

Towards restoration of Fort Orange

Research of Fort Orange in Brasil

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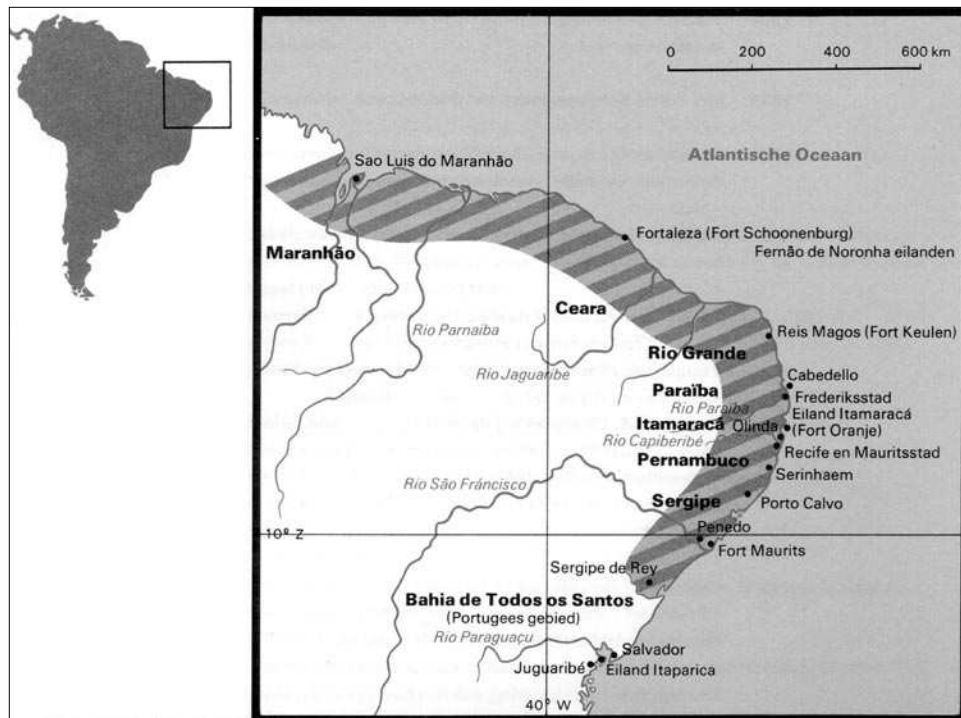
Introduction

Underneath the well-known Fort Orange in Brazil, built with large limestone blocks, another fort constructed of sand, clay and bricks has been discovered recently. This fort stems from the Dutch Period (1630-1654). Its builders have stuck for the greater part to the rules of the old-Netherlands system of fortification. This became evident during the historical-archaeological research in 2002 and 2003 as subpart of the Fort Orange Project.

The Fort Orange Project

In the Report Archaeological Identification Mission Brazil of 1999, Fort Orange in Brazil was presented as a very suitable project in the field of Mutual Cultural Heritage¹. Thanks to the input of many, the Fort Orange Project was launched two years later.

The historical-archaeological research is the first of four subparts of a project focusing on the research, the preservation and the use of Fort Orange on the north-east coast of Brazil. The originally Dutch fort can serve as a model for the relationship between The Netherlands and Brazil on the subject of cultural heritage. At the same time continuity can be guaranteed this way in relation to the preservation of the remaining Mutual Cultural Heritage in Brazil. The many parties involved in the project confirm this subject's importance.



The research is a co-operative relationship between the 'Laboratório de Arqueologia' (LA) of the 'Universidade Federal de Pernambuco' (UFPE), the MOWIC-Foundation and the University of Amsterdam (UvA). This part is being financed for the greater part by the Netherlands Culture Fund of the Dutch Ministry of Foreign Affairs and the Ministry of Education, Culture and Science, who share Mutual Cultural Heritage as their objective. On Brazilian side a contribution has been made by the Brazilian Monuments Institution (Instituto do Patrimônio Histórico e Artístico, IPHAN), and the State of Pernambuco (Governo de Pernambuco).

The other three subparts of the Fort Orange Project are:

- a sea-protection to defend the fort
- the restoration of the fort
- the installation of an archaeological museum/cultural centre inside the fort.

