal bones - 8 (290175).
 GT 1192 Animal bones - 7 (275210).
 GT 1193 Animal bones - 18 (290175).
 GT 1194 Animal bones - 6 (215200).
 GT 1195 Animal bones - 3 (255205).
 GT 1196 Animal bones - 41 (215200).
 GT 1368 Animal bones - 41 (280200).
 GT 1369 Animal bones - 46 (275210).
 GT 1449 Animal bones - 7 (290175).
 GT 1450 Animal bones - 2 ribs in concretion (208200).
 GT 1452 Animal bones - 26 (N.A.).

5.2.3. Beads



Scale 1:1

GT 999 Small white bone bead (210190).
 GT 1343 White bone bead (N.A.).

5.3. Miscellaneous: Pitch and resin

GT 1000 Box of pitch (N.A.).
 GT 1000 A - piece of pitch;
 B - piece of pitch (N.A.).

The General Demand for the Indies in 1656 ordered 275 *vaten arpuijs* or resin. Harpuis (*arpuijs*) was used as incendiary material in fire-ships, and also as a

protection against ship worm, Witsen (1690). Where a ship is *verdubbeld* (or sheathed), a layer of tarred cow hair covers the outside of the hull below the waterline. Thin planks are laid over this and then grey paper covered with harpuis, which is all nailed onto the hull with numerous large-headed iron nails, *verdubbelen nagels*. Also, pap was used for anti-worm. This was made from harpuis, rough hair, whale-oil and sulphur, and was applied below the waterline, Witsen (1690). Van IJk (1697) mentions the same procedure. Smith (1627) mentions: "Graving is only under water, a white mixture of Tallow, Sope and Brimstone; or Train-oile, Rosin and Brimstone boiled together, is the best to preserve her calking and make her glib or slippery to pass the water." In 1653, 200 *vaten* of *arpuijs* was requisitioned, Table 6-20, Chapt. 6, below, of which the VERGULDE DRAECK delivered one, Table 6-21. Ships also carried *arpuijs* as part of their own supplies, 4000 lbs. as per Table 6-13.

5.4. Fibres: Rope and matting

GT 024	Rope coiled around conglomerate (N.A.).
GT 054	Rope fibre (N.A.).
GT 056	A - piece of rope; B - piece of rope (N.A.).
GT 997	Rope (215200).
GT 1062	Piece of string (235205).
GT 1086	Rope fibres (215200).
GT 1159	Pieces of rope - 3, concreted (N.A.).
GT 1197	Piece of rope 60mm long (275210).
GT 1355	Bag of rope pieces (275210).
GT 686	Matted fibres from cannon no. 14 (800230).
GT 1090	Matting (215200).
GT 1059	Stuffing fibres from cannon no. 14 (800230).

5.5. Seeds and Straw

GT 614 Seeds - 2 (N.A.).



GT 748 Seed (N.A.).

GT 990 Seeds - 6 (210200).

GT 991 Seeds - 4 (165210).

GT 992 Seeds - 19 (207200).

GT 993 Seeds - 11 (265180).

GT 1042 Jar of seeds (215200).

GT 1043 Jar of seeds (250200).

GT 1045 Jar of seeds (250200).

GT 1046 Seeds - 3 (210200).



GT 1048 Jar of seeds (215200).

GT 1053 Jar of seeds (250200).

GT 1132 Jar of seeds (200200).

GT 1345 Thirteen seeds with fruit attached (215205).

GT 1345 A - 6 seeds with fruit attached;

B - 6 seeds with fruit attached (215205).

GT 1420 Pieces of reed or straw (235205).

5.6. Timber

5.6.1. General

GT 014 Timber - 1 piece (N.A.).

GT 055 One concreted piece (N.A.).

GT 061 Piece with hair attached (N.A.).

GT 098 Pieces - 3 (N.A.).

GT 692 Piece (N.A.).

GT 694 Piece (N.A.).

GT 695 Piece (N.A.).

GT 712 Fragments - 2 (N.A.).

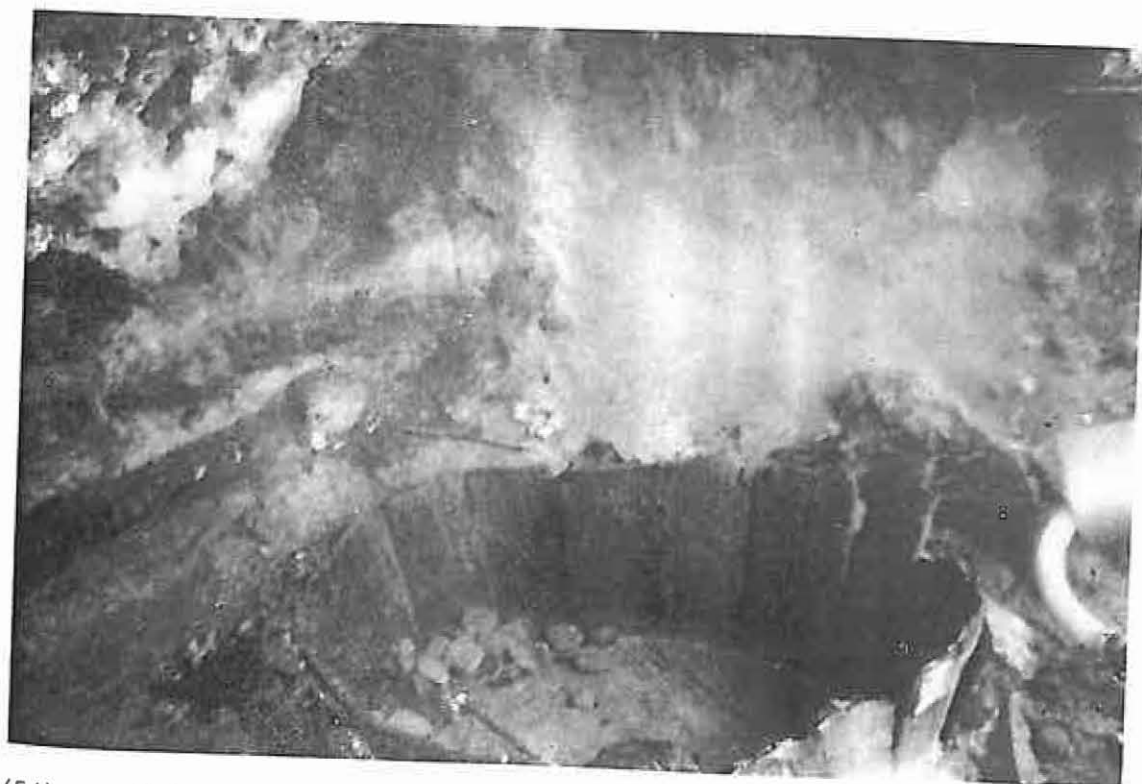
GT 728 Fragments - 3 (N.A.).
 GT 731 Fragments - 12 (N.A.).
 GT 745 Fragments - 9 (N.A.).
 GT 749 Fragments - 2 (N.A.).
 GT 765 Fragment (N.A.).
 GT 782 Fragment (N.A.).
 GT 793 Fragment (N.A.).
 GT 803 Fragments - 7 (N.A.).
 GT 804 Fragments - 4 (N.A.).
 GT 1014 Wood bark and fragments (N.A.).
 GT 1109 Piece of wood (N.A.).
 GT 1121 Piece of wood (N.A.).
 GT 1141 Pieces of wood (200200).
 GT 1385 Timber pieces - 1 bag (245220).
 GT 1386 Ships timber (N.A.).
 GT 1387 Timber pieces - 1 bag (215200).
 GT 1388 Piece of timber (215200).
 GT 1389 Piece of timber (215200).
 GT 1390 Piece of timber (215200).
 GT 1404 Wood fragments, concreted (275185).
 GT 1405 Wood fragment (N.A.).
 GT 1406 Wood fragment (275210).
 GT 1410 Assorted pieces of ships timbers (N.A.).
 GT 1411 Parts of wooden cask, figs. 53 and 54 (N.A.).
 GT 1412 Two pieces of dowel-shaped wood (215200).

5.6.2. Bark, silverbirch, possibly dunnage

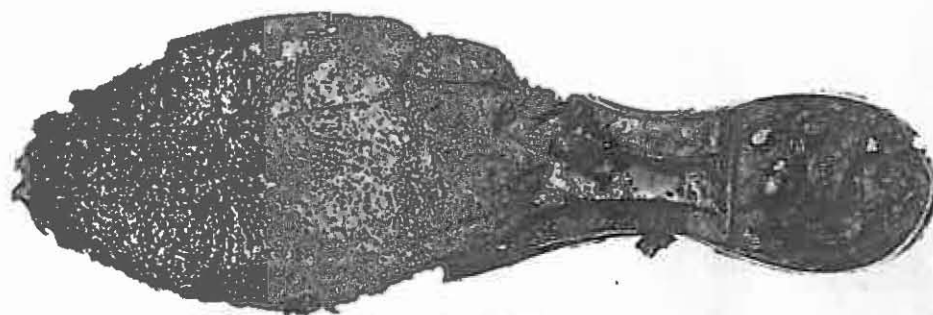
GT 1047 Bark (220205).
 GT 1049 Bark (215200).
 GT 1050 Bark (235205).
 GT 1060 Bark (215200).
 GT 1078 Bark (215200).
 GT 1082 Bark (220205).
 GT 1097 Bark (245220).
 GT 1135 Bark (275210).
 GT 1142 Piece of wood with bark (175195).
 GT 1396 Bark (215200).



