

Harbours and Coastal Military Bases in Egypt in the Second Millennium B.C.

Avaris, Peru-nefer, Pi-Ramesse

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1. Introduction

During the Middle Kingdom, it seems that settlement in Lower Egypt was concentrated in the eastern part and at the extreme western edge of the Delta. Thus far, however, the greater part of the western half of the deltaic landscape has not yielded any sites of this period. It seems that this situation continued until the time of the New Kingdom. I have argued that the concentration of sites of the Second Intermediate period in the eastern Delta was the result of the political situation at that time and the development of a kind of homeland for an immigrated Near Eastern population which later caused the Hyksos rule in Egypt. But it now seems that this concentration of settlements in the eastern Delta had its roots in the physical geography of the Delta already in the Middle Kingdom. One has to face the fact that the western part of the Delta was void of habitation sites. It seems that only the cults at sacred places such as Sais and Buto were kept going, but we have no evidence of settlement there during this period. This is the result of extensive archaeological surveys conducted by the EES, the German Archaeological Institute, the University of Amsterdam and University of Liverpool (see Figure 1).¹ Explanations for this situation have

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- 1 See the survey of the EES: <http://www.deltasurvey.ees.ac.uk/ds-home.html>. At this homepage one finds a full bibliography on the survey activities in the Nile Delta. I am indebted to Alan Jeffrey Spencer for more information on this survey. For the survey of the University of Amsterdam see: VAN DEN BRINK 1987; 1988. For the Survey of the University of Liverpool s. SNAPE 1986. For the survey

thus far not been put forward. However, it would seem that there are not many options that might explain this apparent lack of sites. One possibility is that sediment accumulation has caused sites to disappear under substantial layers of Nile mud.² This is not very likely, however, as the subsidence rates in most parts of the western Delta are moderate,³ while sites older than the Middle Kingdom, dating to the fourth and third millennium B.C., have been found in this region.⁴ One has to add that already existing settlement mounds (Tells), which jut out from the floodplain and provide secure settling ground during the flood season, were usually chosen as habitation sites.

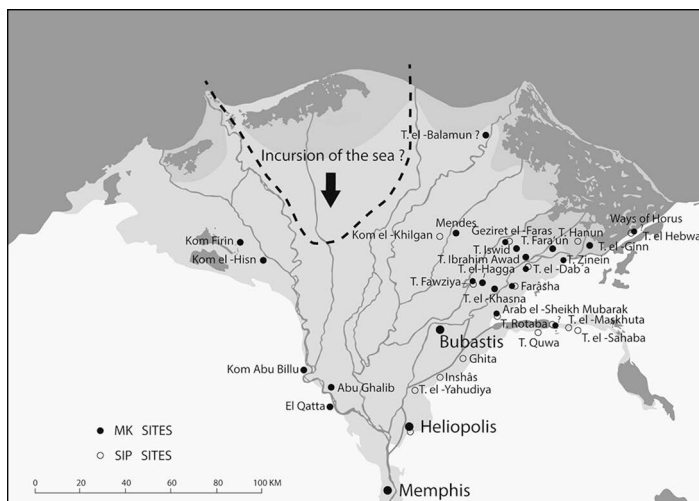


Figure 1. The Delta with sites of the Middle Kingdom and the Second Intermediate Period (graphic work Marian Negrete-Martinez).

As an alternative hypothesis to explain the void of Middle Kingdom and Second Intermediate Period sites in this area one could also propose that sediment accumulation rates may not have sufficiently compensated for the eustatic rise of the Mediterranean Sea level, a situation which would have led to a long-

of the German Archaeological Institute s. Schiestl, <https://dainst.academia.edu/RobertSchiestl>.