These three subparts will be financed by Brazilian institutions and sponsors, the Brazilian Monuments Institution (IPHAN) having the final responsibility.

Figure 1: Dutch Brazil in 1643
 In: E. van den Boogaart & F.J. Duparc (eds.), 'Zo wijd de wereld strekt', Exhibition 1979-1980
 Mauritshuis, The Hague 1979

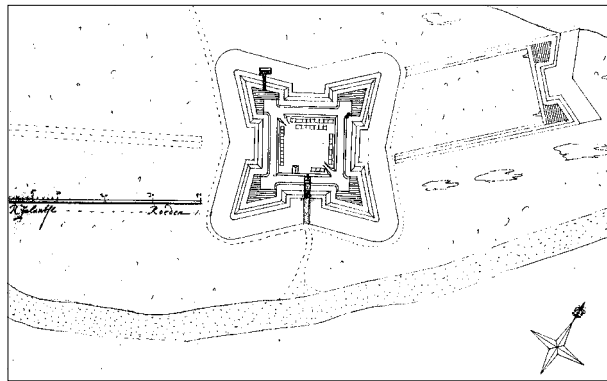
New Holland

In 1630 the Dutch Republic succeeded in conquering parts of the north-east of Brazil on the Portuguese, after a first attempt failed in 1624-1625² (Figure 1). Until 1654 this area would remain in possession of the 'Geoctroyeerde West-Indische Compagnie' (WIC), named New Holland (Nieuw Holland) or Dutch Brazil (Hollantsch Brazil).

From 1637 until 1644 Johan Maurits, Count of Nassau-Siegen, was appointed New Holland's Governor. He ordered the construction of a new capital 'Mauritsstad', projected on the island of Antônio Vaz opposite the isthmus of the village of Recife³. Nowadays these are the suburbs Santo Antônio and São José of Recife, presently the capital of the State of Pernambuco with about 1.400.000 inhabitants. Johan Maurits' palace, called 'Casa Friburgo' by the Portuguese, was famous for being a highlight of Dutch Classicism. Various scientists worked in his service, often inside the palace. Biology, astronomy (Georg Marcgraf), medicine (Willem Piso), and cartography (Cornelis Go-liath) were studied and practiced. To the royal household also belonged painters and drawing artists, some of them making a great name (Frans Post, Albert Eckhout and Zacharias Wagner). In addition, the Governor had at his disposal a selection of military and fortification experts. But his vision was clearly brought out by his decision to shape the governing infrastructure by means of establishing a parliament. Even today this feat is considered as the initiation of the national democracy.

Along the north-east coast of Brazil on strategic locations, forts and fortifications were built and the conquered Portuguese forts were strengthened by the Dutch. The many forts, redoubts and fieldworks in New Holland indicate the major importance given to a good defense⁴. To implement the plans for this 'Atlantic Wall' in the 'New World', engineers and materials were transported from the fatherland⁵.

However, the colony existed only for a short time. Quarrels among themselves, profits failing to come from the sugar-production and receding investments by the 'WIC' were the cause. The resistance on Portuguese side increased dramatically when the Dutch power began to fade. In 1654 Dutch Brazil was transferred to the Portuguese forces. Besides the Portuguese (Lusitanians) themselves, these consisted of various Indian tribes and groups of Negro slaves. As a result of this, the Brazilians preferably speak in that respect of 'Luso-Brasileiros'. In the 19th century the republican ideas were based on the acquired identity. At the same time there was a return to the democratic principles of Johan Maurits van Nassau. In this light the Brazilian independence from Portugal was gained.



Historical research

About 50 km north of Recife, close to the mainland of the State of Pernambuco, the Island of Itamaracá is situated in a delta, flowed around by the ‘Canal da Santa Cruz’ (Canal of the Holy Cross). The island with about 14,000 inhabitants and capital Pilar mainly lives on tourism and agriculture. On the southeastern side of the island the impressive Fort Orange is situated, built from huge limestone blocks (Figure 2). The fort is practically square-shaped and has bastions on its four corners. In the inner court, on the south-side and the west-side, barracks have been built against the inner wall. At the centre of this court a well is situated, built of limestone blocks and red brick.