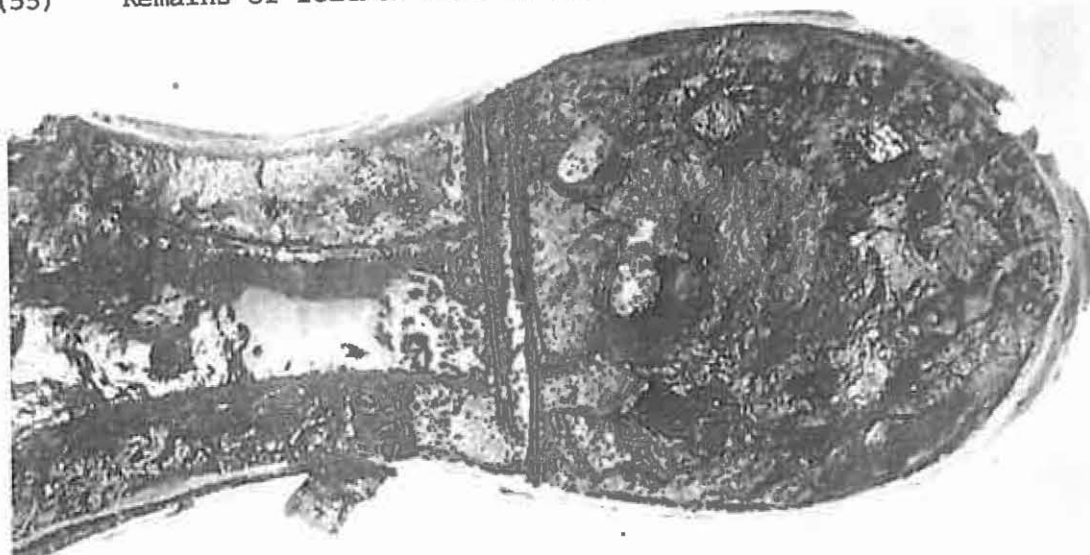
(53) Barrel staves.



(54) Bottom of barrel or bucket in underhang, note coins in base. This photograph was a hand held time exposure.



(55) Remains of leather shoe GT 1092 detail below. Scale 1:2



Scale 1:1



Top

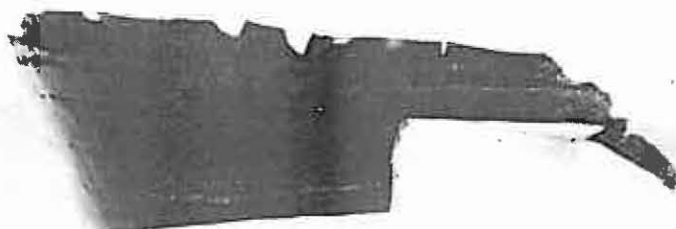


Side



Bottom

(56) Remains of heel GT 1113. Scale 1:1



Side

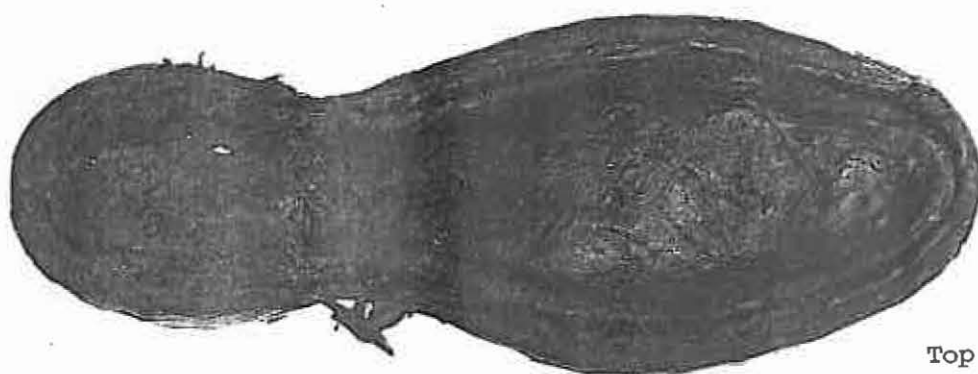


Top

(57) Remains of heel GT 1115 Scale 1:2

5.7. Leather: shoes

- GT 1057 Parts of shoe (255205).
- GT 1092 Leather shoe, fig. 55 (290175).
- GT 1105 Leather strap from shoe (275210).
- GT 1106 Parts of shoe (200200).
- GT 1107 Leather fragments (N.A.).
- GT 1108 Shoe heel (215200).
- GT 1109 Leather fibres (N.A.).
- GT 1110 Piece of shoe leather (255205).
- GT 1111 Piece of leather (285210).
- GT 1112 Piece of leather (220205).
- GT 1113 Shoe heel with wooden nails, fig. 56 (275210).
- GT 1114 Leather heel (N.A.).
- GT 1115 Leather heel, fig. 57 (N.A.).
- GT 1116 Leather heel fragment (N.A.).
- GT 1117 Sole of shoe (215200).
- GT 1118 Leather shoe (N.A.).
- GT 1119 Leather fragment (N.A.).

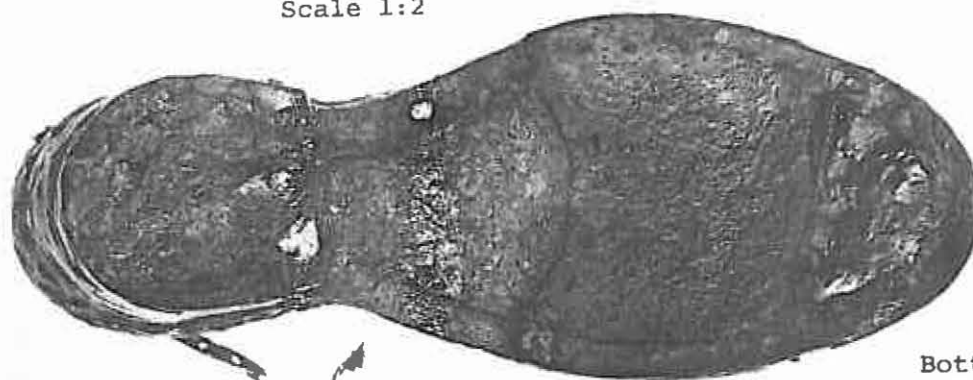


Top



Side

Scale 1:2



Bottom



(58) Remains of leather shoe GT 1127°

GT 1120 Leather fragment (N.A.).
GT 1121 Leather fragment (245220).
GT 1122 Parts of shoe (285210).
GT 1123 Parts of leather soles (N.A.).
GT 1124 Misc. fragments of leather (N.A.).
GT 1126 Part of scabbard (215200).
GT 1127 Shoe and misc. fragments, fig. 58 (245220).
GT 1128 Leather in conglomerate (N.A.).
GT 1058 Conglomerate with leather, seeds and ceramics (175195).
GT 1307 Shoe leather (275210).
GT 1346/9 Leather straps attached to brass buckles (275210).
 Some of the shoe fragments show evidence of wooden
 'nails' both in the sole and in the heel.



(59) Front side of tool box during course of extraction of corroded tools.



(60) Front side further on in extraction process.



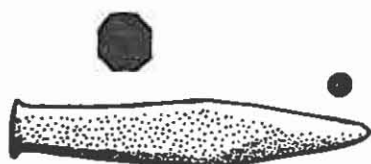
(61) Back side of tool box showing wooden handles.

6. TOOL-BOX - IRON TOOLS AND WOODEN HANDLES

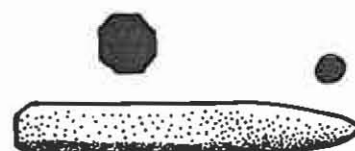
This tool box was found under the overhang, 215200, and was raised complete. Subsequently, the tools were excavated from the concretion at the Conservation Laboratory in Fremantle, using a vibro-tool, see figs. 59, 60 and 61.