2 STANLEY/TOSCANO, 2009, p. 161-167.

3 According to WUNDERLICH/ANDRES, 1991, p. 115-118.

4 See note 2.

term submersion, rendering large parts of the western Delta uninhabitable. It seems that even in the Late Period the western central Delta was less inhabited than the eastern part.⁵ According to the medieval chronicler Abu el-Hassan el-Makhzoumi there was a substantial sea incursion at 961 AD⁶ causing the creation of the present coastal Nile Delta lakes which show remains until today in shore sediments south of the present inshore lakes.⁷ It is possible that the central western Delta had a repetitive weakness in respect to sea incursions. There is also the possibility of an additional effect of tsunamis after volcanic or tectonic events in the Aegean or in Asia-minor.⁸ With the wetlands inundated and only the levees and mounds emerging, the land would have been deprived of agriculture and flock-keeping and thus of sustenance. The reconstruction map of Stanley and Warne⁹ for 4000 non-calibrated years BP, based on numerous cores, shows extended wetlands reaching far south into the Delta, west of the so-called Mendesian branch of the Nile, whereas eastwards, the floodplain suitable for agriculture and pasture reached as far north as the region of what is today San el-Hagar (see Figure 2). The eastern Delta with its substantial Pleistocene sand substratum and its numerous turtlebacks (sand geziras) differs from the western Delta by offering an ideally stable settling ground.¹⁰ Additionally it seems that sediment accumulation rates were higher there than in the central and western Delta.¹¹ The extreme western edge of the Delta must also have been a more stable place of settlement in the Middle Kingdom. Therefore, the western – and even more so the easternmost – Nile branches must have been the most suitable water courses also for harbours.

5 WILSON and GRIGOROPOULOS 2009.

6 I am grateful to PENELOPE WILSON of Durham University of informing me about this event.

7 SHAFEL, 1962; FRIHY, 1992, p. 392.

8 Some information can be gathered from Papyrus Hearst of the early Eighteenth Dynasty, which renders a magic spell about the god Seth who seems to have stopped an incursion of the Mediterranean – an event which has to be tied because of the invocation of god Seth to the eastern Delta: “Just as Seth has banned the Mediterranean Sea Seth will ban you likewise...” (GOEDICKE, 1984, p. 46).

9 STANLEY/WARNE, 1998, fig. 8D.

10 ANDRES/WUNDERLICH, 1992.

11 STANLEY et al., 1992, p. 30-39, figs. 10, 12.

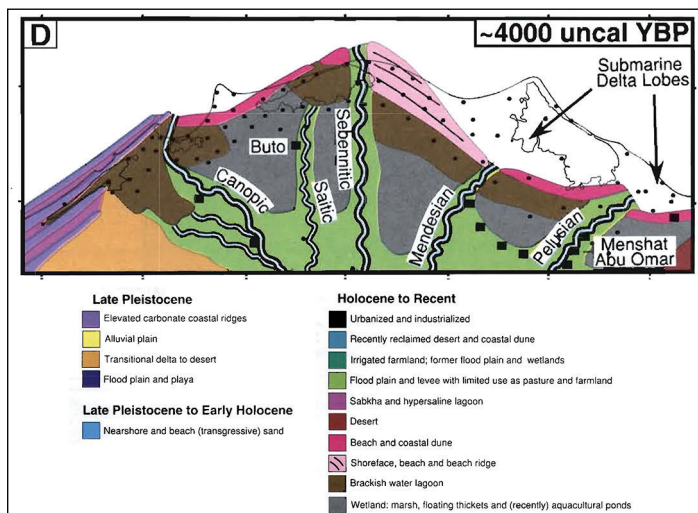


Figure 2. Reconstruction of the Delta in the time of 4000 BP (STANLEY/WARNE, 1998, fig. 8D).

