Naukratis: Greeks in Egypt

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Foundation deposits

Aurélie Masson
By February 12, 1885, we found the first foundation deposit, the beginning of a succession of such historical tallies, which date buildings, or even the sites, after every stone has been removed (Petrie 1931, 54).

The construction of sacred monuments in ancient Egypt was usually accompanied by a series of rites performed at the beginning and end of the building process.¹ Numerous iconographic representations and rarer examples of textual evidence bear witness to this elaborate ritual. The foundation ceremony (pD sx), carried out prior to the construction proper, also left behind a wealth of material evidence consisting of groups of objects and other elements, mainly buried at significant architectural points of the planned structure. These foundation deposits, essentially associated with monuments dedicated to the divine or royal cult, can also appear in royal funerary contexts and, sometimes, in more civic ones. This religious tradition goes back in Egypt at least to the Old Kingdom, probably as far back as the Early Dynastic period, and persisted through the whole Pharaonic, Ptolemaic and Roman periods, and is also attested outside of Egypt, notably in Sudan and the Near East.

Petrie’s first season in Naukratis unveiled six such deposits in the foundations of the gateway of the Great Temenos built by Ptolemy II (Fig. 1) (see the section on Topography).² Although foundation deposits are today well-known and studied ritual finds, this was not yet the case in 1885. Their discovery, content and significance are discussed in the present study. The issue related to the orientation of the monument, usually determined during the foundation ceremony, is also briefly addressed.

Figure 1 Artistic reconstruction of the front view of the Great Temenos with the Ptolemy II gateway. Drawing by Kate Morton

¹ On the foundation ceremony and deposits, see particularly Montet 1960 and 1964; Weinstein 1973; Letellier 1977a and b; Azim 1982; Schmitt 2008 (a more detailed article will be published in 2015 by Schmitt) Unless otherwise indicated, all images in this chapter are © Trustees of the British Museum.
² For various mentions of the Naukratis foundation deposits: Petrie 1886a, 8, 28–32, pls XXV–XXVI, XLII; Petrie 1900, 43, fig. 29; Gauthier 1915, 237, LXIV (only for cartouche of Ptolemy II in lapis lazuli); Petrie 1917, pl. XLVII, 10 (only for the model mortar-spreade in iron, British Museum, 1885,1101.127); Edgar 1922, 5–6; Petrie 1931, 54, 73–4; Bernand 1970, 850–2; Weinstein 1973, 376–8, no. 158; Azim 1982, 116; Yoyotte 1982–3, 128; Yoyotte 1993–4, 694; Yoyotte 1995–6, 680–1; Muhs 1994, 100; Thiers 1996, 46–7; Leonard 1997, 29; Spencer 2011, 35.
1. The discovery

In addition to Petrie’s account in his publication (Petrie 1886a, 28–32, pls XXV–XXVI; see also the general plan of the Great Temenos, pl. XLII), the discovery of the foundation deposits is reported with numerous sketches of the finds themselves, or their precise findspot within each deposit, in Petrie’s handwritten Journal 1884–5 (98–125) and in Petrie’s notebook 99-1-73 (115–20).

The first foundation deposit was discovered by chance in what Petrie identified as the south-west corner of the gateway: ‘[…] the most curious & instructive finds was at the corner of the gateway at the temenos (I still call it temenos to avoid confusion of names, but doubt I should do so). As I have said before the W.[est] side is half open & just at the spot, at the S[outh] W[est] of the opening we sank a shaft to the base of the wall, finding it at the bottom with a bed of clean sand against its N[orth] face. There I stopped, but two boys refugee from the rain got down, & grubbing in the sand found these’ (Fig. 2) (Petrie Journal 1884–5, 98–9; see also Petrie 1886a, 28).

When these first elements came to light in Naukratis on 12 February 1885, such finds were yet relatively unfamiliar in Egypt, something that Petrie underlined himself in his memoirs Seventy Years in Archaeology (Petrie 1931, 58). From the start, Petrie interpreted them as foundation deposits. Although Leonard later doubted this identification, there can be no doubt that Petrie was correct, as will become clear in the course of this chapter. After this fortuitous discovery, Petrie wanted to check the other corners himself as he guessed that similar ceremonial sets could be found there. In total, six deposits were identified, with four major sets buried at each of the four corners of the gateway and two minor ones at two corners of the central hall (Petrie 1886a, 28). Petrie’s plan showing the foundation deposits compiles various sketches and few notes in Petrie’s notebook 99-1-73 (Fig. 3). The state of preservation of each deposit varies, with the most complete set found in the north-west corner (Fig. 4).