6.1. Precision Tools

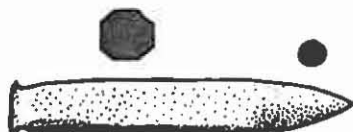
6.1.1. Round-ended centre punches



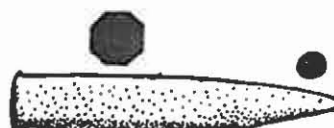
GT 1204



GT 1206



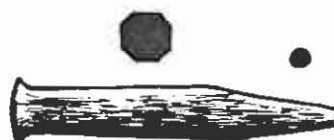
GT 1206A



GT 1213



GT 1222



GT 1248



GT 1249



GT 1252



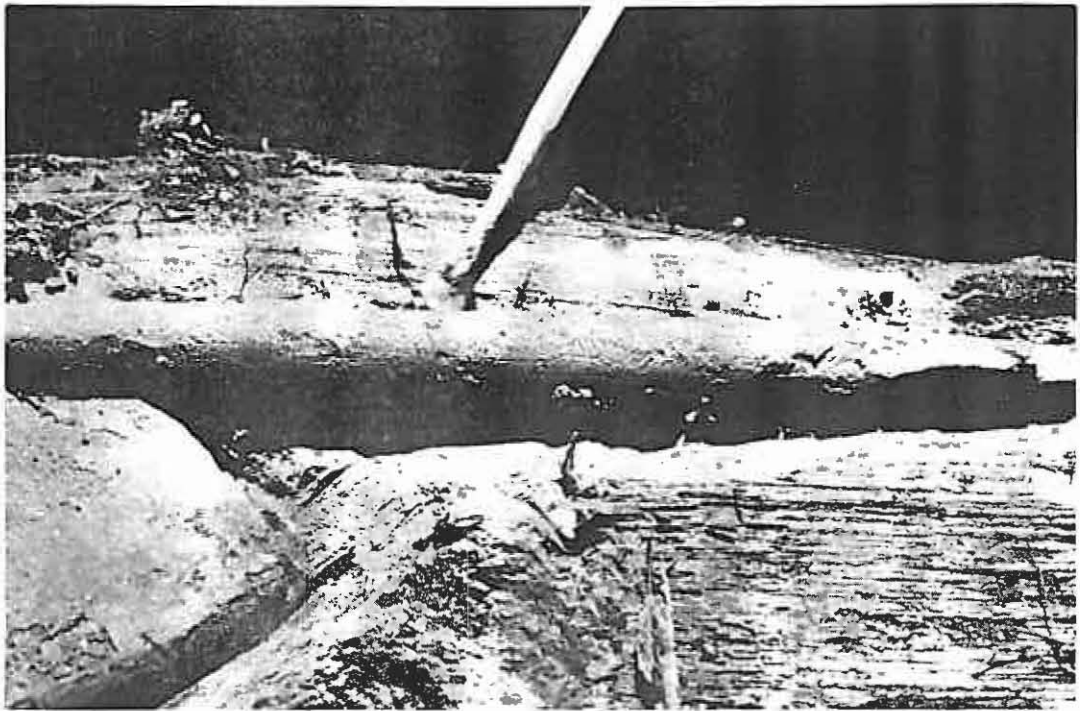
GT 1264



GT 1268



GT 1273



(62) Round File (GT 1271).

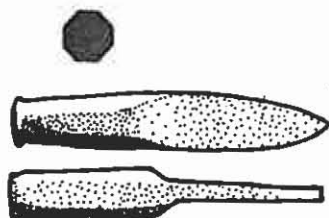


(63) Detail of mark.

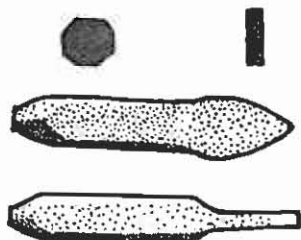


(64) Detail of tongs (GT 1271). Scale 20cms.

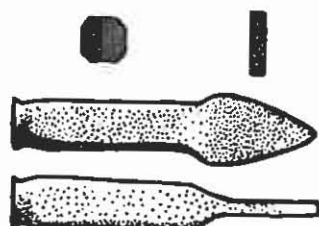
6.1.2. Flat, taper-ended punches



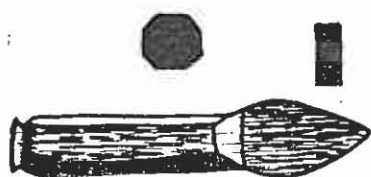
GT 1205



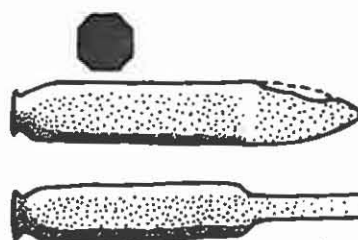
GT 1216



GT 1221



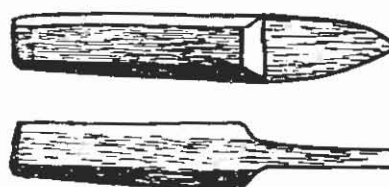
GT 1246



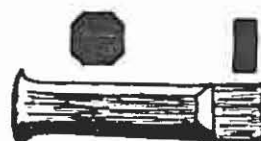
GT 1214



GT 1219



GT 1223

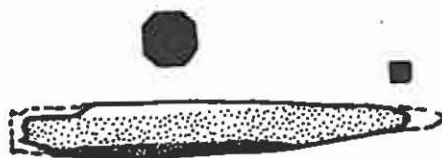


GT 1256

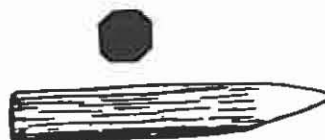


GT 1262

6.1.3. Square-ended punches



GT 1210



GT 1254

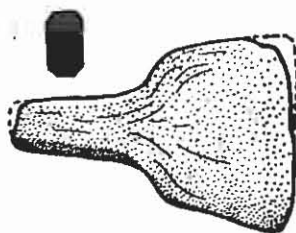


GT 1261

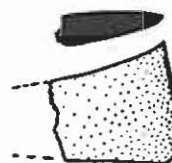


GT 1262

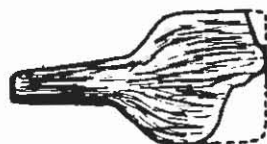
6.1.4. Flared chisels



GT 1201



GT 1202



GT 1251

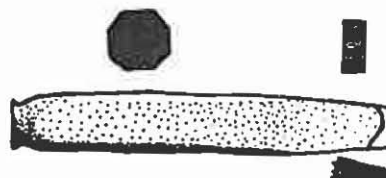


GT 1252

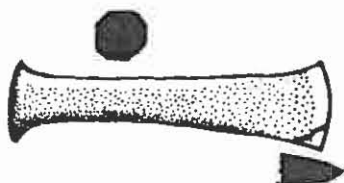
6.1.5. Parallel-sided chisels



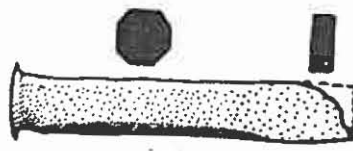
GT 1208



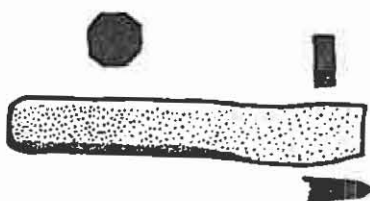
GT 1209



GT 1215



GT 1220



GT 1224



GT 1245



GT 1266

6.1.6. Long-tanged, flat-tapered tools



GT 1207



GT 1217



GT 1247

6.1.7. Long-tanged, octagonal-tapered tool



GT 1218

6.1.8. Hammers



GT 1198 Copper hammer, flat square face with straight pane.



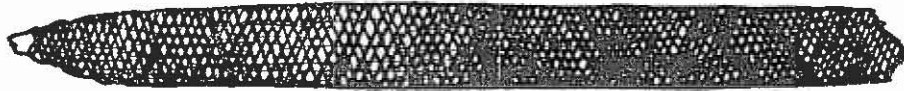
GT 1242 Iron hammer, flat square face with cross pane, similar to French pattern hammer, Salaman (1975).



GT 1243 Iron hammer, double flat cross pane, possibly a type of adze or a saw setting hammer as in Salaman (1975).

6.2. Files

6.2.1. Square



GT 1257 Large, square file 23mm x 17.



GT 1274 Small, square file 7mm x 7.

6.2.2. Round



GT 1275

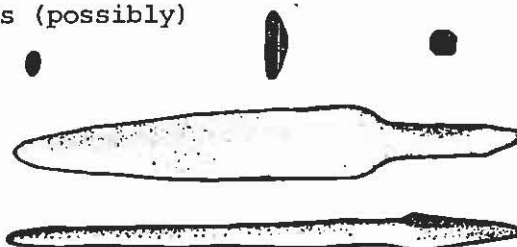


GT 1276

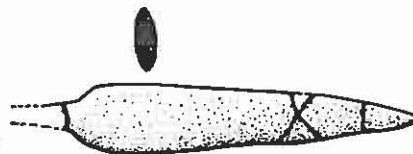


GT 1279

6.2.3. Blanks (possibly)

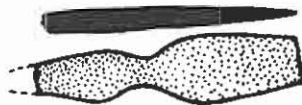


GT 1200 Half round file.



GT 1203 Oval, cross-section file.

