Chapter III

Archaeological research methodology

As is apparent in chapters I and II historical sources for this study were of both a primary and secondary nature. In line with this, the same can be advertently applied to archaeological research, that is the material found by the researcher herself, as opposed to secondary archaeological material that is what other researchers have found and analysed. The importance of making such a differentiation enables the researcher to clearly indicate what material was personally recovered (first-hand), as opposed to material collected by other researchers. This also allows the researcher to reinterpret and interrogate the integrity of former researchers. This chapter focuses mainly on primary archaeological material, that is material as well as the methodology followed by the researcher

It must, however, be pointed out that archaeological artefacts suspected of originating from the wreck of the São João, including Chinese porcelain, cowries, cornelian beads and cannons, are not enough to prove the location of the wreck of the São João. Currents, winds and other natural phenomenon could have washed these up at places far removed from the actual wreck site. In addition, merchandise including porcelain and beads, as well as cannons, could have been thrown overboard prior to the wreckage in an attempt to lighten the load and keep the ship afloat. Therefore, attention is also given to documentary evidence and other research as this provides valuable information with regards to the location of the wreck site. Both Maggs[1] and Esterhuizen[2] are convinced that remains of a survivor camp is still present after such a long period of time and agree that valuable information may be gained by excavating such a site.

A survey was conducted to determine what scientific research has been done on the wreck of the São João. To prevent reinventing previous investigator's research, all aspects with incomplete evidence regarding the exact location of the

[1] Personal communication with Maggs, July 2002.
[2] Personal communication with Esterhuizen, August 2002.

wreck site and the presence of a survivor camp were identified. It became evident that a lot of previous research has been done to identify the wreck site, but always only up to a certain point where some uncertainty still remains. This uncertainty comes from the fact that in the case of wrecks as old as the São João it is most unlikely to find pieces of the ship itself, especially if it broke up in shallow waters during the wrecking. Only artefacts originating from the wreck are normally found. Also, the artefacts found underwater, may not be proof enough of the wreck site itself because, as indicated above, boxes of merchandise were often hurled overboard to try and keep the ship afloat, when the crew encountered stormy weather. The survivor camp however would be proof of a wreck site since the survivors of a shipwreck never camped far from the site.[3]

