



THE WAY(S) OF HORUS IN THE SAITE PERIOD: TELL EL-KEDWA AND ITS KEY LOCATION GUARDING EGYPT'S NORTHEASTERN FRONTIER¹

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ABSTRACT

The “Way(s) of Horus” represented an active route and part of Egypt’s eastern frontier; it is known during the Old, Middle, and New Kingdoms, and continued to be maintained and controlled by Saite kings (Dynasty 26: 664-525 B.C.). Tell el-Kedwa formed part of a series of Saite fortresses guarding Egypt’s East frontier, and lies on the eastern edge of an ancient lagoon, guarding a northern access point to Egypt. In 2007, investigations at Kedwa uncovered a succession of two massive Saite forts, and constitute an important factor in clarifying Tell el-Kedwa’s role as a key control point for access to Egypt during the Late Period. Excavations have continued in 2008 along the south wall of the successive fortresses, and these results will be published in due course. However, the initial excavation results from 2007 have confirmed the role of this fortress as a significant Egyptian garrison defending Egypt’s eastern gateway.

INTRODUCTION

The “Way(s) of Horus”² formed one of the most important routes in antiquity, serving as a land bridge between Africa and Asia.³ It facilitated a significant economic and political role throughout Egyptian history. It had an active role in Egypt’s cultural interactions with regions in the Levant and broader Near East, and connected “East” and “West” by linking emissaries, merchants, migrant labor, soldiers, nomads, and urban dwellers from various East Mediterranean, Near Eastern, and Egyptian cultures during many periods (i.e., from prehistory through the Hellenistic-Roman and later periods). The “Way(s) of Horus” controlled trade and witnessed New Kingdom and Saite Period military campaigns to the Levant (Southwest Asia);⁴ it also brought destruction, “barbarians,” and foreign occupation to the Nile Valley

RECONSTRUCTION OF ANCIENT LANDSCAPE

From the earliest period in pharaonic Egypt, and especially by the advent of the New Kingdom (after the expulsion of the Hyksos), the Egyptian kings realized how importance it was to

protect and control the eastern frontier of Egypt and the mouth of the Pelusiac branch of the Nile, the nearest main navigation artery into Egypt. In Dynasty 19, a series of fortresses were built in strategic positions along the “Way(s) of Horus” to defend the Egyptian frontier and protect the new Ramasside capital, “Per-Ramesses,” which was founded on the banks of the defunct Pelusiac Nile branch.

The Pelusiac branch of the Nile began silting up *ca.* 1060 B.C.; it dwindled away until the river finally switched its course further to the west. Recent research has suggested that the Pelusiac branch of the Nile became blocked in its lower reaches and lost its water to the Tanitic branch,⁵ which subsequently became the main artery for Nile traffic. The Egyptian Ramesside capital at Per-Ramesses was abandoned and moved to the new branch.⁶ Recent research at Qantir and Tell el-Dab’a indicate that at the end of the New Kingdom, the Egyptian authorities made the decision to move the Ramasside capital from Per-Ramesses to a new capital at Tanis (modern San el-Hajar), 20 km to the northeast, on the banks of Tanitic branch.⁷

Several recent archaeological and paleo-environmental studies in northwest Sinai have added crucial information to our knowledge on the ancient lower reaches, canals, and supposed