6.3. Screwdriver blades or Chisels



GT 1212



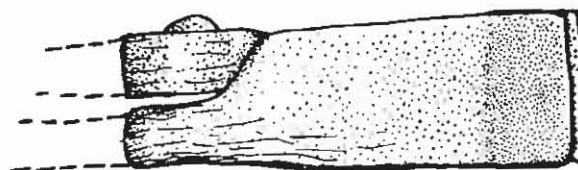
GT 1244



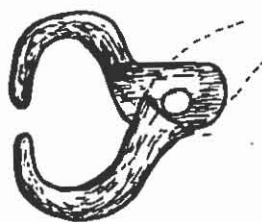
GT 1270

6.4. Miscellaneous Tools

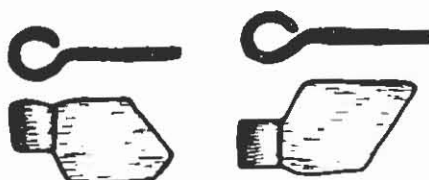
6.4.1. Assorted



GT 1199



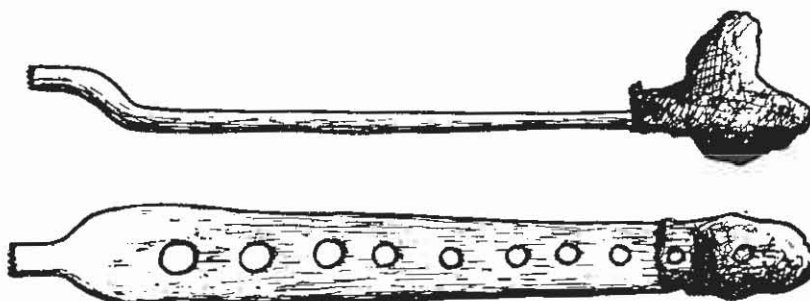
GT 1271-1272



GT 1263 Hinge (?)



GT 1269 Possibly part of handle of tongs.



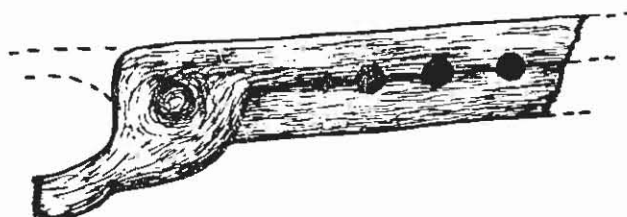
GT 1258 Die-stock for dowels



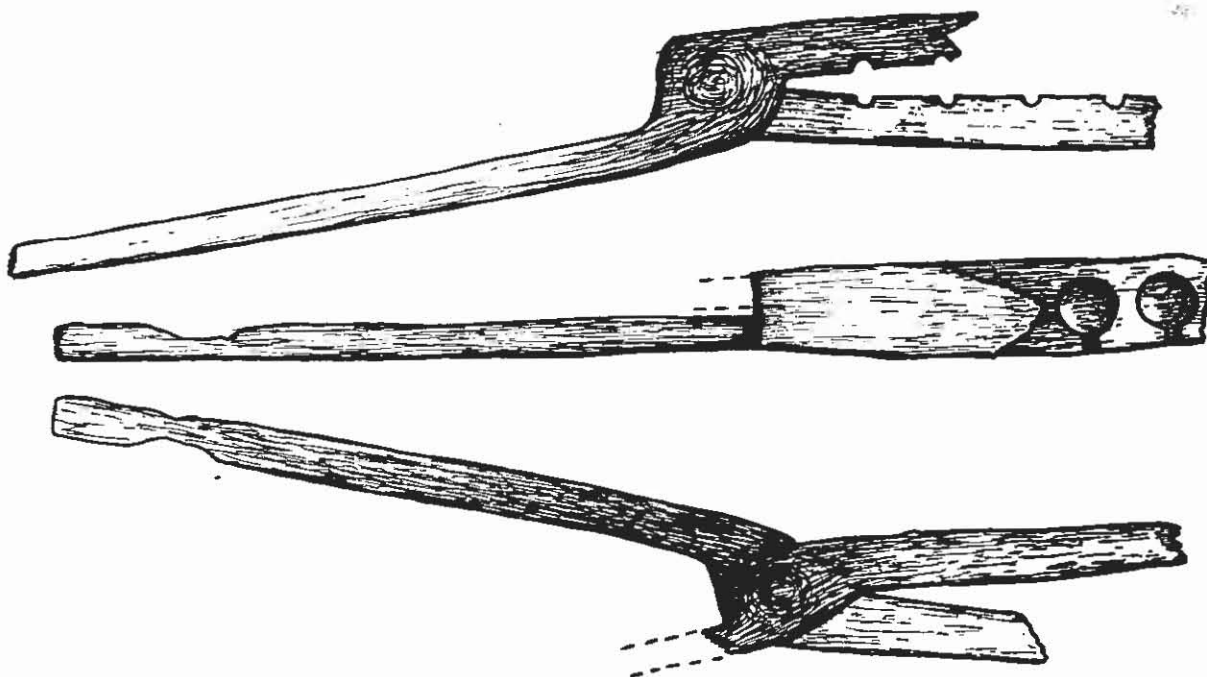
GT 1211 Nail with square section, 10mm.

GT 1225 Nail fragments.

6.4.2. Musket-ball moulds

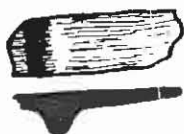


GT 1259 Handle and end broken - 3 moulds left.



GT 1260 Handle and end broken - 4 moulds left, dia. 16mm.

6.5. Unidentified objects



GT 1277 Hinge piece.

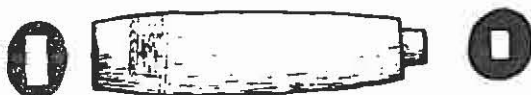


GT 1286 Pin (?).

6.6. Wooden Handles



GT 1287 Hammer (?) handle.



- GT 1288 Small handle decorated with notching, rectangular hole for tool, and smaller hole in other end, possibly part of sword handle.



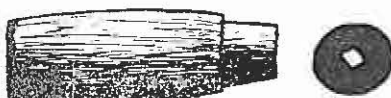
- GT 1289 Tool handle, square hole.



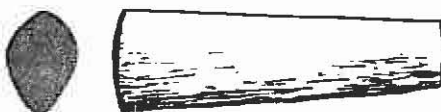
- GT 1290 Bobbin.



- GT 1291 Tool handle, square hole.



- GT 1292 Tool handle, square hole.



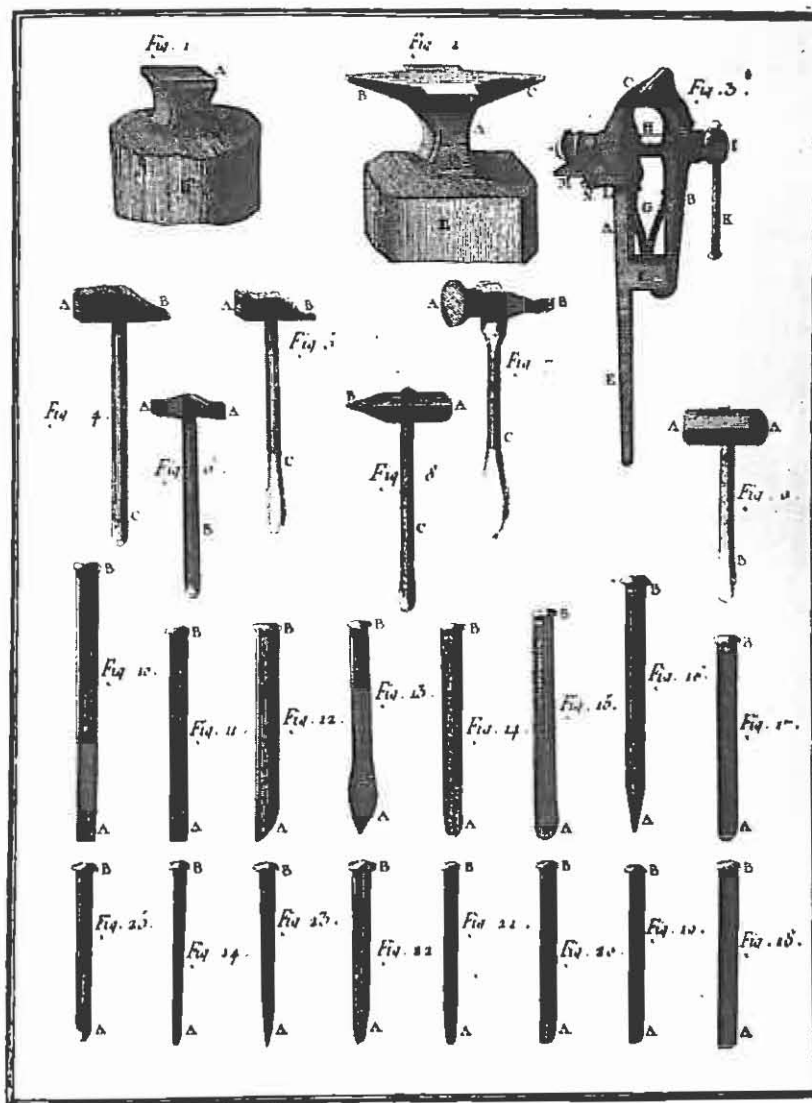
- GT 1293 Tool handle - oval section - possibly a powder flask.