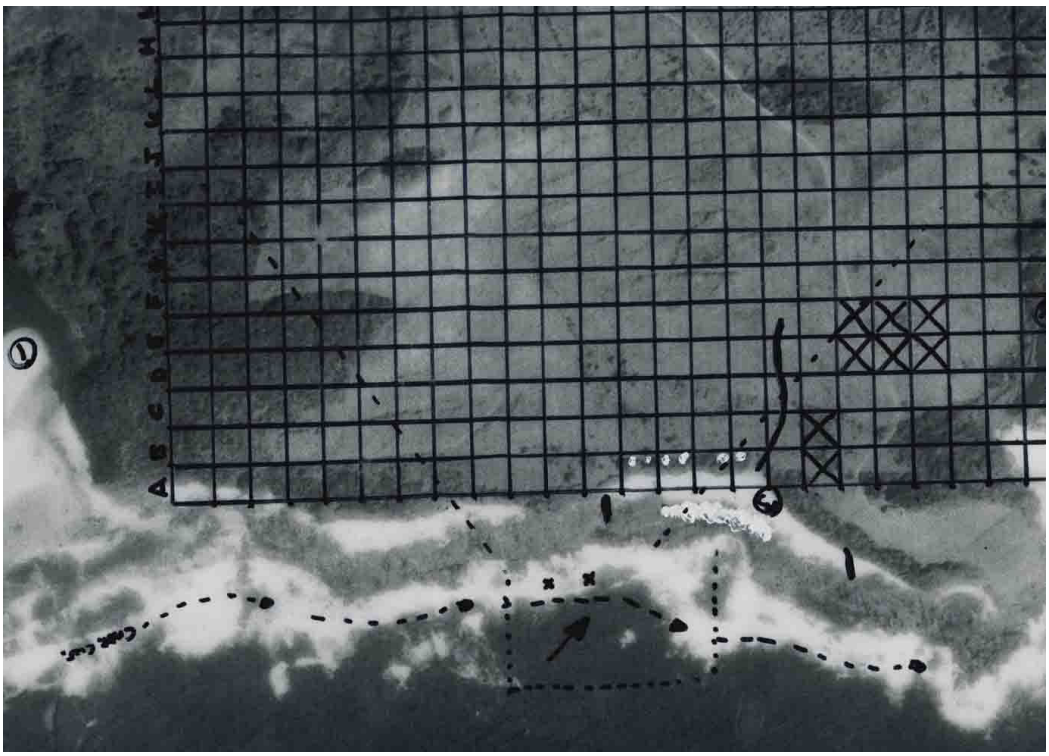

Figure 9: Aerial photograph showing the geographic area of investigation and research grid.

After the relevant information provided by available historical sources had been collected and analysed and an initial search area demarcated, preparations for fieldwork was undertaken. This included obtaining excavation permits from

[3] Bell-Cross Portuguese Shipwrecks and identification of their sites, pp. 70-71.

AMAFA for the land excavations and SAHRA for the underwater sites. Permission to do excavations was granted by Dave Matteson, the land owner of Keisers Farm and Mr. Reardon, owner of the land on which the caravan park is situated.

Figure 10: The section of the 1:50 000 map showing the geographic area of investigation

The previous year, 2001, in April and August, a pre-disturbance survey of the area as part of the permit application had already been undertaken with the assistance of archaeologists from the University of Pretoria.

To begin with, the geographic area of investigation was identified to be within a defined zone within Port Edward. Investigations were limited to a stretch of coast and adjacent inland area between the town of Port Edward, more specifically Tragedy Hill, and the Kuboboyi River. An aerial photograph, obtained from the

surveyor general, was examined and on the photograph itself the places where porcelain have been reported to wash onto the beach was indicated. Esterhuizen[4] and a local sport diver, Francoise van Rensburg[5] who claims to have seen cannons underwater, were consulted in this regard. Also on the first few visits to Port Edward some of the residents were interviewed to get an indication of the occurrence of porcelain and cornelian beads on the beaches.[6] From these interviews it became apparent that most of the artefacts occur in the area closest to the Keisers Farm, Kuboboyi River mouth area rather than the lagoon at Tragedy Hill. The area between the Lagoon at Tragedy Hill and the Kuboboyi River mouth is so vast it was decided to identify the most likely sites that show characteristics identified in the survivor account of the São João. Four land sites were defined, namely: PED1 in the area of Tragedy Hill, PED2 in the centre of Keisers Farm and PED3 close to the Kuboboyi River. PED4 refers to the beach where excavations were also carried out. The underwater site, at 31°02'24.9"S, 30°13'51.8", will be referred to as PED 5. Most of the initial investigations were focussed on the two sites closest to the Kuboboyi River mouth, PED2 and PED3.

The preliminary investigation conducted in April 2001 revealed the following: the coastal area and adjacent inland area of Inhlanhlinhlu, better known as Keisers Farm (especially the section of beach adjacent to farm: 11395) includes a couple of significant archaeological occurrences that are not only conservation worthy but point to the wreck of the São João. It was recommended that a proper assessment of the archaeological resources be made within the year. It was also established that any form of development in the area would have a long term negative affect on the land, as well as underwater sites, and that the area is certainly worthy of further archaeological investigation. A project plan assisted the investigations.

[4] Personal communication with Esterhuizen, 2001.
[5] Personal communication with R van Rensburg at the van Tilburg Collection, University of Pretoria, 2002.
[6] Interviews were conducted with Mr. Dave Watson, Mrs. Joanne Arkell, hotel manager Mr. Reinhart and caravan park manager Mrs. Sue Brain and daughter Chrissy, August 2002.