In the 16th century the southern part of the island was famous for its fertility. The Portuguese built the fortified village ‘Nossa Senhora da Conceição’, today called ‘Vila Velha’ (the Old City) on a hill on the south-side. At the foot of this settlement the harbor was situated, from where products, such as Brazil-wood, coconuts, cotton, sugar and melon were shipped. The Dutch were well aware of this source of nourishment for their young capital, situated just a few hours away by ship. They also realized the strategic importance of this location. On the outset of the Dutch Period it was even considered to make Itamaracá the capital of the ‘Politieke Raad’ (Political Council), the governing authority of the ‘WIC’ in Brazil. According to Barlaeus the last idea was finally abandoned for the following reasons: “the island had a savage and uninhabited look, there were but a few inhabitants, there was a lack of houses, the rivers of I. Tamarica could only be entered by small vessels, the soil in the vicinity (i.e. the northern part of the island and the closely situated mainland) was infertile and uninhabited, the harbor was full of shallow places and feared because of many shipwrecks”⁶. Although Itamaracá was not to be the capital, the Dutch needed the strategic and logistical advantages.

Figure 2: Aerial view of Fort Orange
Itamaracá, Brazil
Photo: O.F. Hefting 1999

Figure 3: Map of Fort Orange
Mentioned on the back: ‘Fort Orangen
1637’
Koninklijk Huis Archief, The Hague

To conquer the island from the Portuguese, twelve companies under the command of Lieutenant Steyn Callenfels executed an invasion on April 12th, 1631⁷. He then decided to close off the harbor-entrance in order to prevent further provisioning of the fortified place. The Dutch were unable to conquer the town of ‘Nossa Senhora da Conceição’ under the command of Captain Salvador Pinheiro, and started a siege that was to last for two years. This fortress, together with ‘Arraial Velho’, constituted the base from where the guerilla was led under the command of the Portuguese Matias d’Albuquerque. On a little peninsula on the south-east side of Itamaracá the Dutch built a fieldwork. Ambrosius Richshoffer, soldier of German descent in the service of the ‘WIC’, mentions this first instigation to the later fort in his ‘Brasilianisch und Westindianische Reise Beschreibung’ on April 22nd, 1631. He reported the following on constructing the fieldwork: “On April 22nd, 1631 First Lieutenant Steinkallenfells himself has returned from Tamarica here (i.e. Recife) and he informed Mr. Governor that the besieged Castell (i.e. ‘Nossa Senhora da Conceição’) could and must be necessarily attacked from a fieldwork to be built on the sides, with a hornwork in front to be able to command the surrounding territory”⁸.

The fieldwork is named ‘Schans Oragnie’ and is mentioned as such in ‘Iaerlyck Verhael’ by Johannes de Laet. In ‘the description of the Coast of Olinda to the North’ he indicates that you can put a ship in front of the ‘Schans Oragnie’ in 4 fathoms and walk on further by the little town ‘Nostra Senhora de Concepçion’⁹. In 1632 the command of the besieging troops was taken over by Laurens von Rembach who would perish soon after. He in turn, was succeeded by Lieutenant Colonel Sigismund von Schoppe, recently promoted, who would imprint his stamp upon the Dutch presence on the island and eventually on all of Dutch Brazil as well. In Johan Maurits’ time Barlaeus recites the following about him; “the command of the military forces was put into Sigismund Schoppe’s hands, well-known by his many excellent deeds”. By means of a hermetically closed siege he forced ‘Nossa Senhora da Conceição’ to surrender in 1633. The little Portuguese town is named after the Dutch commander Schoppe Town (Schuppe or Schoppe-stad)¹⁰.

In 1633 the ‘Schans Oragnie’ was reconstructed into a fort, called Orange. The designer of Fort Orange was probably Pieter van Bueren¹¹. Tobias Commersteyn, a famous fortress engineer in the service of the ‘WIC’, who made the blueprints for ‘Fort Frederik Hendrik’ (presently the ‘Forte das Cinco Pontas’ in Recife) and others, was probably not involved any more¹². In 1630 he returned to Holland because he was ill. But possibly the engineer Cristóvão Alvares, of Portuguese origin, was involved in the construction¹³.