6.7. Miscellaneous

- GT 1280)
 GT 1281)
 GT 1282) Metal fragments iron.
 GT 1283)
 GT 1284 Smoothing iron concretion.
 GT 1285 Concretion..
 GT 1294 Spherical, iron object with square hole.
 GT 1309 File (?).

The presence of the musket-ball moulds in the tool box tends to indicate that it was part of either the *Constapel* (the gunner) or the *Corporaals kist* (corporals chest). The requirements given in the *Resoluties van ordanaris en extraordinaris vergaderingen van de Heren XVII* of October 11, 1656, KA 187, for the *Constapelskist* and *Scheepscorporaalskist* are given in Tables 6-5 and 6-7, (below).

The majority of the equipment found in the tool box, occurs in the lists. It is possible that the powder flasks (GT 1036 etc. Section 5.1.1.), and some of the handles found in the vicinity (Section 5.1.2.), were in fact originally part of this tool box, too. A 18th century illustration of Armourers' tools is given in fig. 65, and is taken from Diderot and d'Alembert (1778). It may however equally be argued that these items could be for the Indies as they also appear in the Requisitions in Table 6-20, Chapt. 6, below.



Fourbisseur, Outils.

(65) Collection of Armourer's tools from Diderot's Encyclopaedia.

GT unreg- Cannon No. 25, marked AVOC, 1700A, 1D, on trunnion.
istered. Length and bore unknown. Raised May 1963. Disin-
tegrated due to lack of conservation.

GT 1104 &
1408 Part of cascabel of cannon, GT 1454.

GT 071-073

& 081 Fragments from GT 1456.

Since the question of the cannon sizes are related to
the cannon-balls, this subject will be dealt with at
the end of Section 7.1.2., Iron cannon balls.

7.1.2. Iron cannon-balls

GT 053 Cannon-balls - 3 (N.A.).

GT 059 Cannon-ball (N.A.).

GT 069 Cannon-balls - 2 (N.A.).

GT 070 Cannon-ball (N.A.).

GT 097 Cannon-balls - 38 (N.A.).

GT 676 Cannon-ball (N.A.).

GT 679 Bar shot (N.A.).

GT 682 Cannon-balls - 6 (N.A.).

GT 743 Cannon-balls - 2 (N.A.).

GT 767 Cannon-balls - 2 (N.A.).

GT 801 Cannon-ball (N.A.).

GT 1160 Cannon-balls - 3 (N.A.).

GT 1398 Cannon-balls - 4 (N.A.).

GT 1008 Cannon-balls - 2 (N.A.).

GT 1009 Cannon-balls - 68 (N.A.).

GT 1009A Cannon-balls - 6 (N.A.).

GT 1010 Cannon-ball fragment (N.A.).

GT 1075 Cannon-ball (215200).

GT 1094 Cannon-ball (N.A.).

GT 1095 Cannon-balls - 2 (N.A.).

GT 1096 Cannon-ball (N.A.).

GT 1100 Cannon-ball (280200).

GT 1011 Cannon-ball fragments - 1 box (N.A.).

GT 674 Part of cannon-ball (N.A.).

GT 1430 Cannon-balls and fragments - 23 (N.A.).

GT 1430A Cannon-balls - 2 (N.A.).

Of the three cannon raised so far, No. 12 is a larger type than Nos. 13 and 25 which have both disintegrated but appear from photographs to be identical.

On Nos. 13 and 25, the incised figure 1700A on the base-ring, (for technical terms see Falconer (1780): Cannon), refers to the weight of the piece in Amsterdam *pondt*. The monogram A.V.O.C. refers to the owners, the Amsterdam Chamber of the *Vereenigde Oostindische Compagnie*; the cast initials in bas-relief, ID on one trunnion and 48 on the other, are possibly the founder's initials and date of casting, 1648.

Both guns have a pair of multiple astragals where normally the first and second reinforce-ring and ogees would be. Thus, there is a large astragal flanked on either side by three fillets, about 80mm wide overall; then there is a girdle about 30mm wide, and then another set of astragals. The vent and muzzle astragal, and fillets are also non-typical, having two fillets on either side of the main astragal, instead of the normal one. The cascabel has a small astragal or fillet on it as well. The trunnions are noticeably tapered. Norton (1628) states that: "The trunnions ought next to the body be a Dyametre one Calibre of her proper bore in thickness, and also one in length, only lessening $\frac{1}{20}$ of a Calibre, tapering little by little towards their outward end of them."

Although smaller, these cannon (Nos. 13 and 25) resemble one found on the KENNEMERLAND (1664), No. 6, which is 2.73m long with a bore of 120mm corresponding to No. 12 from the KENNEMERLAND in calibre. Four similar guns are located in the Fort Jesus Museum, Mombasa, and are possibly illustrated in Kirkman (1974), fig. 82-2; although he sketches the overall shape of the multiple astragals, he does not show any detail. This cannon has a length of 2.44m and a bore of 178mm. From the length it would seem to be intermediate between the KENNEMERLAND cannon No. 6 and the VERGULDE DRAECK cannon Nos. 13 and 25. Clearly the bore is excessively large; this may possibly be due to

corrosion or it may have been bored out. A similar gun is located in the Leger Museum, Leiden, 74-126, with 1625A on the base ring, ID on the right trunnion, and IR on the left trunnion (when viewed from the front). This cannon comes from the fortifications of Groeningen, dating possibly from the siege of 1672.

It has been suggested that these guns with this type of paired multiple astragals were of Swedish origin, possibly from the Finspong or Nijkoping foundries, which were started by the Nederlandse family Trip in 1628, Klein (1965). These guns are also referred to as *Finbanker*, said to be a Danish word, Blom (1691), the author is grateful to Mr. Hoff of the Tøjhusmuseum for this information. Eleven examples were recovered from the Danish warship, ENIGHEDEN, which was sunk at Kalmes, while blockading the Swedish fleet in 1679. These cannon are in the Tøjhusmuseum, Copenhagen, nos. 244-256, see Tøjhusmuseum (1971), fig. 7. Other *Finbanker* guns of 12, 6, and 4 pounds are located in this museum, from the Battle of the Sound of 1658 between the Netherlands and Swedish fleets. These guns are from the Swedish ships NORDSTIERNAN and POLLUX.

The VERGULDE DRAECK cannon No. 12 is different from the two described above. The cascabel has a single fillet as above, but the vent and muzzle astragals have the normal single fillets on each side of the main astragal. The first reinforce has a reinforce-ring, an ogee and four fillets; the second reinforce-ring has an astragal flanked on each side by three fillets. There is no chase astragal or fillets as such. Boudriot (1968) illustrates a set of iron guns from the French Naval regulations of 1680, which have the similar multiple mouldings (although none exactly correspond to the cannon here), and which are said to have been inspired by the Hollanders.