PORT EDWARD PROJECT
2001-2002
Reinvestigating the wreck of the sixteenth century Portuguese galleon São João:
A historical archaeological perspective

DURATION	21ST to 27th of September 2002
QUALIFICATION FOR PROJECT	MA (Cultural History)
SUPERVISORS	• Prof. Karen Harris • Prof. Andrie Meyer
PROJECT DIRECTOR/PERMIT HOLDER	Liz Burger
EMERGENCY CARE ASSISTANT	Bothma van Tonder (Emergency care practitioner level 1)
FIELD ASSISTANTS	University of Pretoria Archaeology and History students: • Rika Venter (Archaeology) • Johan de Bruyn (Archaeology) • Barry van Wyk (History)
ARCHAEOLOGICAL EXPERTS	• John Gribble of the South African Heritage Resource Agency • Gavin Whitelaw of the Natal Museum
SPECIALISTS	• Dr. Valerie Esterhuizen (Curator: Van Tilburg Collection) • Dr. Bruno Werz (Maritime archaeologist) • Prof. Jan Coetzee (Laboratory of Microscopy and Microanalysis) • Dr. Stefan Woodborne (Carbon and Isotope dating: CSIR)
FACILITIES	• Accommodation was arranged for all field assistants, consultants and directors in a holiday house in Leisure Bay.
EQUIPMENT	• Most of the technical archaeological equipment was supplied by the University of Pretoria.
TELEVISION CREWS PHOTOGRAPHY	• Portuguese Television • Discovery Channel and National Geographic
PERMITS	• **No. 80/01/03/013/30** a pre-disturbance survey permit of the historical wreck believed to be the São João, with limited sampling of material found on the beach in the vicinity of the wreck. • **No. 02/02** a survey and excavation permit of the inland portion of the wreck site of the São João. • **No. 80/02/01/009/54** For the damage or destruction for analysis/dating of a cowrie shell and iron nail.

PROGRAM	
Sat.21 Sep.	• Arrival/Planning. The whole day will be spent driving down to Port Edward. On arrival of all parties a meeting will be held to discuss and plan the work procedure for the rest of the week.
Sun.22 Sep.	• Reconnaissance and tests in Caravan Park (PED 1) and Beach. Since this is the site identified as most likely for the survivor camp it will be assessed first. Meetings will be held with the local people who have artefacts and information about the survivor camp.
Mon. 23 Sep.	• Visit to the Natal Museum
Tue. 24 Sep.	• Reconnaissance and tests on Farm site No. 1 (PED 2). Only if tests on site PED 1 indicate nothing will reconnaissance and tests be carried out on the second most likely site on Farm 11395.
Wed. 25 Sep.	• Reconnaissance and tests on Farm site No. 2 (PED 3). Only if tests on site PED 1 and 2 indicate nothing will reconnaissance and tests be carried out on the second most likely site on Farm 11395.
Thu. 26 Sep.	• Test Excavations
Fri. 27 Sep.	• Departure
	Each evening will end with a meeting, discussing the days work and processing artefacts recovered. During the project the members of the Archaeological Society are going to visit the site.

Archaeological fieldwork started on site PED2, located on Keisers Farm. The fieldwork is based on methodology used by maritime archaeologist Bruno Werz implemented to excavate the Haerlem wreck site. Werz identified certain objectives before the project on the Haerlem was started, these objectives were compared with the requirements of the Port Edward project and adapted accordingly as seen in the table below.