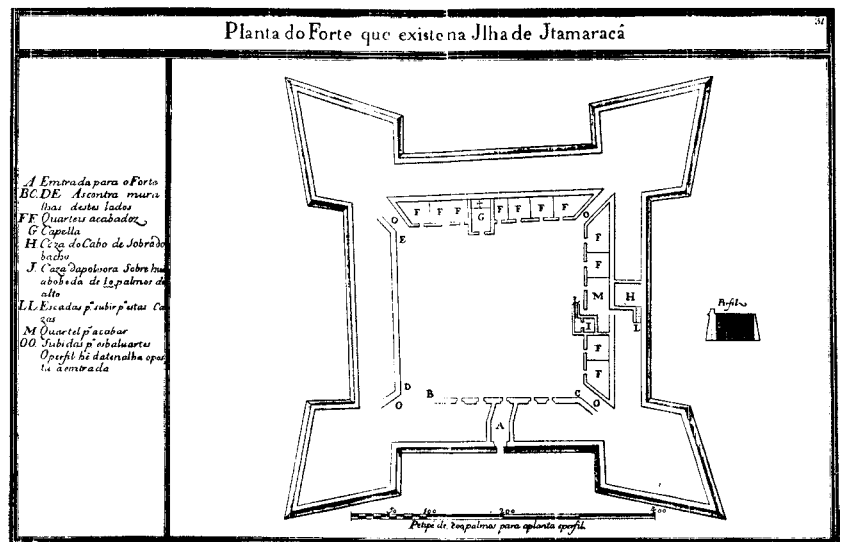
In the Mauritshuis in The Hague a picture of Frans Post (1612 – 1680) can be seen entitled ‘the island Itamaracá with the Fort Orange’ and dated 1637. There is a lot of green on the painting of this fertile island. On the right a very small Fort Orange can be de-

tected. The painter indicates that the fort was constructed of slanting smooth yellowish white walls, an orange saddle-roof of possible buildings on the inner court protruding¹⁴. Johan Maurits, returning to Europe in 1644, ordered Barlaeus to put on paper the events in Dutch Brazil. In 1647 the author completed this work, which is still considered one of the most important sources of this period. In the 'Barlaeus' an engraving on copper by Frans Post shows us vertical stockades, which were built around the fort. In the book next to this etching a ground-plan of the south-east side of the island is to be seen. For this map, on which Fort Orange and 'Oppidum Scopy' figure in the centre, the rest of the island was obviously of less importance. On this map the fort's ground-plan can clearly be seen. Comparison with an extremely accurate ground-plan by an unknown artist, dated 1637, shows many similarities (Figure 3). The latter would serve as the best source for research.

In 'Barlaeus' a report has been entered by Adriaen van der Dussen, commander in Brazil, dated April 4th, 1640, in which he gives a description of 'Fort Orange': "This is a square fort with four bastions, constructed reasonably high. It has a fosse in part, but shallow and dry. It is surrounded by a strong pilework. The artillery consists of: 12 pieces, i.e. 6 metal and 6 iron"¹⁵.

This also is the year in which a naval battle was fought off the coast of Itamaracá on January 12th between the Dutch fleet, under the command of Admiral Willem Cornelisz. Loos, and a Spanish-Portuguese fleet. In 'Barlaeus' an engraving by Frans Post (plate 42) can be seen with the island in the background. During this battle, eventually won by the Dutch, Admiral Loos perished, and was brought to Itamaracá where he was buried with military honors¹⁶. From the Dutch period no traces of a cemetery on the island have been uncovered up till now.

Between 1640 and 1649 the author Johan Nieuwhof visits New Holland. In his 'Gedenkwaardige Brasiliaense Zee- en Lantreize' he mentioned the following regarding the fort: "On the bank of the river, in the mouth, or on the south entrance of the harbor, a regular square-shaped fort was situated, earlier by us, after the conquest of this island, founded by the fortress builder van Bueren, and named 'Oranje' (i.e. Orange). It had a heavy rampart and a parapet, palisades rammed in all around. The fosse was not very special, shallow and mostly waterless because it was situated on porous soil, and that is why it was surrounded by a row of palisades for more security. Outside, on the north-side, was a hornwork, but it was nearly demolished. The interior was equipped with a gunpowder house and in a reasonable way with barracks and had a brickwork 'Sortie'. The batteries were also adequate and were equipped with six metal and iron pieces¹⁷. In this way Nieuwhof lets us know that part of the fort has been built of brick masonry, and certainly the entrance. As the entrance was situated on the sea-side according to the maps of the Dutch Period, this one should be found inside or underneath the south-wall of the fort.