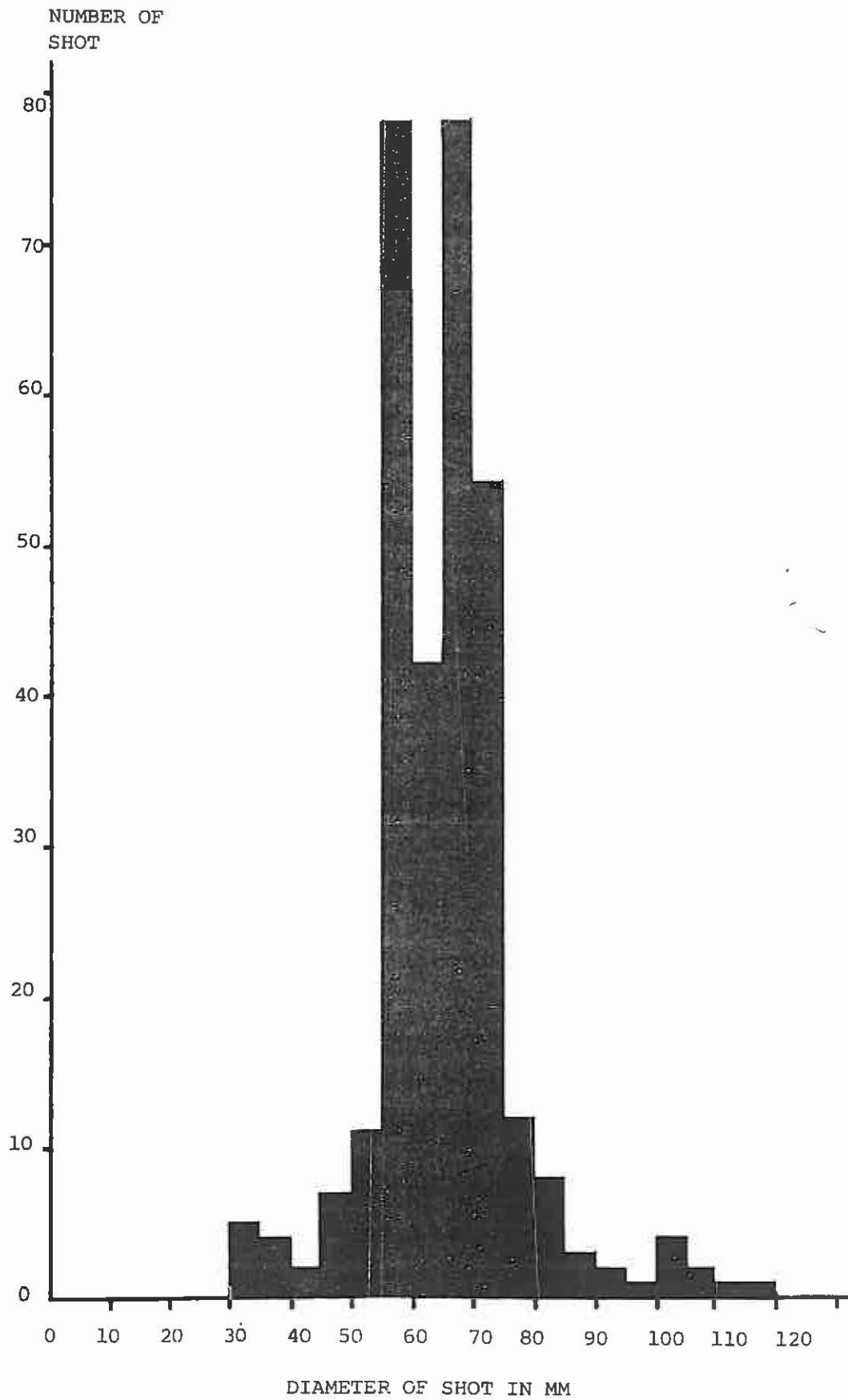
On the base ring of Cannon No. 12 is inscribed 3230A, the weight in Amsterdam *pondt*; beyond the vent-field astragal is inscribed the monogram AGWC, the insignia of the Amsterdam Chamber of the *Geoctroeerde West-Indische Compagnie*. By the mid-17th century,

the West India Company was in financial difficulties and during this period of the second *octrooi* (license), 1647-1671, the Company was going broke, Goslinga (1971). It is possible that this gun (and possibly others on the site) were sold to the V.O.C., who subsequently put their mark AVOC above that of the GWC. No trunnion marks were found on this gun, and this is a similar finding to the cannon recovered from the BATAVIA.

When we come to investigate the problem of the types of guns concerned here and their calibre, the subject is fraught with difficulties. There are numerous tables giving the weights for various diameter of shot. However, in many cases, the units of the weights and measures are not specified. Furthermore, cannon were generally bored to a certain diameter, a windage of $\frac{1}{4}$ inch was then usually allowed which gave the calibre of the piece; proof shot, ordinary shot and storm shot were then the amount of powder applied to this shot. Thus Galschut (c 1692) states that a half *cartouw* bored to 20 *ponden* fired an 18 *ponden* shot, and that the powder used for proof shot was 12 *ponden*, ordinary shot 9 *ponden*, and storm shot $7\frac{1}{2}$ *ponden*.

This question of the calibre of Cannon No. 12 is related to the size of the cannon balls, and it is thus relevant to discuss both questions here. Fig. 66 gives the frequency histogram of the diameters of the shot from the VERGULDE DRAECK. We can see five noticeable peaks 30-35mm, 55-60mm, 65-70mm, 100-105mm and 115-120mm. The significance of these will be discussed below.

Windage, the difference between the bore of the piece and the shot, was generally considered to be $\frac{1}{4}$ inch by most authors, e.g. Smith (1600i and ii), Norton (1628), Witsen (1690), Galschut (c 1692), and Van IJk (1697). However, some authors give alternatives: Norton (1628) gives the shot size as $\frac{1}{20}$ of bore; Witsen (1690) gives a complex formula for calculation by which the shot is $91\frac{1}{2}\%$ of the bore; and Galschut (c 1692) gives Witsen's formula and another by which the shot is $\frac{17}{18}$ of the bore, and states for iron cannon the windage is $\frac{1}{8}$ th of the diameter of the shot.



(66) Frequency histogram of shot diameter in mm.

There are two main sources which give the relationship between the diameter of a cannon-ball and its weight: tables published in the 17th century giving this relationship, and gunner's tally-sticks of the period. Table 1 gives the two relationships between the diameter and weight published by Smith (1600i), and Smith (1600ii). Surprisingly, the two tables are not the same, although in both cases Smith is using the *Avoirdupois* weight system and the English inch. Table 2 gives the relationship published by Norton (1628), again in the same weights and measures systems. Norton's tables agree with Smith's (1600i) table for diameters above about 4 inches. Witsen (1690) published two tables (originally about 1671) which are given in a slightly modified form in Tables 3A and B (it is assumed that Witsen used the Amsterdam *pondt* and *duim*); the two tables are not consistent apart from in one or two cases. Galschut (c 1692) published a manuscript which gave the relationship between the diameter in unspecified units and the weight in Nurenberg *ponden*, Table 4. Van IJk (1697), illustrates a *talstock* (tally-stick) from which the diameter in mm can be determined from given weights in unspecified *ponden*. The tally-stick found on the BATAVIA has been identified by McGrail (1974), and is illustrated in Stanbury (1974). This has four scales, one on each side of the square section stick, corresponding to Amsterdam *duimen*, and weights of iron shot, lead shot and stone shot. The iron shot has been calibrated against the diameters in Table 6. The other tally-stick from the wreck of the WITTE LEEUWE (1613), and discovered by Sténuit, has not yet been published.

If the density of iron is calculated from the various Tables, the results show a remarkable variation (see Table 7). It is possible that the high density for Witsen's table, Table 3B below, is due to the fact that he is referring to the weight of the shot rather than the calibre for a given bore. Van IJk's measurements, Table 5 below, appears to bear no relation to any weights and measures systems, and may indicate that his *talstock* is purely schematic. It appears that Galschut is using the Amsterdam *duim* together with the Nurenberg *pondt*. The true value of the density of grey cast-iron is 7.0g.cm^{-3} which most tables seem fairly close-to. Using

the BATAVIA tally-stick as the standard, Cannon No. 12, with a bore of 125mm, would be bored to 14A. *ponden*, and with a 0.25A. *duim* windage, the calibre of the gun would be 12A. *ponden*, or with Witsen's 91% windage, about 11A. *ponden*.

Referring now to the cannon shot diameter found on the VERGULDE DRAECK, fig. 66 shows the frequency histogram of their diameters. It is possible that the three smallest size shot are, in fact, grape-shot; of the remaining encrusted cannon on the wreck site, none appear small enough to correspond to such small shot. The three examples of shot with 100mm diameter correspond to a shot size of 7.5A. *ponden*; and the single example of a diameter of 118mm, to a 12.3A. *ponden* shot. In the latter case, a windage of 2mm to allow it to fit into cannon No. 12 seems too small.

It is hoped to carry out further studies on the VERGULDE DRAECK cannon in the near future, and the whole question of cannon sizes can then be properly studied.

TABLE ONE

		A	B
		Smith : Art of Gunnerie	Smith : Art of shooting
		(1600i)	great ordinance
Diam in	Diam in		(1600ii)
ms	mm	Wt in Avdp	Wt in Avdp
2.00	50.8	1.11	1.29
2.25	57.2	1.58	1.75
2.50	63.5	2.13	2.33
2.75	69.9	2.88	3.43
3.00	76.2	3.75	4.50
3.25	82.6	4.75	5.00
3.50	88.9	5.94	6.22
3.75	95.3	7.31	7.86
4.00	101.6	8.94	9.00
4.25	108.0	10.63	10.75
4.50	114.3	12.63	12.67
4.75	120.7	14.88	14.63
5.00	127.0	17.31	16.25
5.25	133.4	20.06	19.67
5.50	139.7	23.13	22.14
5.75	146.1	26.38	25.83
6.00	152.4	30	29.50
6.25	158.8	34	32.13
6.50	165.1	38	36.63
6.75	171.5	42	40.75
7.00	177.8	48	46.00
7.25	184.2	53	52.86
7.50	190.5	58	56.63
7.75	196.9	64	64.00
8.00	203.2	71	71.00

TABLE TWO

Robert Norton: The Gunner (1628)

A Table showing the height and weight of iron, lead and stone-shot accurately and newly calculated by the Author, and applied to our assize of English measure of inches and parts, and to the Haberdepolze Weight of 16 ounces to the pound.