2. The Nile Regime, the harbour situation and the identification of Avaris, Peru-nefer, Pi-Ramesse

Before the construction of the barrages in the nineteenth century A.D., perennial harbours for seagoing ships had to be situated within the reach of the sea.¹² The period of drought between March and early July, when the Nile shrank to one fifth of its average volume, made river navigation very difficult.¹³ During this period, seawaters penetrated the nearly empty channels of the Delta and made perennial navigation within the reach of the sea possible. For this reason we find deltaic harbours such as Rashid (Rosette) and Dumiat (Damiette) in locations protected against winter gales, yet within a relatively short distance to the sea until the nineteenth century. Also Tanis served as a harbour for seagoing traffic at least until the fifth century A.D.¹⁴ Harbours further upstream, beyond the reach

12 BIETAK, 2010a, p. 165-169; 2010b, p. 19-21.

13 LE PÈRE, 1822, p. 140-141; CLOT, 1840; COOPER, 2012.

14 A manuscript in the monastery of Arezzo gives an account of a pilgrimage by abbess Aetheria to the Holy Land. The ship which she uses for her transfer to Egypt landed at Tanis from where the travel continued overland from the Nile Delta to

of the sea during the months of low river levels, could not provide perennial navigation for sea-bound traffic and had difficulties to reach the Mediterranean for nearly half of the year. On top of such limitations we know from Aramaic custom duty papyri with lists of incoming and outgoing ships from the Persian Period from Elephantine that there was no sea traffic at all during the months Thoth and Paophi (approx. January and February),¹⁵ presumably because of usual fogs and winter gales during this time.

Based on these environmental conditions we can once and for all exclude Memphis as a candidate for the identification with the famous New Kingdom naval base of Peru-nefer¹⁶. It is unthinkable that the major naval base targeting the Near East was only operational from the second half of July until the end of the year during times of increased Egyptian warfare; and even then, the long distance from the Mediterranean would prolong the reaction of the Egyptian crown to any happenings in the Levant or would render a necessary mission impossible for six months. Therefore, we have to look for an alternative candidate, which was found in a huge harbour basin at Tell el-Dab'a connected with entry and exit channels to the Nile system within reach of the sea in the second millennium

the Sinai, to the Holy Land and back. See BROX, 1995; RÖWEKAMP, 1995; VRETSKA, 1958.

- 15 PORTEN/YARDENI, 1993, C3.7; YARDENI, 1994, p. 69. The name of the harbour is not mentioned, but it is clearly a harbour for seagoing ships (YARDENI, 1994, p.77, n. 13).
- 16 BADAWI, 1948, p. 34-36, 55-63, 137-139; GLANVILLE, 1931, p. 109; ID., 1932; HELCK, 1939, p. 49-50; ID., 1971, p. 160, 166, 356-357, 447-448, 454-456, 460, 471, 473, 501; JEFFREYS/SMITH, 1988, p. 61; EDEL, 1977, p. 155; KAMISH, 1985; EAD., 1986; DER MANUELIAN, 1987, p. 159; SAVE-SÖDERBERGH, 1946, p. 37-39; STADELMANN, 1967, p. 32-35; ZIVIE, 1988, p. 107. Recently FORSTNER-MÜLLER, 2014, argued again in favour of locating Peru-nefer at Memphis and suggested that this town was reachable during the time of inundation, which lasted only a few months and is therefore unfeasible. The fact that she did not find any New Kingdom remains before the Ramesside Period in the very restricted area she excavated at the northern edge of the big harbour basin at Tell el-Dab'a is not a valid argument as we don't know yet where the Eighteenth Dynasty installations were positioned. On the other hand the presence of one of the biggest palaces in Egypt, dating to the Thutmosid Period, situated not far from the harbour basin, is begging for an explanation, which can only be offered by identifying this site with Peru-nefer.

B.C.¹⁷ It was also situated at the easternmost Nile branch which, besides the so-called Western River, was the major water way during the second millennium B.C. This considerably narrows the possibilities of location of the major naval base, besides the impressive presence of the Thutmosid Period (see below). The direction of the reconstructed Nile channel to the north-east was ideal, as one could sail and return half-winds under the prevailing northerly winds.¹⁸

This harbour should be identified as the harbour of Avaris, which could accommodate hundreds of ships according to the second stela of Kamose.¹⁹ Military installations and especially a 13 acre palace precinct of the Thutmosid Period,²⁰ embellished with Minoan wall paintings, make it highly likely that this had also been the famous harbour of Peru-nefer where Keftiu ships were moored²¹ and which was a resort where Amenhotep II spent much time as a crown prince and as a king.²²