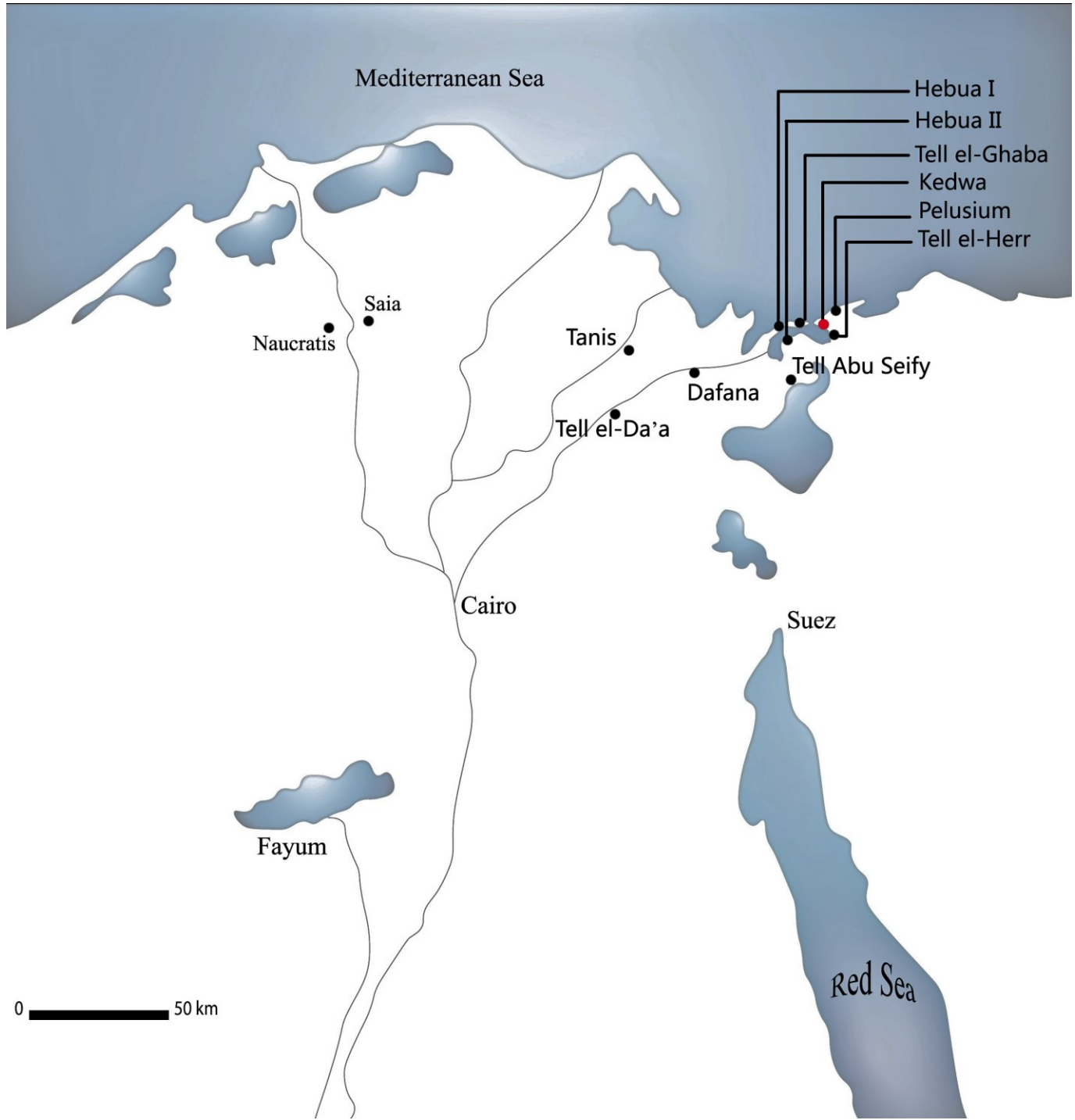


Figure 1: Location of Tell el-Kedwa (Hesham Hussein)

location of the mouth of the Pelusiatic branch in northwest Sinai. According to various archaeological investigations, Tell Defenneh,⁸ Tell Heboua I,⁹ Tell Heboua II,¹⁰ Tell el-Ghaba,¹¹ and Tell el-Kedwa¹² were established during the Saite Period to control and protect Egypt's eastern frontier (Figure 1). The locations of these archaeological sites are very important for tracing,

reconstructing, and dating the course of the lower reaches of the Nile's Pelusiatic branch during the Saite Period.

In the northwestern region of Sinai, the positions and the purposes of the New Kingdom and Saite Period archaeological sites remained the same. In fact, some Saite Period sites re-occupied the locations of former, important New Kingdom



Figure 2: Map showing Saite Period sites and ancient landscape of Northwest Sinai (Hesham Hussein)

archaeological sites. For example, both New Kingdom and Saite Period sites appear at Tell Heboua I and Tell Heboua II, which served to control and guard the only entrance of the Pelusiac branch that led southwest to the Ramesside capital (during the New Kingdom). Another important New Kingdom site appears at Tell el-Borg, but it is now clear that by the end of New Kingdom Tell el-Borg had lost its importance as a key site guarding against enemies entering Egypt since its associated tributary had silted up forever and this site was not re-occupied.¹³

According to recent maps of the Saite Period landscape in North Sinai (Figure 2), Tell el-Kedwa and Tell el-Ghaba seem to assume the same strategic functions of Tell Heboua I and Tell Heboua II, which included controlling and guarding the entrance of the Pelusiac mouth and riverine access. Moreover, the specific location and substantial fortifications at Tell el-Kedwa demonstrate that it also safeguarded and secured the northern land route into Egypt: Tell el-Kedwa apparently served as the key control point to Northeast Egypt. There is now sufficient evidence

that the Saite Period incorporated a strong fortification system to simulate the former New Kingdom one, namely controlling Egypt's northeastern frontier, protecting the land route, and monitoring riverine traffic.

TELL EL-KEDWA: ARCHAEOLOGICAL INVESTIGATIONS

Many scholars consider Tell el-Kedwa¹⁴ as one of the most important Saite Period sites in northwest Sinai.¹⁵ The site lies on relatively flat ground, at the southeast edge of the el-Tina Plain (30° 58' 59.97" North; 32° 28' 31.50" East), 11.5 km to the northeast of Tell Heboua, 10 km to the northeast of Peluseum, and 20 km northeast of el-Qantara city. Recent exploration in the Northeast Delta has revealed that Tell el-Kedwa formed part of a series of Saite Period archaeological sites, which begin with Tell Defenneh (Dafana; Daphnae), Tell Heboua I, Tell Heboua II, Tell el-Ghaba, and finally Tell el-Kedwa. This series of Saite Period sites controlled the eastern gate of Egypt, and surely formed the western portion of the "Way(s) of Horus."

During the 1970s and early 1980s, Eliezer Oren directed the North Sinai Expedition of Ben Gurion University of the Negev, which carried out a long-term, systematic investigation of a vast portion of the Sinai, from the Suez Canal to the Gaza strip, during the Israeli military occupation of Sinai. This survey located numerous sites dating to the Saite Period (Dynasty 26), and investigated a large cluster of Saite sites that concentrated in the Canal Zone.¹⁶ This cluster and large number of Saite sites, which contained foreign imports, in conjunction with many Saite Period sites with East Greek material from the region south of Lake Bardawil, suggest that North Sinai continued to function as the main military and commercial route between Egypt and Palestine during the Saite Period.¹⁷

The archaeological site of Tell el-Kedwa (Tel Qedwa) was located by Oren during the Israeli survey, with the assistance of aerial photographs, and the density of archaeological surface materials and visible architectural elements in this region, all of which revealed a gigantic, 200 by 200 m fortress—designated as site T.21 in Oren's survey (Figure 3). The unique nature and history of Tell el-Kedwa became immediately clear and dates securely to the Saite Period.¹⁸ However, Oren's limited excavations and preliminary results did not provide satisfactory answers to all questions concerning the nature and existence of this major Saite Period fortress.

In 1985, Egyptian and Franco-Egyptian missions conducted archaeological investigations in the northeast portion of the el-Tina Plain. This work focused on the region between Baluza and Qantara in Northwest Sinai and located and identified a number of archaeological sites in this area.¹⁹

At the beginning of 1992, the Supreme Council of Antiquities (SCA), now renamed the Ministry of Antiquities (MA), launched the North Sinai Archaeological Salvage Project, as a response to the pending impact of the Northern Sinai Agricultural and Irrigation Project.²⁰ This archaeological project aimed to map, rescue, and protect more than thirty endangered

archaeological sites dating to different periods, and especially deal with the sites most seriously affected by planned irrigation canals and drainage systems.²¹ The endangered site list included Tell el-Kedwa and its surrounding area, which required immediate investigation and salvage work.