One of the most detailed maps dating from the Dutch Period's final stage (1648) is to be found in the National Archive (Nationaal Archief) in The Hague. Van den Boogaart suggests the possibility that this map might have been executed by Willem van Lobbrecht, one of the engineers on Recife¹⁸. This map shows the parceling of the island in the way it was divided among the Dutch colonists. Further research is necessary to hunt down to what extent these plans have been executed and if this infrastructure is still visible.

At the 'Arquivo Ultramarino' in Lisbon a ground-plan of Fort Orange, dated 1763, exists (Figure 4). Comparing this ground plan with the one dated 1637, we find some striking differences. From the picture dated 1637 it becomes clear that the entrance is situated on the south-side, thus the seaside. This could possibly be an explanation of the fact that the danger came from the inland during the first few years. The Dutch fleet ruled the sea, so sufficient security was guaranteed. Starting from the fact that the ground-plan dating 1763 reflects the present situation, which is the gate on the west-side, it is noted that the gate has been turned 90 degrees. Maybe this could be explained by the fact that the threat for the Portuguese came once more from the sea-side after 1654, the gate being turned towards the inland.

Figure 4: Floorplan of Fort Orange dated 1763, Itamaracá, Brazil
 In: *Arquivo Histórico Ultramarino Codex PE, Lisbon*

Furthermore the ground-plan dated 1637 shows that the barracks are situated on three sides of the inner court, the north, east and west-side. On the picture in 'Barlaeus' even a double row can be discerned on the north side. These barracks are continually shown

disconnected from the ramparts. On the map dated 1763 barracks are only perceived on the north and east-side, yet this time connected to the inner wall. Remnants of the Dutch barracks have been built over, or the traces are still buried underneath the sand of the inner court.

Another question remaining was the present-day well, constructed of limestone and red brick. Before the archaeological research it was uncertain if this well originated from the Dutch Period. None of the ground-plans shows the well, which is strange for an absolutely essential part of livelihood. An explanation for this fact could be that this concerned secret information rather not revealed to the enemy.

The ground-plans dating from the 17th century show that the fort had an extension, a hornwork, on the east-side, as mentioned by Richshoffer and Nieuhof. The presence of a hornwork seems logical because the Dutch faced danger from the inland-side in the first few years. On the Portuguese map dated 1763 it is no longer present. That too seems logical as from this side no threats were expected after 1654. Although a considerable amount of soil should have been displaced in order to construct a hornwork, nothing more was traced in the landscape.

Dutch ground-plans show a fosse and Johan Nieuhof describes it as “shallow and mostly waterless”. As there is no fosse around the fort in the present day, it is uncertain how it would have been executed in the Dutch Period. Another question was the location of a possible cemetery. Were the perished soldiers transported to Recife or was there a cemetery on the island?

The archaeological research

The archaeological fieldwork was divided into two campaigns. The object was to map out the building-history of Fort Orange from the Dutch Period (1630 – 1654) up till the present. Until the beginning of the excavation it was uncertain if the present-day fort, as built with the large limestone blocks, was constructed by the Dutch or the Portuguese. This is at least unlike the Dutch methods. In the 17th century Dutch engineers had a tradition of constructing their forts in the Low Countries of locally available materials like earth, sand, sods, clay and wood, the so-called ‘old-Netherlands system of fortification’. In the previous years these constructions proved highly successful in The Netherlands in the battles against the Spaniards. A hostile canon ball smothered in the soft materials and thus caused relatively little damage. The Portuguese on their side erected their forts of natural stones, a building tradition originating in their homeland, where this material was available all over. Another plausible explanation could have been the fact that Portuguese engineers assisted the Dutch in building this fort of natural stone.