Diam in inches	Diam in mm	Wt. in Avdp
1.00	25.40	0.13
1.25	31.75	0.25
1.50	38.10	0.38
1.75	44.45	1.00
2.00	50.80	1.06
2.25	57.15	1.56
2.50	63.50	2.13
2.75	69.85	2.88
3.00	76.20	3.12
3.25	82.55	4.12
3.50	88.90	6.06
3.75	95.25	7.31
4.00	101.60	8.94
4.25	107.95	10.63
4.50	114.30	12.63
4.75	120.65	14.88
5.00	127.00	17.31
5.25	133.35	20.06
5.50	139.70	23.13
5.75	146.05	26.38
6.00	152.40	30.00
6.25	158.75	34.00
6.50	165.10	38.00
6.75	171.45	42.00
7.00	177.80	48.00
7.25	184.15	53.00
7.50	190.50	58.00
7.75	196.85	64.00
8.00	203.20	72.63

TABLE THREE

Witsen : *Architecture Navalis et Regimen Nauticum* (1690)

Table A			Diam in Table B		
<i>Ponden</i>	Diam. A. <i>duimen</i>	Diam. in mm	Amst. <i>duimen</i>	Diam. in mm	<i>pondt ijzer</i>
1.0	2.0	51.46	1.5	38.60	0.75
1.5	2.29	58.92	2.0	51.46	1.0
2.0	2.52	64.84	2.25	57.89	1.5
2.5	2.72	69.99	2.50	64.33	2.0
3.0	2.88	74.10	2.75	70.76	2.5
3.5	3.04	78.22	3.0	77.19	3.5
4.0	3.18	81.82	3.25	83.62	4
4.5	3.30	84.91	3.5	90.06	5
5.0	3.42	88.00	3.75	96.49	(5) 6.5
5.5	3.53	90.83	4.0	102.92	8
6.0	3.64	93.66	4.25	109.35	10
6.5	3.73	95.97	4.50	115.79	12
7.0	3.82	98.29	4.75	122.22	15
7.5	3.92	100.86	5.0	128.65	17
8.0	4.00	102.92	5.25	135.08	20
8.5	4.08	104.98	5.50	141.52	22
9.0	4.16	107.04	5.75	149.95	24
9.5	4.24	109.10	6.00	154.38	26
10.0	4.31	110.90	6.25	160.81	31
10.5	4.38	112.70	6.50	167.25	36
11.0	4.44	114.24	6.75	173.68	40
11.5	4.51	116.54	7.00	180.11	44
12.0	4.58	117.84	7.25	186.54	50
12.5	4.64	119.38	7.50	192.98	55
13.0	4.70	120.93	7.75	199.41	60
13.5	4.76	122.47	8.00	205.84	65
14.0	4.82	124.02			
14.5	4.88	125.56			
15.0	4.93	126.85			
16	5.04	129.68			
17	5.14	132.25			
18	5.24	134.83			
19	5.34	137.40			
20	5.42	139.46			

TABLE FOUR

Daniel Galschut : *Konst des Constapels, circ 1692*

*Tafel van diameter wicht en circomftentie der Kogels
beginende van de valkonet tot een heel diujsche kartow
Nuren^b. gewe.*

Diameter	Nuren ^b . pondt
2.0	1.0
2.25	1.38
2.5	1.94
2.75	2.63
3.0	3.38
3.25	4.06
3.5	5.38
3.75	6.56
4.0	8.0
4.25	9.63
4.5	11.38
4.75	13.38
5.0	15.63
5.25	18.06
5.50	20.81
5.75	23.75
6.0	27.0
6.25	30.5
6.5	34.31
6.75	38.44
7.0	42.88
7.25	47.63
7.5	52.75
7.75	58.13
8.0	64.00

TABLE FIVE

Cornelius van IJk: *de Nederlandsche Scheepsbouw Konst* 1697.

Talstock p. 264.

Weight in <i>pondt</i>	Diameter in mm
1	46.3
2	58.8
3	68.2
4	74.4
6	85.6
8	94.3
12	106.7
18	122.8
24	134.9
36	155.5
48	173.3

TABLE SIX

BATAVIA Tally-stick, BAT 4497

Wt. of shot in <i>pondt</i>	Diam in mm	Wt. of shot in <i>pondt</i>	Diam in mm
1	49.5	30	153.5
2	62.5	31	155.0
3	70.5	32	156.9
4	77.5	33	158.9
5	83.8	34	161.4
6	89.8	35	164.0
7	96.0	36	165.0
8	100.0	37	166.0
9	104.3	38	167.5
10	108.6	39	169.0
11	112.5	40	170.2
12	115.0	41	172.0
13	117.5	42	173.5
14	119.4	43	175.0
15		44	176.4
16	125.0	45	178.0
17	128.0	46	179.0
18	130.8	47	180.0
19	132.8	48	181.2
20	136.0	49	182.5
21	137.9	50	183.4
22	139.5	55	189.1
23	141.5	60	195.3
24	143.5	65	201.0
25	146.1	70	205.5
26	148.2	85	222.0
27	150.0	90	226.6
28	152.0	95	232.0
29	-	100	236.8

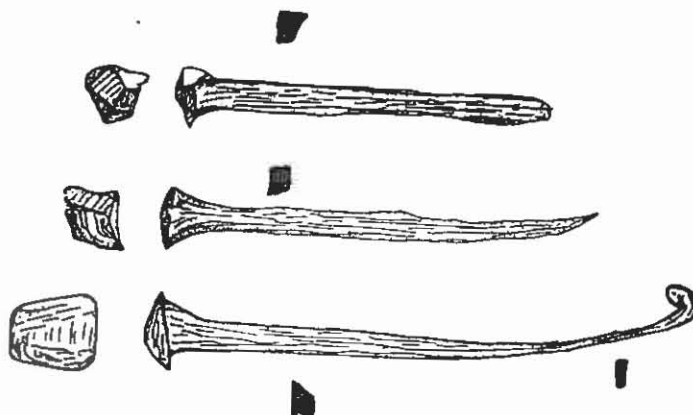
TABLE SEVEN

Density of iron in g.cm^{-3} , calculated from various sources
of shot weight-diameter tables.

Smith 1A	:	7.0288
Smith 1B	:	7.3307
Norton 2	:	7.2464
Witsen 3A	:	6.9209
Witsen 3B	:	7.2893
Galschut 4	:	6.7804 assuming Rijnland <i>duimen</i>
Galschut 4	:	7.126 assuming Amsterdam <i>duimen</i>
Van IJK 5	:	9.1226 A.lb/A. <i>duimen</i>
Van IJK 5	:	8.4494 A.lb/Rijnland <i>duimen</i>
BATAVIA tallystick	:	7.07

7.2. Miscellaneous

7.2.1. Nails



GT 035 Three nails, square shanks.

GT 1156 Nail.



GT 1457 Nail (235205).

GT 729 Nails in conglomerate.

7.2.2. Iron barrel hoops

GT 754 Barrel hoop parts, section 32 x 8.5mm.

GT 1081 Barrel hoops, concreted (275285).

GT 1140 Barrel hoops.

GT 1402 Section of barrel, concreted (275210).

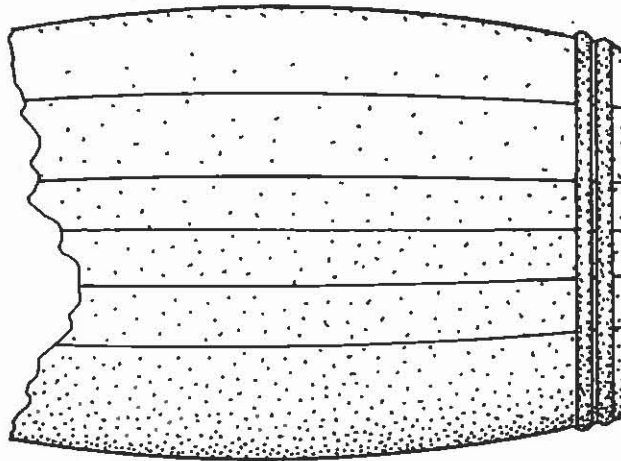
GT 1409 Section of barrel, concreted (280200).

GT 1418 Section of barrel, concreted, cross-sections
18.5 x 6mm and 32 x 6mm.



(67) Barrel of nails (GT 1471A) after raising from the wreck site.