The Egyptian mission initiated its rescue operations in September 1992, beginning its first excavation work 350 m to the west of the Saite fortress at Tell el-Kedwa.²² The selected excavation area consisted of a flat area in which the expedition distinguished a number of distinct pottery clusters (Figure 4), which occur around a depth of 25 cm. The pottery clusters contained pottery jars, of which some survived intact, while others had broken into pieces; large quantities of animal bones and pottery shards appeared at a depth of 50 cm, but the excavations halted at this depth owing to the modern, shallow ground water table. The investigations in this area did not find any architectural elements connected to the pottery clusters.²³ According to the 1992-1993 Supreme Council of Antiquities' excavation reports, the pottery find spots and large quantities of bones and potsherds found to the west of Tell el-Kedwa, may represent a garbage dump area. Another mission undertook limited excavations to the north of the main fortress, finding Saite Period pottery and other items.

In 1993, a joint Egyptian-Canadian mission began a series of brief excavation seasons at Tell el-Kedwa in 1993 (August 6-22), 1997 (June 9-19), and 1998 (June). In the first season, a 2 m wide by 50 m long gas-pipe trench was placed across the northern fortification wall, alongside the east wall face of the easternmost tower near the northeast corner of the Saite fort; this trench determined that the huge Saite fortification wall and its foundation trench had cut through earlier Saite Period occupation layers and ash destruction debris. According to Redford, the occupation span found at Tell el-Kedwa appeared to be confined to the Saite Period. He concluded that the history of Tell el-Kedwa might be sketched provisionally in five phases: he confirmed the dating of the fort's construction to the end of the 7th century B.C. (about 640-630 B.C.), and placed the fort's fatal destruction by fire at some point during the second half of the 6th century B.C., very probably as a result of a Persian invasion of Egypt in 525 B.C.²⁴ A variety of studies have also appeared since these earlier investigations at Tell el-Kedwa,²⁵ but they mostly synthesize the findings from the previous excavations.

Recent Fieldwork

In 2007, the Supreme Council of Antiquities carried out an archaeological prospection at Tell el-Kedwa, planning its investigations at the site to augment and clarify the previous archaeological findings at Kedwa. The prime objectives of the new, 2007 fieldwork were twofold: The first goal entailed investigating the Saite fort's eastern wall, which is partly visible via differential moisture retention by the overlying sand, in order to determine why the eastern wall is wider and seemingly designed differently than the other three walls of the fort. The second objective desired to assess whether or not an entrance could be

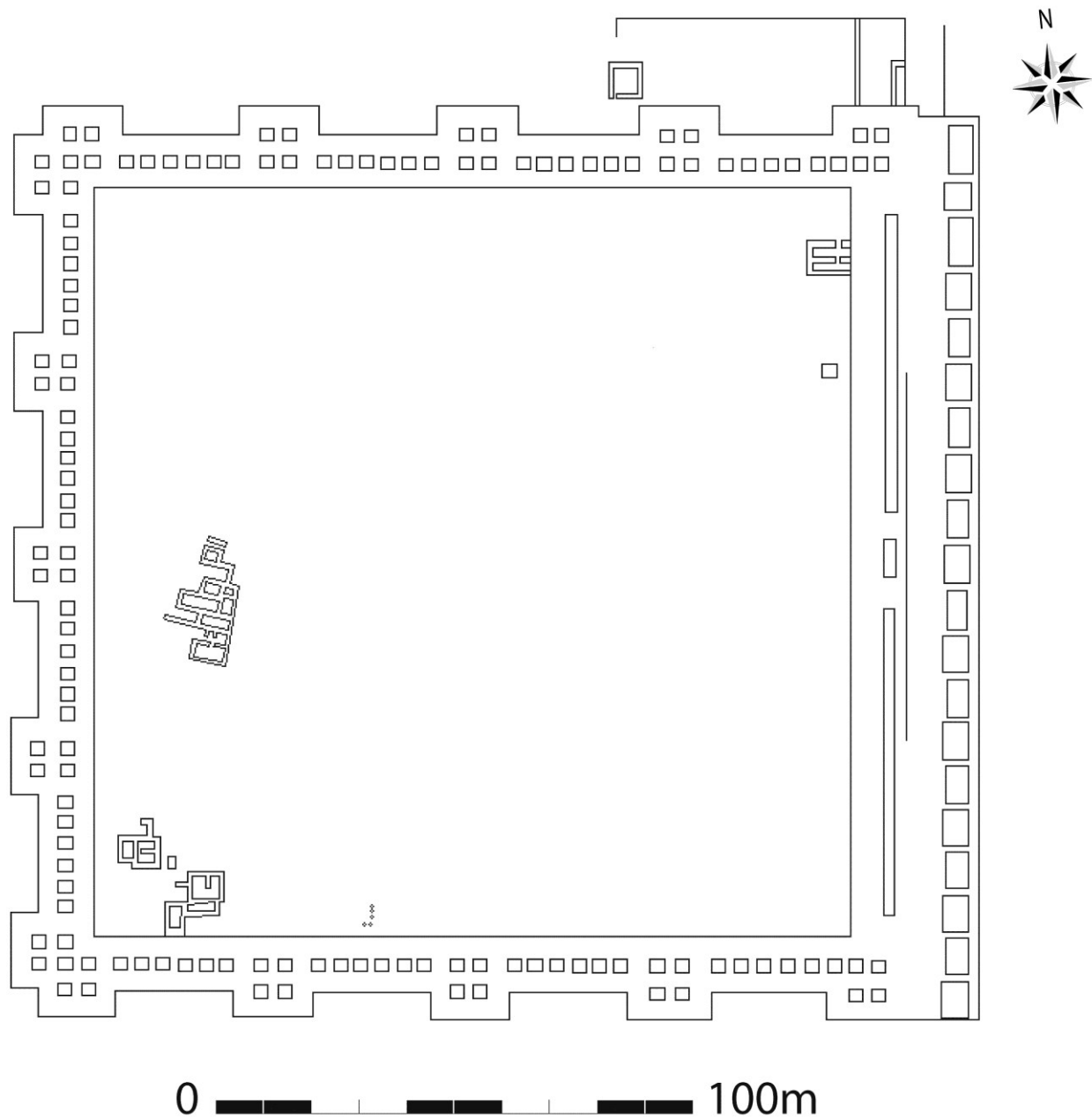


Figure 3: Plan of the fortress discovered by Ben Gurion University at Tell el-Kedwa (Hesham Hussein, after Oren 1984)

traced in relation to the Saite fort’s mud brick foundation walls and its minimal, if any, surviving above ground features.