Figure 5: Dutch bricks in the gunpowder house masonry, Fort Orange
Photo: O.F. Hefting 2002



Figure 6: The 'Dutch well' in Fort Orange
Photo: O.F. Hefting 2002

The first excavation-campaign from January up and including March 2002 concentrated mainly on the inner court of the Fort Orange to find traces of the Dutch soldiers' barracks. Excavation slots in the oldest layer showed a pattern of rectangular oblong buildings on three sides of this inner court. This image coincided with the ground-plan of 1637 of the Dutch fort (figure 3). On the south-side of the inner court remnants of a room, probably the gunpowder house, constructed of Dutch yellow bricks, were discovered (Figure 5). In the 17th century comparable bricks were found all over the world in places where the Dutch set foot. The building material was shipped as ballast in the vessels on the way. On the way back the commodities constituted the balance. As the walls of this gunpowder house run straight underneath the wall of the present-day barracks, it was still uncertain how the Dutch fort had been constructed.

Some new points of attention were targeted for the second excavation-campaign from October 1st, 2002 until May 9th, 2003. Apart from the soldiers' barracks, the gunpowder house and the brick well, the 'Dutch gate', the fosse, the hornwork and the cemetery were to be focused on.

On the basis of the historical research and the knowledge of the fort to date, the thought has been developed that the Dutch 17th century gate had to be situated inside or underneath the south-wall. To this end 1000 m³ of sand was displaced with shovel and tractor. The sand was sieved, when necessary, for artefacts and stored temporarily on the inner court.

In the meantime a second well made of a wooden barrel was discovered in the inner court, south-east of the brick well (Figure 6). This is a known Dutch way of construc-



Figure 7: The 'Dutch gate' inside Fort Orange's south-wall
Photo: O.F. Hefting 2003

Figure 8: The 'armored sand'-rampart in Fort Orange
Photo: O.F. Hefting 2003

tion, the wood filtering the inflowing water. This 'Dutch well' was situated in the visual centre of the barracks that were discovered earlier. As a result of this find the theory developed, that the Dutch fort could very well be much smaller than the present fort.

On January 18th, 2003, after digging for one-and-a-half months inside the south-wall, as a reward a very well preserved gate was unearthed (Figure 7). This gate, with a strikingly narrow passage of 1.27 m, in part constructed of Dutch yellow bricks, was baptized 'the Dutch gate'. As this gate stood disconnected from the outer wall, a relation with the present fort was excluded. Hence it was evident that the later Portuguese fort, constructed of large limestone blocks, had been built over the Dutch fort.

In line with this 'Dutch gate', in the section, a band of 0.15 m average of light-yellow clay-containing sand has been found, covering a packet of loose sand. On other locations in the fort this band has been uncovered as well, and proved to indicate a coping layer of the 17th century fort. This way the sand could be kept together. Research on pollen-samples will show if plantation of local beach-grass was used as added consolidation.

These data gave new insights. Projection of the Dutch fort's information over the ground-plan of the present-day fort indicated a significantly smaller size in the 17th century. In the Portuguese Period extensions in natural stone were realized in northern and western directions. The south-east bastion, partly surrounded by the sea at high tide, has always been on the same location. The brick well is situated in the centre of the later Portuguese fort, possibly imitating the 'Dutch well's location.

During the last few months of the excavation research focused on verifying this projection. Under the floor of the present barracks on the south-side three post holes and traces of clay, in line with the Dutch gunpowder house's back-side, were discovered, probably indicating the Dutch rampart's underside. On the east-side of this line the angle with the Dutch ramp to the south-east bastion was found as well.

An angle of the flank of the north-west bastion was discovered inside the west-wall of the fort, in the neighborhood of the location to be expected on the basis of the ground-plan of 1637. It was a surprise to find out that no dune was originally located on this point, as was the case on the south-side. Here was a rampart put up of 'armored sand', a way of building, also known from 17th century literature¹⁹. In order to construct this rampart, the builders have alternated layers of sand with layers of long branches, six each (Figure 8).

On the east-side of the fort traces of the Dutch fosse were discovered on the outside (Figure 9). The 17th century description of this fosse by Johan Nieuwhof, being "shallow and mostly waterless" coincides with the existing image of a shallow fosse bottom.



Figure 9: The 'Dutch fosse' of Fort Orange. The thin dark line in the centre of the section indicates the fosse-bottom
 Photo O.F. Hefting 2003

This one has probably been in use for only a short time. The routine of digging a fosse stemmed from The Netherlands, but proved unnecessary on the coast of Brazil, due to irregular water levels in the fosse as a result of ebb- and flow-tides. Another issue is that the Dutch arrived in a dune-landscape, so sand was hardly necessary to heighten ramparts. Thus digging a deep fosse proved unnecessary. Outside the south-wall limestone blocks of the escarp and counterscarp (i.e. fosse-walls) have been discovered, probably stemming from the Portuguese period, as the measurements and the materials used correspond with those of the present fort.

