

The excavation and reconstruction of the *Batavia*, Western Australia

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The *Batavia* was a flagship of a fleet of ships belonging to the Dutch East India Company (Vereenigde Oostindische Compagnie, or VOC) that sailed from the Netherlands for the Indies in 1628. During the voyage, the ship was separated from the fleet in the Indian Ocean, and was subsequently wrecked on the Houtman Abrolhos off the then little-known Western Australian coast on 3 June 1629.

In 1963 the wreck-site of the *Batavia* was discovered and, at about the same time, legislation was enacted to protect all early wreck-sites on the coast of Western Australia. The Act dealt specifically with the four known VOC ships of which the *Batavia* was the oldest. The legislation protected these sites and gave the responsibility for their proper scientific excavation to the Western Australian Museum.



WESTERN AUSTRALIAN MUSEUM, Perth.
Laying out the side planking of the ship's hull in the *Batavia* Gallery. The completed gateway from the *Batavia* is in the background.

[Photo: P. Baker.]

Placing the stone blocks of the gateway on a prefabricated support.
[Photo: B. Richards.]

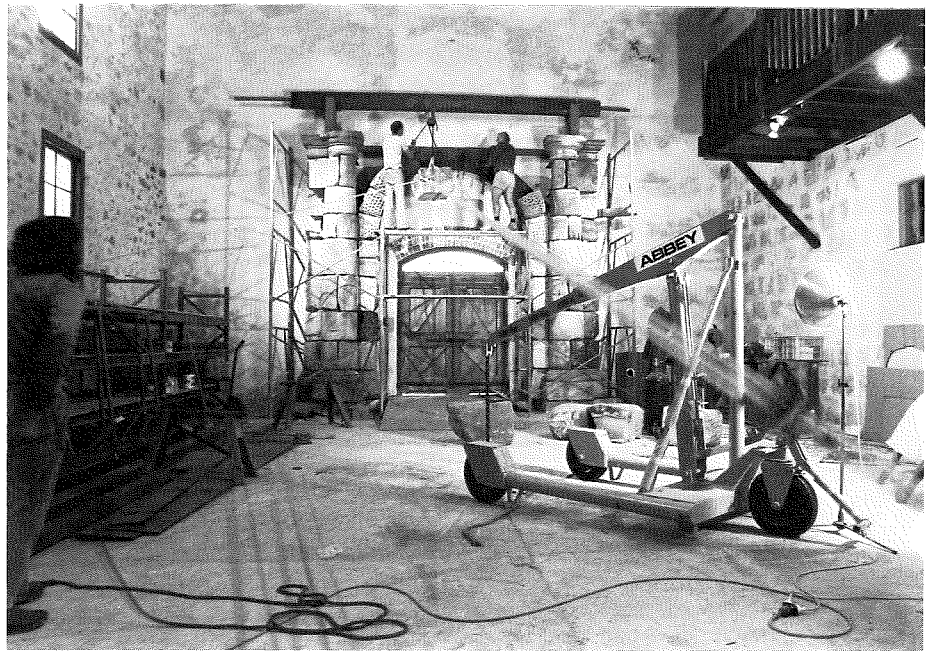
A major excavation project

As part of the museum's overall wreck-excavation programme, the *Batavia* excavation was the second and largest underwater excavation carried out to date. In 1973 the major excavation of this site started. A base camp was established on Beacon Island, an island close to the wreck-site. This camp had accommodation, storage facilities and a large jetty suitable for loading and unloading and also tying up the museum's workboat *Henrietta*. This vessel was constructed especially for the Department of Maritime Archaeology for excavation work.

The excavation of the site required a heavy mooring and ground tackle to ensure the safety of the vessel when working on the site. The wreck-site is exposed to the prevailing south-westerly Indian Ocean swells, which means that under certain conditions it was not possible to work on the site. On average, we could work on the site one day in three; usually in periods of about five to six days with a long break due to bad weather. The weather pattern had a quite interesting effect on the excavation, since there were often long periods when no diving was possible. During these periods, it was possible to process the excavated material, sort, clean and carry out limited conservation on-site.

On arrival at the base camp each artefact was stored temporarily in sea-water in a bag. During the bad weather periods, this material was sorted out. Artefacts were registered using a material type code under the major headings of stone, ferrous, non-ferrous, organic, ceramic and miscellaneous. Each object was entered in the registration book with a description, location and date of collection and stored in an appropriate storage medium with a tag marked with its registration number. Some conservation, e.g. mechanical cleaning, was carried out on-site but the main emphasis was to store material in a stable environment.