The harbour and its channels were already assessed by my personal surface survey 1969 and 1973 and since by core drillings performed by Josef Dörner.²³

- 17 Already SPIEGELBERG, 1927 and DARESSY, 1927/28 thought that Peru-nefer was situated in the Delta. HABACHI, 1972, ID., 2001, p. 9, p. 106–07, p. 121, thought that it had to be located at Avaris and the later city of Piramesse. See also COLLOMBERT/COULON, 2000, p. 217; PUMPENMEIER, 1998, p. 89-93; RÖHRIG, 1990, 126-127. BIETAK, 2005a; ID., 2005b; ID., 2009a; ID., 2009b; ID., 2010a, p. 165-169; ID., 2010b, p. 19-21, was able to provide more solid evidence with the discovery of the Thutmosid palace of considerable size and the harbour basin. See especially the results of core drilling by DÖRNER, 1999, Plan 1, and the results of the geomagnetic survey of the Austrian Archaeological Institute (see notes 24 and 25).
- 18 This suggestion was made to me by the president of the Cairo Yachting Club, Mr. Yussef Mazhar.
- 19 HABACHI, 1972, p. 36-37.
- 20 BIETAK, 2005a; ID., 2005b; BIETAK/DÖRNER/JÁNOSI, 2001; BIETAK/FÖRSTNER-MÜLLER, 2003; ID., 2005; BIETAK et al., 2007, p. 13-43.
- 21 GLANVILLE, 1931, p. 121; ID., 1932, p.30, 36. The author proposes a foreign type of ship but also thinks it would be possible to suggest a meaning about the destination of the ship such as “East India-Man”. Against this idea speaks that the Kfti-ship is only mentioned in the time of Thutmose III, neither before nor afterwards. The Minoan paintings in the enormous palace compound of the Thutmosid Period at Tell el-Dab’a is a strong indication that either real *Kfti*-ships are involved or that the Egyptians copied them in their dockyards.
- 22 DER MANUELIAN, 1987.
- 23 DÖRNER 1999, plan1.

Geomagnetic surveying was carried out by the Austrian Archaeological Institute and clarified the topography of Avaris (see figure 3).²⁴ The harbour of Avaris, known by the second stela of king Kamose to have accommodated hundreds of ships, was subject to recent paleogeographic studies by a team of the University of Lyon 2 under Hervé Tronchère and Jean-Philippe Goiran, who were able to identify the harbour function according to sediments with precision and to date the activity of the different river branches and the harbour basin itself.²⁵



Figure 3. The paleogeography of the harbour of Avaris/Peru-nefer (graphic work Nicola Math).

Still more precision in tracing the outlines of the harbour can be obtained by studying surface features and the present use of land. The edges of the enormous trapezoid harbour basin of approx. 400 x 450 m can be identified by the present track from the Husseinia road to 'Ezbet Rushdies-saghira, which is orientated exactly tangentially to the north-eastern edge of the basin (see figure 4). The south-western edge of the basin is not only apparent from the results of the geomagnetic survey, but is also marked by the position and direction of the eastern wall of the temple of Seth of Horemheb and the Nineteenth Dynasty (see figure 4). The orientation of the basin is likewise followed by the big temple precinct which was constructed just before, and remained intact throughout,

24 FORSTNER-MÜLLER et al., 2007; EAD., 2009; EAD. 2010.

25 TRONCHÈRE et al., 2008; TRONCHÈRE, 2010.

the Hyksos Period (see figure 5)²⁶ The similarity of alignment of the basin edges with important archeological features is evidence that the orientation of the architecture must have been influenced by the presence of the harbour what should be considered as chronological evidence. Recent excavations by the Austrian Archaeological Institute and geophysical surveying showed that the extreme northern part of the basin was in the process of being filled by sediments during the Hyksos Period so that houses with tombs started to invade the former harbour space.²⁷ According to these investigations this process was more advanced during Ramesside times (see below).