Eastern Enclosure Wall

Due to the varying humidity and color differences in the loose surface sand overlying the Saite fortress,²⁶ one can easily discern the inner and outer faces of the subsurface fortification walls at Kedwa (Figures 5-5a). Hence, the 2007 excavation started by

tracing the wall faces of the eastern enclosure wall: The current authors soon realized that this walling system actually reflected more than one fortress at the site. Two massive forts have been identified and traced: the foundation of the eastern wall of the Saite fortress, which was first discovered by Ben-Gurion University (called here “fort B”),²⁷ displayed an associated foundation trench cutting, in a specific area, into the inner wall face of the foundations of an earlier fortress that is identified by the current authors as “fort A” (Figure 6). Hence, prior to the

findings in 2007, the eastern wall's thickness had been considered to be an abnormally large wall, 25 m in width (Figure 7), in contrast to the other, narrower three walls.

Fort B (Figures 4, 5, 6, and 7)

According to the excavation results from the 2007 SCA season, the eastern wall of upper (later) fort B has a constant width of 11 m, but extends to 17.50 m at the points where each bastion/tower projects. A northeastern and southeastern corner tower have also been delineated along the east wall, while the length of fort B's walls contain a single row of small compartments that each measure around 2 by 3 m and lie spaced at fairly regular intervals along the length of this and the other walls. These small chambers extend to the depth to the wall's foundation, being



Figure 4: Pottery spot excavated at Tell el-Kedwa in 1992-93 SCA season (Hesham Hussein)

purposefully constructed from the start of the establishment of fort B's foundation wall, and may incorporate an engineering purpose (figure 8): It appears that this series of small, square and rectilinear, soil-filled shaft-chambers probably served as some form of ground water drainage system for the fort's subterranean walls, permitting mud bricks to dry more rapidly in a region that experienced higher coastal precipitation, a fluctuating ground water table,²⁸ or may simply have helped to relieve the pressure created by the mass of overlying brickwork.

It is now clear and confirmed that the upper/later fort (B), which was initially identified by Ben Gurion University, is indeed square in shape and approximately 200 by 200 m. The Fort B's eastern wall contains three rectangular bastions abutting the exterior face of the wall, with a further two bastions securing each corner

(figures 7, 9, and 10). Unfortunately, we could not find any firm evidence for, or even any suggestive traces of, a gateway along the eastern wall of fort B. However, further investigations are needed along the eastern wall in order to confirm whether or not a gateway originally lay along this side.

Fort A (Figures 6, 7, 11, and 12)

A lower/earlier fort (A) was found beside fort B's eastern wall during the 2007 season, with the initial, eastern mud brick wall measuring 7.10 m in width, and extending to 7.70 m at the places where it contained projecting buttresses. The 2007 excavations determined that fort A had a southeast corner tower, but the overlapping and merging of fort A's eastern wall at fort B's northeast corner made it quite difficult to isolate the presumed corner tower for fort A at this location.

In addition, according to the 2007 excavation findings, fort A's eastern wall experienced at least three phases of construction (Figures 6, 11, and 12): In the first phase, the builders constructed the initial walling system of fort A. In the second phase, the construction workers filled the rectilinear shaft-chambers (i.e., honey-combed rooms)²⁹ with pure sand, and bolstered the outer face of the eastern wall's foundations in order to support and protect the foundation, perhaps incorporating shaft-chambers as a drainage system for the foundations and overlying wall masses to enable the mud bricks to dry more rapidly and strengthen the foundation. In a third and last phase of restoration, the Egyptian garrison added a 0.60 m wide by 45.90 m long stretch of wall to the southeast tower's corner, aligning it south to northeast, in order to protect and support an area of localized damage to the southeast corner tower

and two shaft-chambers that had been partly destroyed by water. This specific area of damage to the fort A foundations might reflect an especially strong influx of water seepage, perhaps in relation to a greater proximity to lower lying topography, more porous subsurface soils, and/or relatively larger quantities of ground water in antiquity. It is also possible that this region of fort A had been attacked and experienced greater damage in the Saite Period, requiring additional repairs.³⁰

Eastern Gate of Fort A

The 2007 excavation season did uncover evidence for a gateway in the eastern wall of fort A at Tell el-Kedwa. This gateway lies in the northeast part of fort A's eastern wall, and



Figure 5: The south enclosure wall and compartments of fort B before 2007 excavation season (Hesham Hussein)



Figure 5a: The west enclosure wall and compartments of fort B during 2007 excavation season (Hesham Hussein)