The excavation proceeded in a systematic manner. A trench was opened across the site about one-third of the way for-



ward. Excavation then proceeded aft, the object being to ensure that if strong stormy seas came up, the site would remain reasonably protected and that debris and spoil would not clog the areas to be excavated. The first objective was to remove a large quantity of shaped sandstone building blocks. The blocks appeared to be some form of portico façade, and, in all, 134 blocks were raised from the site with an estimated total weight of more than 37 tons. The blocks were individually freed from the light concretion or coralline algae on the sea-bed, strapped with ropes, and raised by a winch on the work-boat. When the conditions were too rough to moor the work-boat over the wreck-site, blocks were raised by using lifting bags hauled out to the work-boat, which was anchored seaward from the site, and there raised on board.

When it was too rough to dive on the site, the blocks were catalogued, cleaned, photographed and drawn. It soon became clear that the original theory that the blocks were part of a façade was correct. Furthermore, it seemed that they formed some sort of portico. The blocks fell into several distinct groups. There were two half-column bases, two half capitals, with semi-circular and quarter-round blocks. Some of these blocks had mason's marks such as B3, B5, B7; it was clear that we had two columns belonging to a façade. The columns were made up of nine layers, including the base and capital. Blocks belonging to an architrave and pediment were noted, although the exact relationship with the frieze was unclear. By careful drawing and measurement, a group of eleven wedge-shaped blocks were found

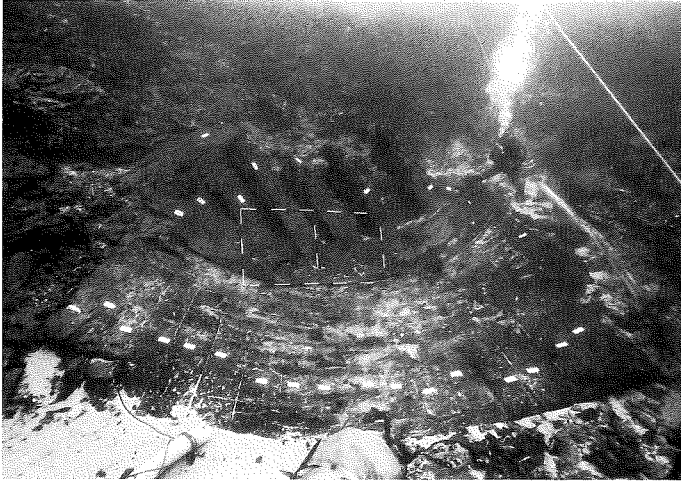
to form part of a semi-circular arch, with a honeycomb-like decoration on the face. An eroded keystone, with possibly a lion's head on it, fitted into this arch to complete the semi-circle. Another group of eight blocks of unknown purpose were noted. Because of the difficulty in moving the blocks by hand, initial attempts to carry out reconstruction at the base camp on Beacon Island were rather disappointing.

Conservation and reconstruction of a stone gateway

At the end of the excavation, the blocks were taken to the Maritime Archaeology Department at the Western Australian Museum at Fremantle, where they were further cleaned and consolidated. Using a fork-lift truck, it was possible to rebuild small sections of the façade and check for exact matching: something that we had not been able to do on Beacon Island. It became evident, after cleaning the blocks, that the mason's marks ran from B2 to B7, and referred, in fact, to the respective layer number on the columns. Working on the pediment and architrave required a temporary reconstruction to determine the distance between the columns. From this information we found that the arch fitted under the architrave and sprang from the fifth layer of the columns. Thus at last it was possible to account for the majority of the blocks. A theoretical reconstruction showed the portico to be over seven metres high. It now became evident that blocks of unknown purpose were in fact part of the top of the wall on to which the gateway was to be mounted.

Small ceramic jar found intact on the wreck-site.

[Photo: Western Australian Museum.]



Stern section of the *Batavia* wreck-site showing the transom and side of the hull. [Photo: Western Australian Museum.]



There were also some blocks that still did not appear to have any place in the portico at all; these included those making up the two honeycomb annuli.

At this time, a new maritime museum was being established in the old Commissariat Building at Fremantle. This historic building was originally associated with the transportation of convicts in 1851. It was decided to reconstruct the portico in the Museum's Batavia Gallery, where height and width were ideal for the purpose. The façade would frame the existing doorway.