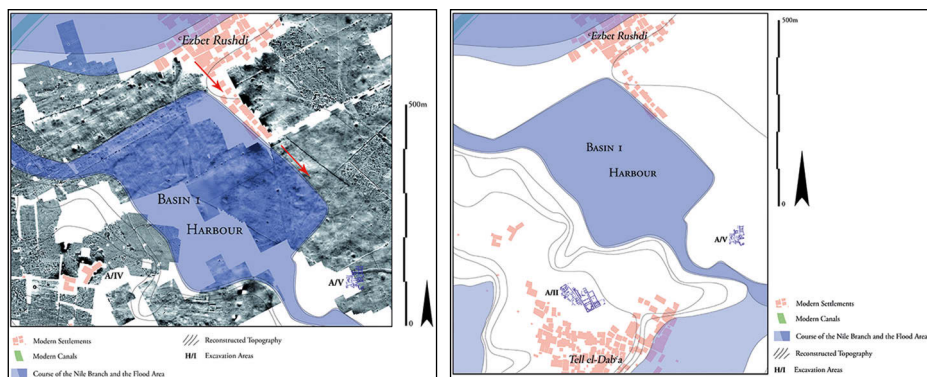


Figure 4 (left). The orientation of the eastern edge of the harbour basin is still preserved in a tangential track passing the modern village of 'EzbetRushdi (graphic work Nicola Math); Figure 5 (right). The harbour basin and the orientation of the Canaanite Temple precinct and adjoining enclosures (graphic work Nicola Math).

Important for the identification of Tell el-Dab'a/Avaris as the naval base of Perunfer, apparently installed by the Thutmosid kings at the already existing harbour of Avaris, are, besides its geographic position, the large harbour basin and the palatial precinct, the chronology and the stratigraphy of the site (see Figure 6). During the early Eighteenth Dynasty we find significant storage facilities and military camps.²⁸ Later, the New Kingdom palace was built. Finally a hiatus in occupation followed after the reign of Amenhotep II, lasting probably until

26 For the temple precinct see BIETAK, 2009c.

27 FORSTNER-MÜLLER, 2014.

28 BIETAK, 2010 c, p. 56, fig. 27; BIETAK/DORNER/JÁNOSI, 2001, p. 59-74.

the reign of Amenhotep III or the Amarna period.²⁹ It may be significant that this hiatus in the occupation of the site finds parallels in the complete lack of references to Peru-nefer in inscriptions between Amenhotep II and the late Eighteenth Dynasty. It seems that Horemheb constructed an enormous defence system, perhaps even a fortress surrounding the harbour basin. Its northern wall was found by excavation and was followed over a length of several hundred meters by geophysical surveying. The wall cuts off an old access canal from the Pelusiac branch of the Nile issuing into the harbour basin. For this reason this canal has been considered non-existent,³⁰ even though it was identified by Josef Dorner's core drillings and its existence was verified by further core drillings by the research group of the University of Lyon 2. It seems to me that this was indeed an access canal as it provided a current from an active Nile arm to a more sluggish eastern branch. Without this canal, the basin would have been a sedimentation trap. It must have fallen into disuse during the time of the New Kingdom. Another access from the active Nile branch was found during the geophysical prospection work of the Austrian Archaeological Institute south of Ezzawin,³¹ providing a fresh water current to the old, largely stagnant easternmost Nile branch.³² This channel would, however, not provide a current for the harbour basin. It is also for this reason that one has to claim a special feeder canal for the harbour which must have silted up otherwise quickly under such circumstances.

Geomagnetic surveys suggest that the fortress of Horemheb was attached to an earlier fortress, the walls of which are clearly recognisable on the survey map (see figure 7). This older installation seems to have been in function until the construction of the fortress of Horemheb and in all likelihood dates prior to the Amarna Period or even to the reign of Amenhotep III. As a matter of fact, it would fit perfectly into this time when the high official Amenhotep, Son of Hapu, was charged with fortifying the mouths of the Nile branches to secure the Delta against incursions of pirates – the earliest of the Sea People.³³

29 Ibid., p. 101-102.

30 FORSTNER-MÜLLER et al., 2010, p. 73-74, 84-85; FORSTNER-MÜLLER, 2014, and personal information.

31 Ibid.

32 For investigations about the current of the active and more stagnant water branches in the environment of Avaris see TRONCHÈRE, 2010.