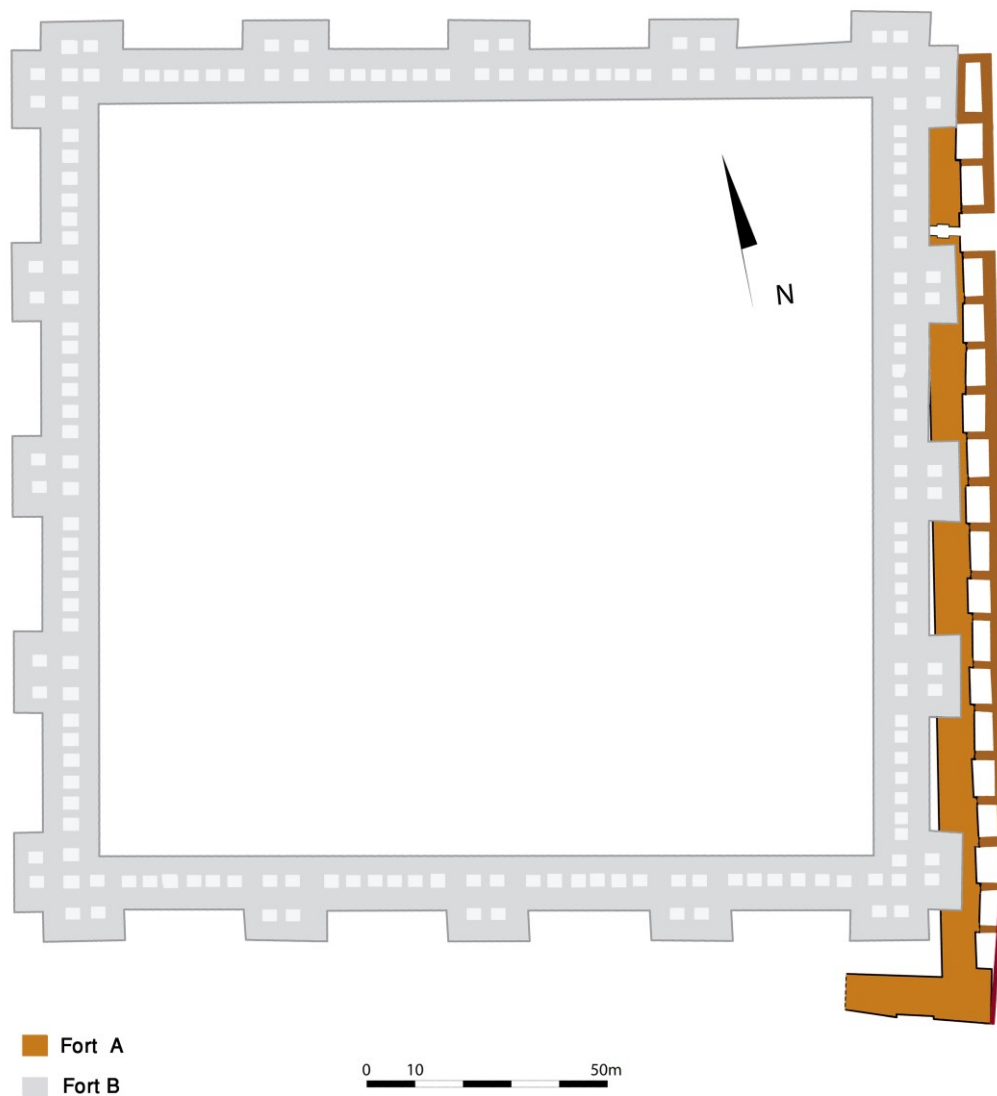


Figure 6: Plan of the two Saite Fortresses at Tell el-Kedwa (After Hesham Hussein)

measured approximately 2.20 m in width. This gate's entry width compares favorably with other fort entryways from the New Kingdom through Roman periods in North Sinai,³¹ while a 2.20 m wide passage could accommodate the admittance of chariots based upon the length of the axles of surviving Egyptian chariots.³²

CONCLUSIONS

According to the pottery recovered by our mission at Tell el-Kedwa during the 2007 season, and pottery from previous excavations at this site (i.e., Ben Gurion University excavation in the early 1980s; the Canadian-Egyptian expeditions in 1993, 1997, and 1998), the initial structure (fort A) can be dated at some

point during the early Saite Period, while the later, second building (fort B) probably dates to the second half of the Saite Period. It is also worth mentioning that the installation of major frontier fortifications and garrisons at Tell el-Kedwa and Tell el-Maskhuta, at key entry points along Egypt's northeast frontier, highlights the clear and perceived sense of real danger that the Saite Period Egyptians must have felt from their Near Eastern neighbors and enemies, hence the expenditure of effort to protect Egypt (i.e., introducing fort A), and to renew the destroyed or weakened fortifications (e.g., adding fort B), at the weakest points along Egypt's northeastern frontier.³³ Ultimately, even these substantial fortifications failed, and the Persian Empire breached them, destroyed them, and occupied Egypt in 525 B.C.



Figure 7: The East enclosure wall of Tell el-Kedwa forts A and B (Hesham Hussein)

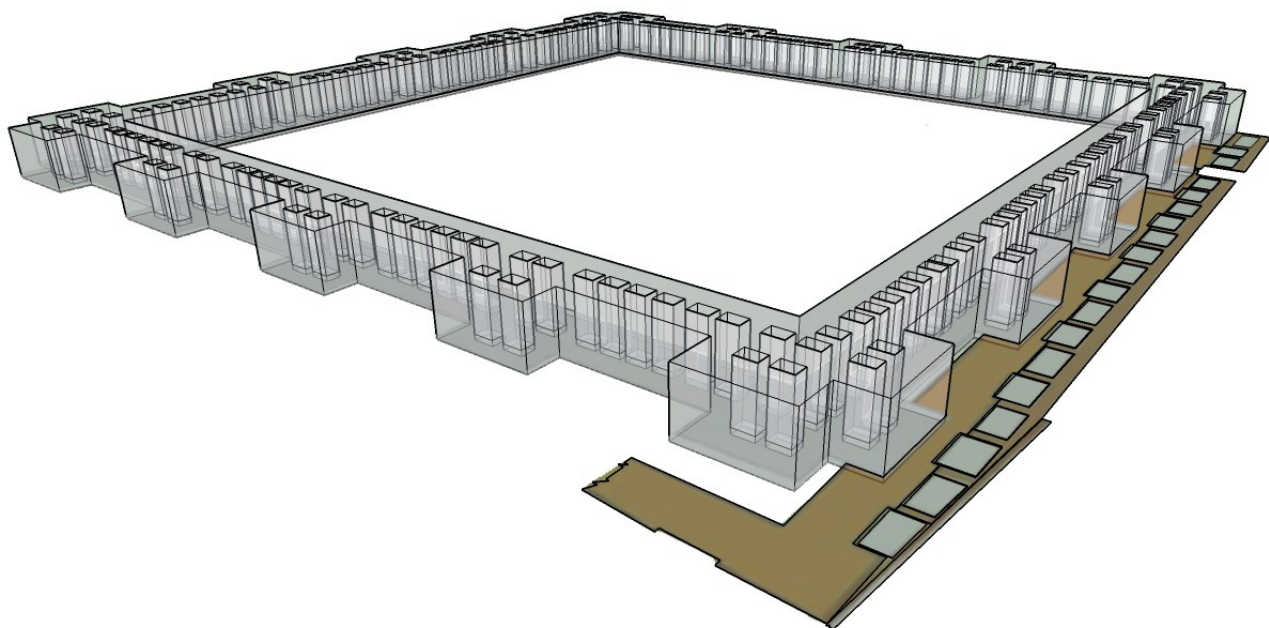


Figure 8: Reconstruction of Tell el-Kedwa fortresses showing compartments of fort B (Hesham Hussein)