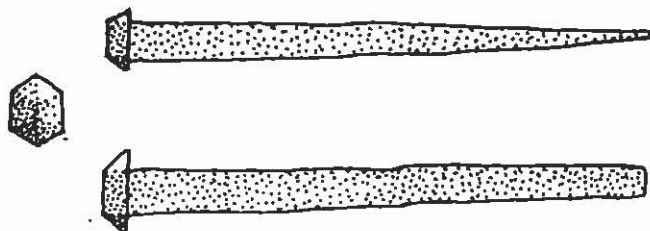
7.2.3. Barrel of iron nails

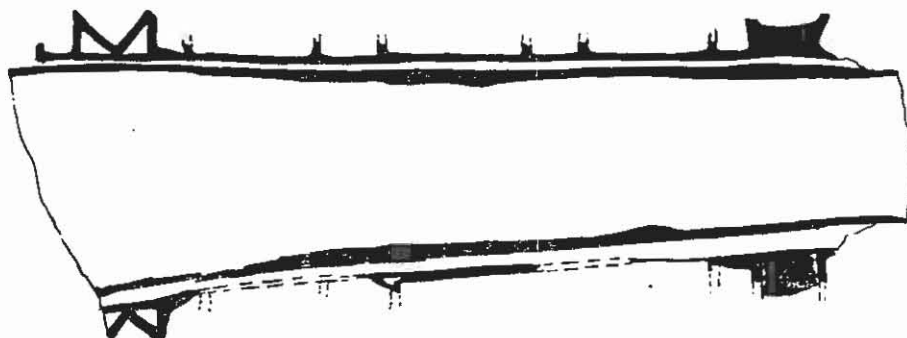
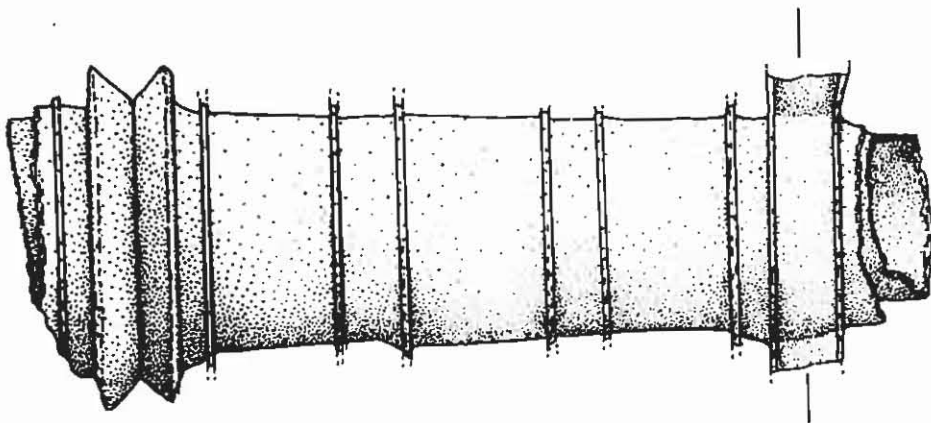


GT 1471A Barrel of nails, see fig. 67.

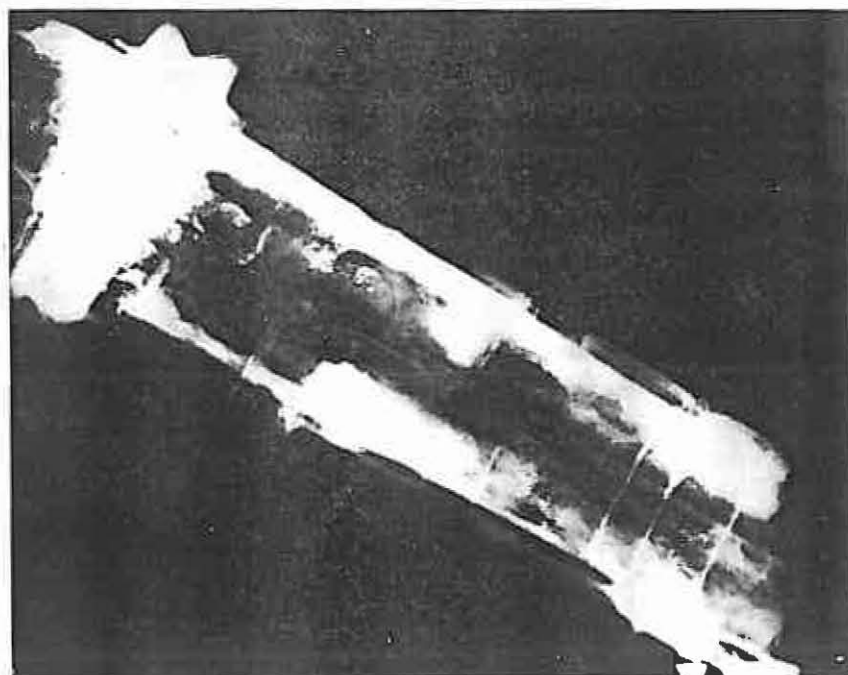
Note that unlike the wooden barrels shown in section 5.6.1., associated with bones, these barrels have wooden hoops at top of barrel, with semi circular cross section, rather like bamboo strips. Similar barrels have been found on the BATAVIA, Stanbury (1974), BAT 3301. Barrels of iron nails were regularly ordered for the Indies, see Table 6-20 in Chapter 6 below.

GT 1471B Nails extracted from barrel.





(68) Section of unknown object GT 025.

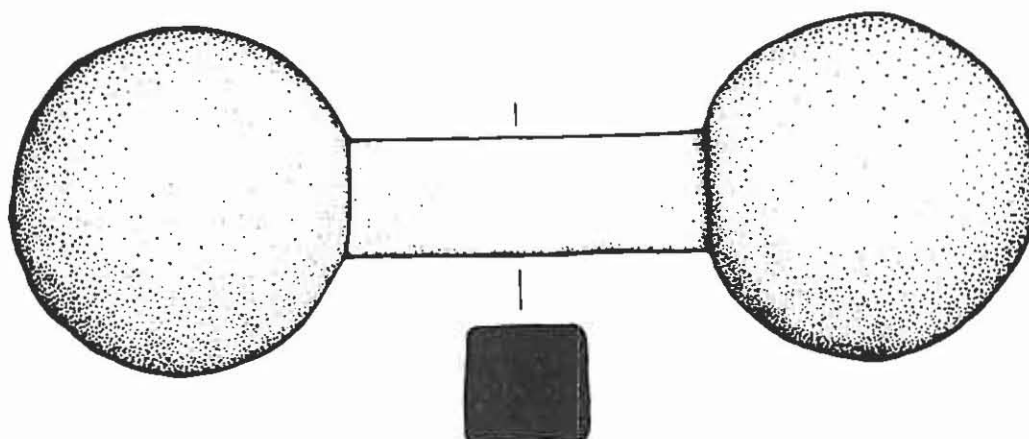


(69) X-ray of GT 025.

8.1. CONGLOMERATES

- GT 025 Unusual object, fig. 68, with what appears to be a pulley sheaf 34mm wide on left hand side and on right hand side another 28mm wide, but with a square rather than triangular section, and flanges running across the channel, like a chain gypsy. These sheaves (?) are located in centre. The whole system then appears to be located on four triangular grooves or splines onto a central tube (see end elevation). In all, the object is quite extraordinary; X-ray photographs, fig. 69, show more of internal structure. No obvious explanation of the use or purpose of this object can be produced to date.
- GT 026/7 Conglomerates - 2 (N.A.).
- GT 042 Encrusted cast-iron (N.A.).
- GT 044 Encrusted metal (N.A.).
- GT 045 Encrusted hollow iron (N.A.).
- GT 049 Piece of hollow piping (N.A.).
- GT 050 Encrusted metal pipe (N.A.).
- GT 051 Encrusted metal object (N.A.).
- GT 058 Encrusted piece of metal (N.A.).
- GT 060/9 Conglomerates - 2 (N.A.).
- GT 604 Piece of encrusted pipe - 2" long (N.A.).
- GT 612 Conglomerate (N.A.).
- GT 630 Concreted metal fragments (N.A.).
- GT 635 Concreted iron pieces (N.A.).
- GT 640/1 Conglomerate from cannon (195200).
- GT 642 Conglomerate containing iron, brick and ceramic fragments (N.A.).
- GT 664 Miscellaneous fragments (N.A.).
- GT 668 Conglomerate fragments (N.A.).
- GT 673 Corroded metal fragments (N.A.).
- GT 674 Small conglomerate (N.A.).
- GT 678 Conglomerate containing wood and metal (N.A.).
- GT 680 Conglomerate pieces (N.A.).

8.2. REPLICAS



- | | |
|---------|--|
| GT 1295 | Bar shot replica (275185). |
| GT 1296 | Ring bolt - replica (275185). |
| GT 1297 | Bolt replica (275185). |
| GT 1298 | Ring and ring bolt, both broken - replicas (275185). |
| GT 1299 | Flat bar with 3 holes - replicas (275185). |
| GT 1300 | Hammer heads - replicas (N.A.). |
| GT 1301 | Unidentifiable lump - replica (N.A.). |
| GT 1302 | Thick bar - replica (275185). |
| GT 1303 | Thick bar, tapered - replica (275185). |
| GT 1304 | Pipe fragment - replica (N.A.). |
| GT 1305 | Lump with square bar - replica (N.A.). |
| GT 1306 | Small chain fragment - replica (N.A.). |
| GT 1308 | Long tube-shaped object - replica (N.A.). |
| GT 730 | Palm of anchor - replica (N.A.). |
| GT 1426 | Cast from concretion - remains of pistol with firing mechanism (N.A.). |
| GT 1437 | Cast from concretion - part of sword-handle (275185). |
| GT 1438 | Miscellaneous casts from concretion - 1 box (N.A.). |