33 Biography on a statue of Amenhotep, son of Hapu (Cairo Museum JE 38368 = CG 42127), VARILLE, 1968, p. 36, 41; OCKINGA, 1986, p. 33-34.

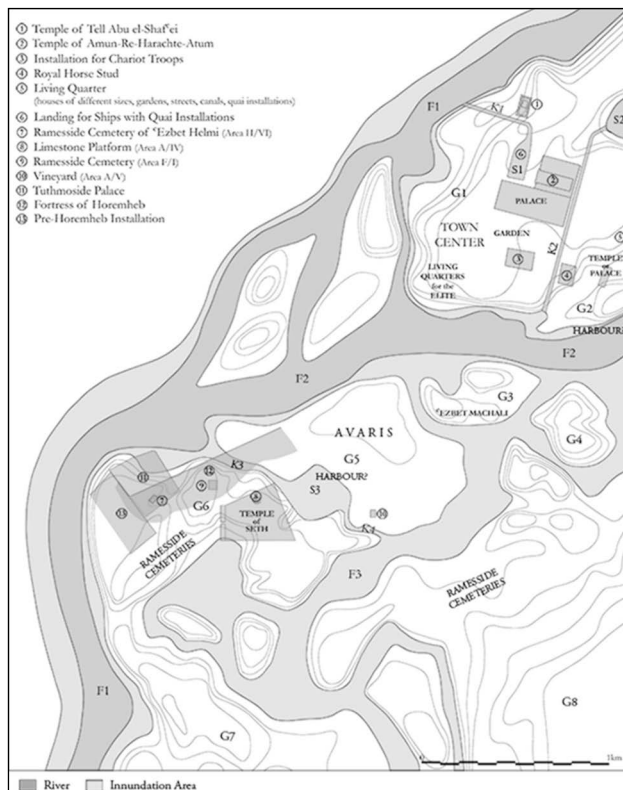


Figure 6. Reconstruction of the geography of Avaris-Peru-nefer and Pi-Ramesse (after BIETAK, 2010b, fig. 2.7).

After Horemheb followed the establishment of Pi-Ramesse, the Delta residence of the Ramessides, which seems to have already been built to some extent by Sety I, with a palace at Qantir, 2 km north of Tell el-Dab'a/Avaris.³⁴ In order to keep control on the Near Eastern interests of Egypt it was necessary to relocate the political centre of the country to such a geographic position as to facilitate quick reaction to Near Eastern political developments and to have quick access to the Levant. The residence of pharaoh was moved to just 2 km north of the site of former Avaris and the site of Peru-nefer. From an eulogy on Pi-Ramesse

34 HAMZA, 1930, p. 64; BOREUX, 1932, p. 410; HAYES, 1937, p. 5-7, 17, 29-30; HABACHI, 1974; ID., 2001, p. 51-53, 69, 107, 123-126, 130-132, 141-143, 186, 210, 229-230, 254.

in Papyrus Anastasi III we learn that the new residence was “*The marshalling place of thy chariotry, the mustering place of thy army, the mooring place of thy ship’s troops*”.³⁵ This suggests that the function of the site as a naval and military base persisted. As new excavations at Tell el-Dab‘a showed that the big harbour basin was reduced in size by sedimentation in its northern part and that buildings invaded its space³⁶, it is possible that, at that time, the main harbour was moved somewhere else within this sprawling city which covered approx. 600 hectares. However, the memory of Avaris as the site of a harbour was still alive during the Twentieth Dynasty. We know from inscriptions on naosdoors – today in the Pushkin Museum in Moscow – that there was a temple of Amun at the harbour of Avaris then.³⁷

During the late Twentieth Dynasty it seems that the lower reaches of the easternmost branch of the Delta were silted up.³⁸ The harbour and the residence moved to Tanis.³⁹



Figure 7. The fortress wall of Horemheb (in black) abutting against an older fortress wall (in grey), (graphic work Nicola Math).