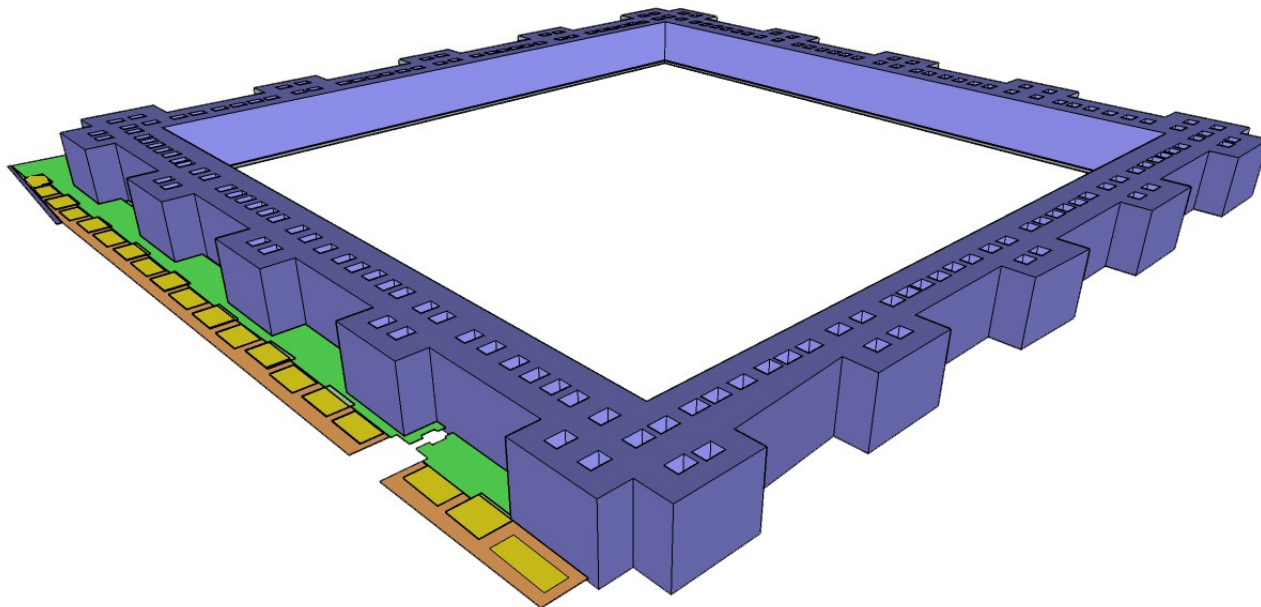


Figure 9: Reconstruction of Tell el-Kedwa fort B and the foundation of fort B (Hesham Hussein)

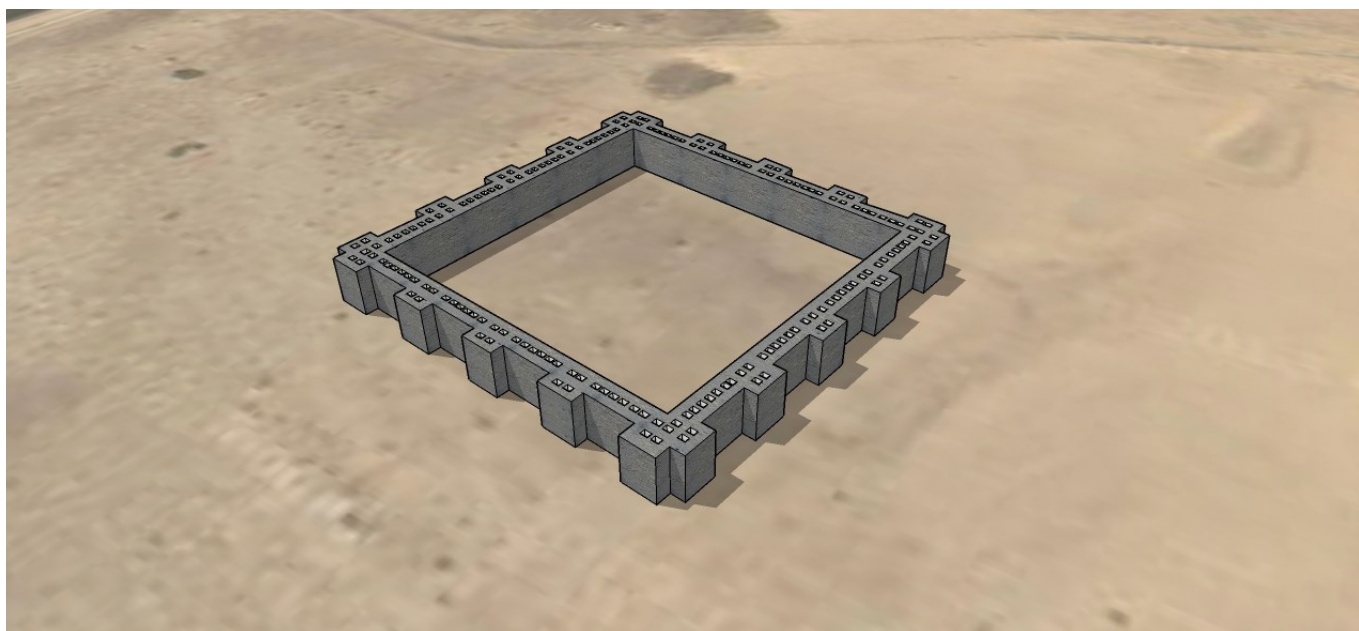


Figure 10: Reconstruction of Tell el-Kedwa fort B on GoogleEarth map (Hesham Hussein)