On the basis of comparisons with other Dutch forts and fortresses, such as Bourtange, it was concluded that the extension on the north-west bastion of the fort, as can be seen on the 17th century drawings of Fort Orange, used to be a latrine. Thus the soldiers' excrements, as well as the garbage, landed in the fosse. As similar constructions usually were made of wood, it probably was pulled down when the fort was enlarged in the Portuguese Period. The possibility of researching traces of the latrine was dropped, because they would have been situated underneath the north-west bastion.

Traces of the hornwork, as described in 17th century literature and depicted on drawings, have not been uncovered. A 17th century Dutch cemetery has not been found either up till now. On the other hand, three skeletons with traces of Portuguese soldiers' uniforms have been unearthed, probably stemming from the 18th century. These well-preserved skeletons will be researched during the elaboration-period by Brazilian archaeologists.

Thanks to the favorable quotations of the Brazilian currency, the excavation could be prolonged for a few months. During the ten months-excavation a great amount of artefacts has been unearthed: parts of swords, muskets, bullets, ceramics, pipe-stems and pipe-bowls, coins and compasses. Noteworthy was the digging up of three golden Portuguese coins dating 1721 (2x) and 1722 (1x) and a halberd, probably Portuguese, dating from the second half of the 17th century.

The multi-disciplinary research was a cooperation between Brazilian and Dutch scientists. The general coordination of the excavation was in the hands of the Brazilian archaeologist Prof. Dr Marcos Albuquerque from the 'Laboratório de Arqueologia' (LA) of the 'Universidade Federal de Pernambuco' (UFPE). Coordinator of the field work was Prof. Dr Velela Lucena. The LA has had 40 years of experience and is specialized in the archaeology of the Colonial Period in Brazil (1500 – 1822), particularly in the construction of forts²⁰. The Brazilian team consisted of technicians, trainees, additional supporters and many workmen. Prof. Dr Ricardo Pessoa was consultant for the geological studies. Dr. Guilherme Medeiros contributed as a historian.

Dutch scientists were able to contribute an important part to the insights of the Dutch fort with their knowledge of Dutch sources, building traditions and archaeological research. Several institutions and persons from The Netherlands have contributed to the

success of the research. Two MOWIC Foundation's researchers were involved: cultural-historian Dr Hannedea van Nederveen Meerkerk, who has been focusing on the cultural-historical backgrounds and archaeologist Drs Oscar Hefting, who was supervising the Dutch part of the archaeological research. During the two campaigns students of the University of Amsterdam have participated in the excavation. The 'Treub Maatschappij' provided some scholarships. Apart from that, members of the Foundation for Archaeology and Monuments (Stichting Archeologie en Monument) volunteered. This Foundation, specialized in historical and archaeological research in the Northern Netherlands, provided a depth-scanner for geophysical research as well²¹. Hans van Westing was asked again for the last phase of the second campaign on the basis of his extensive knowledge in the field of Dutch fortress-building. The 'Archeologisch Adviesbureau RAAP' executed resistance-measurements and probes for the project.

In the framework of a State-Visit to Brazil, Queen Beatrix, Crown-Prince Willem-Alexander and Princess Maxima visited the fort on March 28th, 2003. The Royal Party showed great interest in the archaeological research being at its peak at that moment. This day was a great success thanks also to the recent discovery of the Dutch fort. Media in The Netherlands and in Brazil published extensive articles on the Royal visit.

On May 9th, 2003 the excavation was closed. Everything was covered with sand again, the way things have remained well-preserved for ages. It is intended to excavate anew the particular finds, such as 'the Dutch gate', the gunpowder house and 'the Dutch well', to be taken into restoration at a later date. After having been studied, the artefacts will be stored in the fort and exhibited as much as possible in the new museum.