A major problem in the reconstruction was how to hold the façade together. Most of the blocks were eroded, so that it was impossible for it to stand freely. Some form of support was therefore necessary. Furthermore, it was considered inadvisable to allow the blocks to bear any heavy weight. Since the blocks had been under the sea for 350 years, they could deteriorate in the future and therefore they had to be easily accessible for repair or consolidation. A framework was designed to support the façade: two pairs of steel columns, mounted on deep concrete foundations, were constructed and steel plates, cut out to the outline of the base of each layer of the façade, were welded on to the steel columns. Thus each layer of blocks was stood independently on its own plate, so they do not weigh down on those below, being separated by a small gap. A steel arch was also prefabricated and welded into place, with flanges to support the blocks of the original arch. A pair of girders ran between the two steel columns to support the architrave. A triangular framework was welded on to the top of the steel

columns; this supported the pediment. When all the blocks had been drilled, epoxy-resin was embedded in steel studs which were attached to the supporting framework to ensure that even in the event of an earthquake, the blocks could not be dislodged. In December 1979, the last block was put in place and the façade completed—three and a half centuries late.

Hull problems

During the excavation, part of the port stern section of the hull of the *Batavia* was uncovered. This was tagged and photographed *in situ* before dismantling and removing from the site. Through three excavation seasons the whole of the remaining hull structure was removed from the site. In some cases the timbers were too long to remove in one piece, particularly the strakes. These were cut using a pneumatic chain-saw so that they could be removed in manageable pieces. As the timber arrived on the work-boat at the base camp on Beacon Island, it was immediately transferred to sea-water holding tanks. These tanks were simply holes dug into the coral of the island and lined with sand and thick polythene sheet. When the bad weather period came, as it inevitably did, the timber was taken out of the holding tanks, washed down, tagged, registered and identified. It was then accurately photographed on all sides and traced using clear polythene sheeting and felt-tipped pens. Finally, after all the recording was finished, the timbers were wrapped up in polythene tubing with water and fungicide and stored until the end of the season.

From this point onwards, we were not to see the timbers again until the end of their conservation period, up to ten years. This proved to be exceedingly frustrating and is a situation to be avoided in the future. The problem was that on return to the Maritime Museum in Fremantle they were stored by the Conservation Laboratory in tanks of fresh water until the polyethylene-glycol treatment tanks were ready to treat a batch of timber. Thus, in order to examine a particular timber at any one time, it would be necessary to completely unpack a whole tank. A better method of storage would be to store the timber in a rack which could be lifted out of the tank with a crane or fork-lift. A particular timber could then be removed from its rack without disturbing the others.

The archaeologist excavating such a site has to contend with a number of serious problems. The most significant is the inability to predict the site's working conditions from one day to the next. Because of the danger of rough seas, any material left loose on the site could be driven off, over the reef, and be lost for ever. Thus it is not possible to uncover the site completely and examine and record the full structure at leisure, or excavate layer by layer or in any leisurely manner. It was necessary to uncover very small areas and completely excavate these down to the sterile layer before moving on. A layer of semi-consolidated dead coral forms a sort of crust over the site. Once this crust is broken the site could erode quite quickly and most destructively. This made it necessary to take a different approach to the excavation, par-

ticularly with the ship's structure. As each layer was uncovered it was cleared of all overburden, sand and silt. It was then tagged according to the structure concerned: frames, inner planking, outer planking, skin, etc. Then a series of overlapping vertical photographs of the structure were taken, using a square-grid frame to give two-dimensional control. Each layer was then dismantled and the process repeated for the next layer. The system then resulted in a series of photo-mosaics of the whole site layer by layer, which served as an essential part in the reconstruction programme.

Thus at the end of the excavation we had a series of photo-mosaics of the *Batavia's* hull structure under water, a photographic record of each individual timber, and a tracing of each timber to a 1:1 scale. The tracings were reduced photographically to a working scale of 1:10 and all the plans were produced on this scale. The next phase of the project was to construct a scale model of the hull structure. This was produced by the Institute of Nautical Archaeology at Texas A&M University under the direction of R. Steffy. Later, P. Hundley joined the museum staff to assist with this work. Each timber was scaled to 1:10 and fitted together to create the first research model. This gave the general shape of the hull and an impression of how it all fitted together. However, there were a number of problems with this. First, because of the small scale, some angles were not clearly defined and as a result some looseness was observed, i.e. the exact location of the side of the ship relative to the transom. It was therefore necessary to obtain a

graphic solution to the problem in order to test the validity of the model. Using a plan of the transom and the known bevel angles, a calculation was made on a mini-computer to solve the co-ordinate transform, allowing for known tilts both vertically and horizontally. This served as the start of a series of projections of the hull structure. It determined the location of the strakes and formed the basis for establishing a supporting framework.