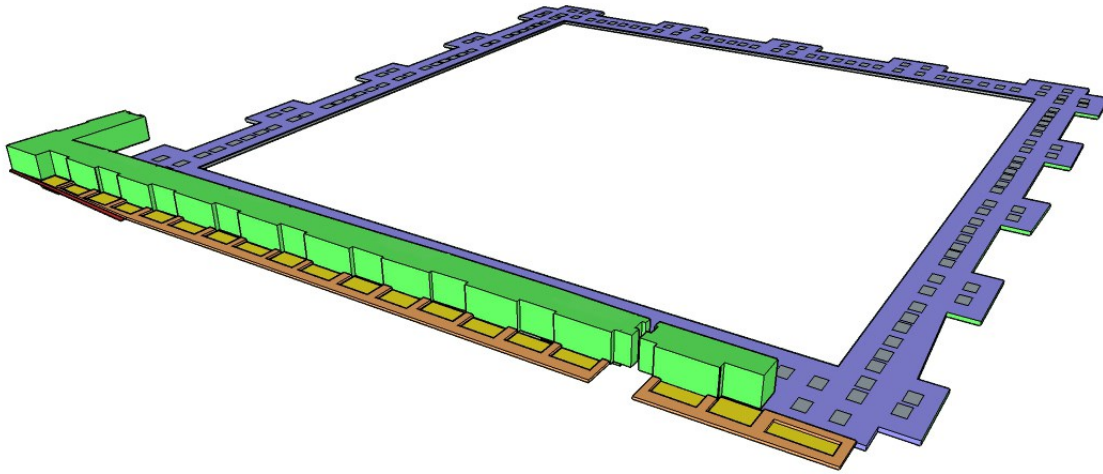


Figure 11: Reconstruction of Tell el-Kedwa fort A (Hesham Hussein)



Figure 12: The southeast corners of fortresses A and B (Hesham Hussein)

NOTES

- 1 The excavation of Tell el-Kedwa (Qedwa) forms part of the “Ways of Horus Archaeological Project,” which started in 1992 during the North Sinai Archaeological Salvage Project. Tell el-Kedwa excavation’s team from seasons 2007-2008 consisted of Dr. Mohamed Abd el-Samir, Dr. Hesham M. Hussein, Al-Sayed Abdel-Aleem, and Ezzat Masaod.
- 2 Until 1948, this North Sinai coastal stretch functioned as a real access and connecting passage that linked Egypt to the southwest Asia by a land road (i.e., the Caravan road), or by train (i.e., The Eastern Railway: 1918-1967), having its origins from the ancient “Way(s) of Horus” that began near modern Qantara (ancient Tharw/Tjaru in the region of Tell Heboua) and proceeded across North Sinai to Palestine.
- 3 Many scholars believe that the “Way(s) of Horus” actually represents a name for a land road that traversed the Mediterranean coast of Sinai; more recently, however, D. Valbelle has concluded that the “Way(s) of Horus” served as the name of a region; see Dominique Valbelle, “La (les) route(s) d’Horus,” in Catherine Berger, Gisèle Clerc, and Nicolas Grimal (eds.), *Hommages à Jean Leclant, Tome IV*, Bibliothèque d’étude 106.1-4 (Le Caire: Institut Français d’Archéologie Orientale, 1994), 379-386. According to modern Egyptian toponyms, the northwestern area of Sinai (i.e., from the Suez Canal to Bir el-’abd city) is sometimes called el-Salam Canal (Ter’at el-Salam is actually a fresh water canal with a connected network of roads). This suggests that the “Way(s) of Horus” may actually represent the name of a specific region with a connected network of roads (as proposed above).
- 4 Alan H. Gardiner, “The ancient military road between Egypt and Palestine,” *Journal of Egyptian Archaeology* 6 (1920): 99-116.
- 5 The reason for this problem is each branch of the Nile carry so much silt from out stream, the river bed keep building up (alluvial sedimentary processes) until the water can no longer flow throw Nile branches, at that point, Pelusiac branch of the Nile switched its stream.
- 6 Manfred Bietak, “Tell el-Dab’a-Qantir in the geography of the Ancient Nile Delta,” in Georges Posener (ed.), *Actes du XXIXe Congrès International des Orientalistes, Section Egyptologie*, Bd. 1 (Paris: L’Asiatheque), 15-19; Kenneth A. Kitchen, *The Third Intermediate Period (1100-650 B.C.), revised edition* (Warminster: Aris and Phillips Ltd., 1986), 243-254.
- 7 Kitchen, 255-56.
- 8 Mohammed Abd el-Maksoud, Hesham Hussein, and others, “The Excavation of 2009 of Tell Dafana,” in François Leclere and Jeffrey Spencer (eds.), *Tell Dafana Reconsidered: The Archaeology of an Egyptian Frontier Town* (London: British Museum, 2014), 130.
- 9 Recent investigations during seasons 2010-2013, at Tell Heboua I and Tell Heboua II indicate that no stratigraphic layers occur between the late New Kingdom layer and the Saite Period layer; this may indicate that after the end of New Kingdom, the reuse and reoccupation of these two sites may take place only during the Saite Period.
- 10 Mohammed Abd el-Maksoud and Domonique Valbelle, “Tell Heboua-Tjarou. L’apport de l’épigraphie,” *RdE* 56 (2005): 1-43; Mohammed Abd el Maksoud and Domonique Valbelle, “Tell Heboua II: Rapport préliminaire sur le décor et l’épigraphie des éléments architectoniques découverts au cours des campagnes 2008-2009 dans la zone centrale du Khetem de Tjarou,” *Revue d’Égyptologie* 62 (2011): 1-39.
- 11 Perla Fuscaldo and Silvia Lupo, *Tell el-Ghaba I. A Saite Settlement in North Sinai, Egypt (Argentine Archaeological Mission, 1995-2004)* (Buenos Aires: Consejo Nacional de Investigaciones Científicas y Técnicas, 2005); Perla Fuscaldo and Silvia Lupo, *Tell el-Ghaba II. A Saite Settlement in North Sinai, Egypt (Argentine Archaeological Mission, 1995-2004)* (Buenos Aires: Consejo Nacional de Investigaciones Científicas y Técnicas, 2006).
- 12 Eliezer Oren, “Migdol: a new fortress on the edge of the eastern Nile Delta,” *Bulletin of the American Schools of Oriental Research* 256 (1984): 7-44; Donald B. Redford, “Report on the 1993 and 1997 seasons at Tell Qedwa,” *Journal of the American Research Center in Egypt* 35 (1998): 45-60; Hesham Hussein and Sayed abd el-Aleem, “Tell el-Kedwa (Qedwa): Saite fortresses on Egypt’s eastern frontier. The 2007 season of SCA fieldwork,” Delta workshop, 2013 (http://ees.ac.uk/research/Delta_Workshop.html).
- 13 James K. Hoffmeier, “Recent excavations on the ‘Ways of Horus’: The 2005 and 2006 seasons at Tel el-Borg,” *Annales du Service des Antiquités de l’Égypte* 80 (2006) 257-79.
- 14 El-Kedwa is the modern name of the site, and means “small hill.” Tamarisks and other low bushes sparsely cover this site, and have aided in forming the accumulation of small sand dunes/hills that give the site its modern name.
- 15 The Sinai encompasses a triangular peninsula covering an area of 61,000 square kilometers, lying between latitudes 27° 43’ and 31° 19’ North, and longitude 32° 19’ and 34° 54’ East. The Sinai Peninsula covers portions of three modern governorates, namely Port Said, Ismailia, and Suez. The Mediterranean Sea borders the northern side of the peninsula with a coastal shoreline extending 205 km, while the Red Sea bounds southern Sinai from the Suez Canal along the Gulf of Suez and southwest Sinai to the tip of Sinai, and northwards along the Gulf of Aqaba and southeast Sinai to Aqaba.
- 16 Eliezer Oren, “Sinai, North, late prehistoric and Dynastic sites,” in Kathryn A. Bard and Steven B. Shubert (eds.), *Encyclopedia of the Archaeology of Ancient Egypt* (New York: Routledge, 1999), 733-37.