Prospects

The 'Laboratorio de Arqueologia' of the 'Universidade Federal de Pernambuco' is working on the elaboration of the artefacts and data of the excavation. The elaboration on the Dutch side is in the hands of the undersigned and Hans van Westing, focusing on the initial building-phases of the fort (1631–1654). A preliminary report has been turned over to the Brazilian Monuments Institution (IPHAN), so the restoration-architect Prof. Dr José Luiz de Mota Menezes has a basis to start his part. Data of the over-all research will be processed in a joint publication. At the same time The New Holland Foundation has been founded in The Netherlands to direct research into, and preserve other locations with a Dutch history in Brazil²².

The IPHAN carries the responsibility for the three consecutive phases of the Fort Orange Project, thus complying with the promised matching in the direction of the Netherlands Culture Fund. Plans for a sea-protection have been prepared and can be put into execution after final approval by IPHAN. Now that the data of the archaeological

research have been handed over, the restoration-architect will be able to work out his final plans. When these have been finalized and the funding has been realized, the restoration and the creation of the archaeological museum/cultural centre in the fort can be initiated.

Notes

- 1 O.F. Hefting & H.C. van Nederveen Meerkerk, *Report Archaeological Identification Mission*, Amsterdam 1999, pp. 15-17.
- 2 C. Boxer, *De Nederlanders in Brazilië (1624-1654)*, Alphen aan de Rijn 1977; en H. den Heijer, *De geschiedenis van de WIC*, Zutphen 2002, pp. 35-55.
- 3 R. van Oers, *Dutch town planning overseas during VOC and WIC rule (1600-1800)*, Zutphen 2000, pp. 139-151.
- 4 See: www.atlasofmutualheritage.nl, sub Brazil.
- 5 J.A. Gonsalves de Mello, *Nederlanders in Brazilië (1624-1654)*, Zutphen 2001, p. 95.
- 6 S.P.L. L'Honoré Naber, *Nederlands Brazilië onder bewind van Johan Maurits, Grave van Nassau, 1637-1644*, bewerking van C. Barlaeus, 1647, Den Haag 1923, p. 64.
- 7 A. Richshoffer, *Reise nach Brasilien 1629-1632*, Den Haag 1930, p. 78.
- 8 A. Richshoffer, *Reise nach Brasilien 1629-1632*, Den Haag 1930, p. 78-79.
- 9 J. de Laet, *Iaerlyck Verhael 1624-1636*, Leiden, 1644, uitgave Linschoten Vereniging, part 2, Den Haag 1927-1930, p. 192.
- 10 J. de Laet, *Iaerlyck Verhael 1624-1636*, Leiden, 1644, uitgave Linschoten Vereniging, part 3, Den Haag 1931-1933, p. 158.
- 11 J. Nieuhof, *Gedenkwaardige Brasiliaense Zee- en Lantreise etc.*, Amsterdam 1682, p. 36.
- 12 U. Pernambucano de Mello, *O Forte das Cinco Pontas. Um trabalho de arqueologia histórica aplicado à restauração do monumento*, Recife 1983.
- 13 H.C. van Nederveen Meerkerk, 'Nieuw Holland' or 'Hollantsch Brasil' in South America. In: C.L. Temminck Groll, *The Dutch Overseas. Architectural Survey*, Zwolle 2002, p. 303.
- 14 O.F. Hefting, Fort Oranje boven, in: *Bulletin Koninklijke Nederlandse Oudheidkundige Bond*, nummer 5, 2002, pp. 133-141.
- 15 S.P.L. L'Honoré Naber, *Nederlands Brazilië onder bewind van Johan Maurits, Grave van Nassau, 1637-1644*, bewerking van C. Barlaeus, 1647, Den Haag 1923, p.181.
- 16 S.P.L. L'Honoré Naber, *Nederlands Brazilië onder bewind van Johan Maurits, Grave van Nassau, 1637-1644*, bewerking van C. Barlaeus, 1647, Den Haag 1923, p. 224.
- 17 J. Nieuhof, *Gedenkwaardige Brasiliaense Zee- en Lantreise etc.*, Amsterdam 1682, p. 36.
- 18 E. van den Boogaart & F.J. Duparc (eds.), *Zo wijd de wereld strekt*, Tentoonstelling 1979-1980, Mauritshuis, Den Haag 1979, p. 98.
- 19 See also: E.J. Brans, De schans te Woudenberg. In: *Water ter verdediging*, Vestingbouwkundige bijdragen, Stichting Menno van Coehoorn, Den Haag 1994, pp. 81-95.
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