Table 2: Haerlem project methodology versus Port Edward Project methodology

Haerlem Project	**Port Edward Project**
Werz did a study of the available literature and historical documents relating to the story of the Haerlem survivors in order to reconstruct the approximate location of the camp and the wreck site, the building of the camp and events surrounding the wreck and survivor camp.[7]	The Port Edward project started a bit broader with a study of the survivor accounts of all the Portuguese shipwrecks in the area between the years 1552 and 1700. This assisted greatly in establishing certain Portuguese campsite characteristics which in turn indicated possible location for the survivor camp and wreck site of the São João.
This was followed by a description of historical and archaeological work undertaken to date concerning this specific camp and wreck site.[8]	Not only a description but an in depth investigation of historical and archaeological work done on the survivor camp and wreck site of the São João was undertaken, from the beginning of the 20th century up to the present.
The formulation of a pre-disturbance survey, followed by a sampling strategy and partial excavation in an attempt to substantiate whether the reconstructed location obtained from historical documentation is correct.[9]	A meagre description of the survivor camp of the São João and its location is given in historical records. Therefore the formulation of the pre-disturbance survey was based on the Portuguese campsite characteristics of other similar Portuguese campsites and their locations.
If traces of the camp site were to be discovered, further excavation to collect information on constructional details and living conditions would continue.[10]	The identification of Portuguese campsite characteristics greatly assisted in identifying a possible site and further excavations may confirm or contradict the virtual reconstruction of the survivor camp.
If the site is positively identified, the formulation of a management proposal to protect the site from destruction and declaration of the camp and the adjacent wreck site as a national monument.[11]	The same will apply to the camp- and wreck site of the São João.

[7] Werz, *Diving up the human past,* p175.
[8] Ibid.
[9] Ibid.
[10] Ibid.
[11] Ibid.

The first phase consisted of scanning a depression within the selected area with a metal detector in an attempt to locate buried metal artefacts, such as nails and weaponry. Due to the limited potential of the available detector and some modern refuse, this operation was not successful. Hereafter a limited disturbance survey of the site was undertaken. It was necessary to do so since field walks were severely hampered by the thick vegetation in the area.

Figure 11: Photograph taken by the researcher indicating the use of a metal detector.
(Port Edward, September 2002).

An auger was used not only to identify a potential position for a test trench but also to test the soil quality so as to avoid digging in the marshland. The top layer of soil in the area contained little traces of modern debris. Due to the size of the area, it was decided to follow a simple random sampling strategy by using the auger in selected areas, each hole going down approximately 1m. To this purpose a grid was superimposed over an aerial photograph of the area as seen in figure 9 on page 48. The grid was mapped along a baseline, which ran along a magnetic north-south axis. This line ran from one potential site (PED3) near the Kuboboyi River across the farm to the other potential site (PED2) closer to the stream running through the farm.

Sampling started to the east of the baseline where a square of 2mX2m was cleared to make the sampling process easier. Inside the square the auger was used to determine the stratigraphy of the area. The stratigraphy was well defined but not uniform throughout the area, the top layer at the first test site, with a depth ranging from 0 to 60cm below the surface, consisted of a loose sandy type soil very dark in colour. This was followed by a more compact muddy layer with an average thickness of 30cm; below this layer the water table was encountered.

Figure 12: Photograph taken by the researcher of volunteers using an auger to bring soil samples to the surface on site PED 2.
(Port Edward, September 2002).

The testing was thus moved more to the centre of the area 31º02'18.0"S and 30º13'52.9"E at an elevation of 15m. Again a square of 2m X 2m was cleared and the auger was used to determine stratigraphy. At this point the soil was much dryer and sandier. The top layer again with a depth of 60cm below the surface consisted of loose sand very dark in colour. In the first layer many pepper corns (*shinus molle)* were encountered. This layer was followed by an even sandier layer of about 90 cm, rusty brown in colour. Many of the pepper corns were found in this layer but they were red in colour. This area looked promising since definite disturbance in vegetation was noted and the hills in the surrounding area, which were referred to in the historical texts, were clearly visible.