35 P. Anastasi III, 7.5–6; translation: CAMINOS, 1954, p.101.

36 See note 30.

37 Moscow I.1.a.4867; see TURAYEV, 1913, with pl. 13.

38 BIETAK, 1975, 216.

39 Ibid.

3. Conclusion

Summing up, in some way the reasons for the identification of Peru-nefer with the site of Tell el-Dab'a is closely connected to the identification of Avaris with Tell el-Dab'a and environment, and of Pi-Ramesse with Qantir – a debate which was finally settled 40-50 years ago with the renewed excavations at Tell el-Dab'a and Qantir.⁴⁰ All three were harbour towns of considerable importance and paleogeographic investigations showed that the easternmost Nile branch was besides the westernmost river, the most important in the second millennium B.C. The specific reasons for settling also Peru-nefer at this place are as follows:

1. The presence of an enormous harbour basin and other harbour facilities⁴¹ which, however, began to silt up in its northern part and was used there as settling and burial ground during the Hyksos Period, but nevertheless a harbour for hundreds of ships in Avaris is mentioned in the second Kamose stela⁴². That Avaris was a, if not *the* harbour of Pi-Ramesse – more than 200 years later – one could gather from naos door inscriptions originating from the Temple of Amun, “great of victories” in the Harbour of Avaris, dating to the Twentieth Dynasty.⁴³
2. Paleogeographic studies showed that the easternmost Nile branch was the most important in the second millennium B.C. and the most convenient connection to the Near East.
3. The Canaanite cults in Avaris from the Second Intermediate Period⁴⁴ seem to have a continuum in Peru-nefer in the Eighteenth Dynasty⁴⁵ and in Pi-Ramesse during the Nineteenth and Twentieth Dynasty⁴⁶.
4. The presence of the site in reach of the sea during the period of drought.⁴⁷

40 BIETAK, 1975; PUSCH et al., 1999.

41 FORSTNER-MÜLLER et al. 2007; EAD., 2014.

42 See note 19.

43 See footnote 37.

44 BIETAK, 2009c.

45 STADELMANN, 1967, p. 32–47, 99–110, 147–150; COLOMBERT/COULON, 2000, p. 217, TAZAWA, 2009.

46 DARESSY 1928–29, p. 326; ID., 1971, p. 446–73; STADELMANN, 1967, p. 148–150; UPHILL, 1984, p. 200–202, 212, 233–234, 245 (Anta), 246 (Astarte), 252 (Reshep), 252–3 (Seth); TAZAWA, 2009; COCHE-ZIVIE, 2011.

47 BIETAK, 2010a; ID., 2010b.

5. The presence of one of the biggest palace precincts in Egypt which no doubt has royal dimensions and dates to the Thutmosid Period by scarabs of Thutmose I, Thutmose III and Amenhotep II and pottery.⁴⁸
6. The appearance of the name of Peru-nefer in the texts naming Thutmose III⁴⁹ and Amenhotep II.⁵⁰ After an interval, the site is mentioned again in the late Eighteenth and the Nineteenth Dynasty.⁵¹ The stratigraphy of the site parallels this information. The Thutmosid palatial compound was abandoned and the site was used again under Horemheb who constructed a big fortress and rebuilt the temple of Seth.⁵² It seems even possible that he enlarged an older fortress which might go back to the Amarna Period.

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48 See note 19.

49 The British Museum Papyrus BM 10056 has been dated by a new focused investigation by Roman Gundacker to the 51st year of Thutmose III. Publication planned for *Egypt and the Levant* 25 (2015).

50 See note 16 and 17.

51 Ibid.

52 BIETAK, 1985, p. 267-278; ID., 1990, p. 12-14; BIETAK/DORNER/JÁNOSI, 2001, p. 101-102.

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