The *Batavia* project has been an extremely long and involved project—one and a half years of field work to excavate the hull and nearly ten years to treat the timbers. The reconstruction of the hull is just about to start and the project will only be complete with the final excavation report now being written. But once completed, it will give us a wealth of information about the VOC and its ships. Already information has been published which has revolutionized many aspects of the archaeology and art history of the early seventeenth century. There is little doubt that when the *Batavia* is reconstructed and housed in its own museum, it will provide a full justification for all the time, effort and money that have gone into the project. This success has been the direct result of a number of factors: the legislation protecting the wreck-site; the assistance of the Australian Federal Government and the Government of the State of Western Australia; the support of the Trustees, Director and Staff of the Western Australian Museum; and, finally, the dedication of the Members of the Maritime Archaeology Department who have participated enthusiastically over the years.



Diver with a ceramic Beardman Jug on the wreck-site.

[Photo: Western Australian Museum.]

A historical conundrum

What was the intended destination of the façade found on the *Batavia*?

The historical evidence indicates that the ship was being sent to the town of Batavia for the Waterport or Seagate of the town's castle. This evidence comes from two independent sources, one being the records of the decisions of the Heren XVII (Directors) of the VOC, the other from Pieter van den Broecke. The Heren XVII made brief reference to the commissioning of stonemasons, to construct the gateway for the Castle of Batavia.

In 1634, Pieter van den Broecke, who left Batavia on 18 December 1629 and arrived in Holland on 6 June 1630, published a journal of his voyages and travels. In this publication were a number of engravings by Adriaen Matham of various places he had visited. His handwritten journal still exists in the archives, and with it were found two original sketches. These two sketches are omitted from his published journal. It may be assumed therefore that originally van den Broecke or an artist that he commissioned drew the sketches. During the printing of his journal, all the sketches were given to Adriaen Matham for engraving, except for the two that remain with his journal. The others no longer survive, but it is certain that Matham would have worked from the original material. The importance of all this is that one of the engravings shows a bird's-eye view of the fortifications of Batavia. In the foreground is the castle, showing the Waterport unfinished with scaffolding and a ladder in place. The original sketch is possibly by van den Broecke himself. It is highly indicative that the façade on the *Batavia* which was due to arrive at the capital in July 1629 was destined for the Waterport. The first illustration of the completed Waterport appears on the gold pendant of Governor General Jacques Specx, dated 25 November 1632. On it, the town of Batavia can be clearly seen, with the Castle and Waterport in the foreground. A later illustration from the *Vingboom Atlas* shows the Waterport quite clearly. This is the best illustration of the

Waterport that has been found so far. It shows that our reconstruction is similar to the one that replaced it. Obviously, following the loss of the first façade on the *Batavia*, another was ordered; this is the one illustrated in the Specx medallion and the *Vingboom Atlas*.

This gateway served for over a hundred years as the main entrance to Batavia. Out through these portals passed the spices of the East, destined for the markets of Amsterdam and Europe, and in their place came silver, to fund the company's operations. Oddly, this silver was mainly Spanish in origin, and came from the mines and mints of South and Central America. Through these portals, too, passed servants, slaves, emperors, princes, the rich and the poor. If the company's employees survived the unhealthy climate, they returned home richer.

In 1756, the company decided to improve the external appearance of the castle. The Waterport was demolished and replaced by a more imposing, though by our standards a rather tasteless, entrance. By an odd coincidence, the stones from the old gateway were taken to Ambon and incorporated in the main gate of Fort Nieuw Victoria, which still stands.

There are, as with all good stories, still a number of unsolved mysteries. The records state that the Waterport was finished in 1630 but this is far too soon for a new façade to have been sent out from the Netherlands. Perhaps there were alterations to the plans. There are still a number of blocks which have no obvious place in the reconstruction. What were they intended for? However, one puzzle that this reconstruction has solved was the use of six curious large bronze wishbone-shaped objects. For a number of years these objects from the *Batavia* mystified everyone who examined them. Suggestions as to their purpose ranged from obscure ship's mast fittings to swivels for ice-boards on the ship's boat. None of the suggestions was convincing. One day the penny dropped. They were in fact the pintle or hinges for the two massive doors that would have hung between the pillars of our gateway.