The stream running through the farm was also investigated for any signs of habitation in the area (see figure 12 on page 55). Many shells, especially the white sand mussel *Donax serra,* were found in the river bed. Of interest in the mussel shell is the fragmentation and few complete valves were noted. Work on the Atalaya campsite in 1978 by Bell-Cross established that with Early Iron Age Donax middens the valves are almost all complete. According to Bell-Cross, this suggests that people collecting the mussels were unfamiliar with the resource and the method of extracting the meat, and this may certainly be an indication that the survivors from the São João camped in the area.[12]

Figure 13: A major task during surveys was to locate and record the whereabouts of sites and features. This riverbed is one of the features that showed up on the aerial photographs and was located during ground surveys. On closer inspection the riverbed contained a lot of broken mussel shells, an indication of the presence of a possible survivor camp.
(Port Edward PED 2, August 2001)

[12] S.L. Hall, *Test excavations at the Atalaia camp site.* 1978. Alabany Museum. Grahamstown.

Figure 14: The ground survey further identified this feature on site PED 3.This area in particular showed various characteristics which would have been favourable for establishing a fortification.
(Port Edward PED 3, September 2002)

Work in the PED2 area, however, did not reveal any other artefacts besides the pepper, dating to the sixteenth century. For this reason, sampling of the next potential site followed. Aerial photographs were taken by a micro-light aircraft to locate any significant archaeological sites or features. It was also helpful to distinguish between vehicle tracks and crop marks and in identifying old riverbeds.

Previous investigations in the area did not include PED3 and for this reason emphasis was placed on field walking and a limited disturbance survey of the site. The vegetation growing on the site made it extremely difficult and it was necessary to go on to hands and knees and search through the thick layers of grass.

A grassy mound of approximately 2X10m in an area where vegetation had been disturbed was observed within the PED 3 site, as seen in the above photograph. This area in particular showed various characteristics which would have been favourable for establishing a fortification. It is crescent-shaped and faces towards

the sea and its elevated from its surroundings. The Kuboboyi River is easily accessible from this spot. In the middle of the mound and going across at 1m intervals sampling was done with an auger. The work also consisted of sieving the top 10 to 20cm of loose surface deposits using a 3 millimetre mesh and then excavating test trenches across the mound.

A slight elevation on the farm road leading to the T.O. Strand campsite was identified several meters away from the grassy mound. Of interest is the variation in vegetation in this particular location. The first phase consisted of demarcating the boundaries of this site, again a square of 2mX2m was cleared and the auger was used to determine stratigraphy. Nothing of interest was found in this area.

The beach area posed an interesting challenge since most of the archaeological materials are found in rock crevices below the high water mark. Thus new methodology had to be tested on the beach site, PED 4. It was found that using a bucket to scoop sand and debris from the bottom of the rocky areas worked best. The content of the bucket was then emptied into a light, round, aluminium, garden sieve with a very large mesh size. The lightness of the sieve is important so that when adding the soaked material from the bucket it does not become too heavy for one person to handle. Scooping the material into the bucket required practice and good timing. The bucket was filled when the surf was retracting and the sieving took place with the next wave. The seawater was used to wash the sand from the sieve, which facilitated the separation of the usual shells from the archaeological artefacts. The whole task was best performed during low tide (See Figures 15-18 on pages 59-60). The artefacts found were numbered and labelled according to the site where they were found.

The above primary archaeological research, often making use of innovative archaeological methods, assist in refining and delimiting the possibilities of the location of the camp site.

Figure 15: A bucket is used to scoop material from the bottom of rock pools. The material is sieved through a garden sieve. The technique is best performed by two people as illustrated by the volunteers in this photograph.
(Port Edward PED 5, September 2002)

Figure 16: The tide is used to wash the material in the sieve, making the artefacts easy to spot.
(Port Edward PED 5, September 2002)

Figure 17: Many pieces of porcelain, cowrie shells and cornelian beads were found using this technique.
(Port Edward PED5, September 2002).

Figure 18: A piece of porcelain clearly visible between the other pieces of shell and debris in the sieve.
(Port Edward PED5, September 2002).