- ¹⁷ Eliezer Oren, "Land bridge between Asia and Africa: Archaeology of northern Sinai up to the Classical Period," in Beno Rothenberg and Helfried Weyer (eds.), *Sinai: Pharaohs, Miners, Pilgrims and Soldiers*, Ewald Osers (trans.) (Berne: Kümmerly and Frey, 1979), 181-92.
- ¹⁸ According to Oren, a massive fortified structure, reinforced with square buttress, occupied the center of Tell el-Kedwa (T.21), and was quite obvious on aerial photographs prior to the excavations. See Eliezer Oren, "Migdol: A new fortress on the edge of the Eastern Delta," *Bulletin of the American Schools of Oriental Research* 256 (1984): 7-44.
- ¹⁹ Valbelle D., et al., "Reconnaissance archéologique à la point orientale du Delta, rapport préliminaire sur les saisons 1990 et 1991," *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 14 (1992): 11-22.
- ²⁰ Steven Snape, "el-Salaam Canal," in Kathryn A. Bard and Steven B. Shubert (eds.), *Encyclopedia of the Archaeology of Ancient Egypt* (New York: Routledge, 1999), 689-90.
- ²¹ Unpublished reports: The Supreme Council of Antiquities, North Sinai Archaeological Salvage Project reports (1992-1995) (unpublished reports, Supreme Council of Antiquities).
- ²² Osama Hamza, "Qedua," *Cahiers de la Ceramique Egyptienne* 5 (1997): 81-85, pls. I-XVII.
- ²³ Abd el-Maksoud and Osama Hamza, "Excavation report (Season 1992), North Sinai Archaeological Salvage Project" (unpublished reports, Supreme Council of Antiquities); Nabil Ezat el-Sherrif, "Preliminary report of Tell el-Kedwa excavations, season 1992-1993," (unpublished report, Supreme Council of Antiquities).
- ²⁴ Donald B. Redford, "Report on the 1993 and 1997 seasons at Tell Qedwa," *Journal of the American Research Center in Egypt* 35 (1998): 45-60; Susan Redford, "The 1997 season at Tell Kedwa, North Sinai," *Akhenaten Temple Project Newsletter* (1998): 1-4; Donald B. Redford, "Report on the third season of excavation at the site of Tell Kedwa," *Akhenaten Temple Project Newsletter* (1999): 1-3.
- ²⁵ See Gregory Mumford, *International Relations between Egypt, Sinai and Syria-Palestine in the Late Bronze Age to Early Persian Period (Dynasties 18-26: c. 1550-525 BC)*, Ph.D. thesis (Toronto, 1998), 895-913; Květa Smoláriková, *Saite Forts in Egypt: Political-Military History of the Saite Dynasty* (Prague: Czech Institute of Egyptology, 2008), 48-54.
- ²⁶ The visible color differences on the modern surface at Tell el-Kedwa are due to the differential moisture retention and drying rates within the loose sand overlying the mud brick architecture and adjacent ancient matrix of sand, soil, ash, and potsherds. These color differences are most distinct at different times of day, and year, such in the mornings before the sun has more thoroughly dried out the overlying sand, or in the later afternoon to early evening when the heat has dissipated sufficiently. During cloudier times in the winter months, these difference also tend to display greater contrasts.
- ²⁷ The authors designated Oren's initial discovery of the (upper/later) fort as "fort B," while the authors' newly discovered, earlier/lower fort has become "fort A."
- ²⁸ Gregory Mumford, "Forts, Pharonic Egypt," in R. Bagnell, K. Brodersen, C. Champion, A. Erskine, and S. Huebner (eds.), *Encyclopaedia of Ancient History* (Oxford: Wiley-Blackwell Publishing Ltd.), 2724-30.
- ²⁹ The excavation of several shaft-chambers (i.e., honey-combed rooms) in the eastern foundation wall confirmed that no evidence exists for any connecting doorways, floors, or any traces of their use for storage, dwelling, or other possible activities.
- ³⁰ The latter observations were suggested by Gregory Mumford (personal communication).
- ³¹ According to recent field work by these authors at different fortress sites in North Sinai, the eastern gate's entryway in the New Kingdom, fortified settlement at Tell Heboua I measured approximately 2.70 m in width, the gateway's entrance in the Ramesside fort at Tell el-Borg extended approximately 2.50 m in width, and the north gateway's passage in the Roman period fortified town at Tell Abu Seifah was about 1.90 m in width; see J. K. Hoffmeier, "The gate of the Ramesside fort at Tell el-Borg, North Sinai," in Mark Collier and Steven Snape (eds.), *Ramesside Studies in Honour of K. A. Kitchen* (Bolton: Rutherford Press Ltd., 2011), 207-217.
- ³² M. A. Littauer and J. H. Crowl, *Chariots and Related Equipment from the Tomb of Tut'ankhamun*, Tut'ankhamun Tomb Series 8 (Oxford: Griffith Institute, Ashmolean Museum, 1985), 74.
- ³³ Ann L. Foster, "Forts and garrisons," in D. B. Redford (ed.), *The Oxford Encyclopedia of Ancient Egypt, Volume I* (New York: Oxford University Press, 2001), 552-59.