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3 Petrie 1886a, 28. Petrie Journal 1884–5, 99: ‘[…] Now from these being all found together in the sand at the corner of the wall I take it that they were buried at the founding as models to represent (like funeral models) the implements of the foundation ceremony. The hoe is well known as a ceremonial tool for cutting the foundation; the chisel is for dressing the stone (which was abundantly used here)’.
4 Leonard 1997, 29: ‘Whether or not these groups of objects were actual foundation deposits is a matter of interpretation […]’.
5 Petrie Journal 1884–5, 100: ‘[…] of course I shall try the similar corners of the gate to see if there are others like these’.
Figure 3 Plan based on Petrie 1886a, pl. XXVI, showing the placement of objects discovered at each corner of the gateway of the Great Temenos.

Figure 4 Finds from the north-west corner of the gateway. Plan after Petrie 1886a, pl. XXVI, with photograph of the objects represented on the plan (actual objects discovered there unless specified otherwise).
The north-east deposit seems to have provided the most coherent arrangement, with an apparent symmetry of the elements laid in the sand (Fig. 5). However, Petrie explained in his publication that the plan he gave was 'according to [his] cross-examination about the things, one by one, both from the digger and from [his] overseer, who was present, but [he] cannot say that [he] much believe[s] in it' (Petrie 1886a, 30). Although Petrie took care of the excavations in the south-east corner himself, little was preserved in situ: 'the deposit had evidently been disturbed and broken up on the ripping-out of the stones which covered it' (Petrie Journal 1884–85, 122). As to the minor deposits placed at the corners of the central hall, only two survived with some finds uncovered to the south-east and north-west (Petrie 1886a, 28–32).

The finds from the foundation deposits were divided among four museums and in the published list of finds (Petrie 1886a, 31), Petrie assigned an initial for each one of them: the British Museum (L for London), the Egyptian Museum in Cairo (B for Bulak Museum), the Museum of Fine Arts in Boston (A for America) and the Berlin Museum (G for Germany). The finds from the latter were seemingly lost, but some of the faience objects intended for Berlin might never have reached the museum and were kept in the British Museum (see below).

Petrie did not limit himself to the corners of the gateway in the search for nice objects for museums. He wanted to understand the construction of the gateway, 'a puzzle' for him, as well as its relationship with the enclosure wall of the Great Temenos. He discovered that the construction of the gateway cut the enclosure wall and deemed it a refurbishment of an earlier enclosure wall that he dated back to the 26th dynasty (on this point see especially Spencer 2011, 35–6, fig. 9). The in-depth investigation of the structure itself led him to understand that the foundation deposits were not so much placed at the corners of the gateway itself, but rather at the corners of 18m wide chambers (as shown on Petrie’s sketch in Fig. 6).

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6 Petrie writes in his journal (Petrie Journal 1884–5, 111) that ‘[…] below ground level a mud wall (not separate bricks) was built forming a corner; that corner was filled with white sand; in that was placed with mouth to the wall the limestone mortar (4.2 diameter 4.0 high) on either side of that was a libation jar, like those already figured in the previous find. South of these were three small cups […] of green porcelain (two broken up); South of these were the tool models & on the west a model corn grinder (4.2 x 2.4 x 1.9) of sandstone. The tools &c vary somewhat from the previous set’.

7 Petrie Journal 1884–5, 119: ‘So instead of only digging into the corners of the gateway for the deposit of models, I set on clearing the whole sides of the gateway along about 60 feet run of wall, to 10 or 12 feet deep, & a cutting of 12 feet deep & 120 feet length takes some time. We have not finished it yet but have got to the bottom along the greater part. As I have already described we have two more corner deposits from it, & I still hope for another. The construction of the gateway is still a puzzle, especially as to what filled the 300 feet or so of its width’.

8 Petrie Journal 1884–5, 124: ‘These deposits were not in the corners of the gateway, as at first appeared; but they are in the corners of immense chambers which filled up in line with the wall; chambers 59 feet wide. All that remains of these chambers is two or three feet of mud backing of the stones around their base. All the stones so far have been removed. This explains what seemed irregularities in the arrangement of the deposits; they are always
Spencer explained that these chambers were ‘compartments in the ground for the sand-bed of the foundation’, an economic type of foundation characteristic of large Late Period and Ptolemaic buildings (Spencer 2011, 36; see also Spencer 2002, 49).

2. Content and significance

2.1 Part of the rite, part of the building

Performing a foundation ceremony allowed delimitation and purification of the site of the new construction, and established its sacredness. This ceremony was abundantly represented on Egyptian temple walls, notably those dated to the Ptolemaic period9 (see for example the scenes depicted in the Temples of Edfu and of Dendera, compiled in Montet 1960, 173, n. 3). In these scenes, the king always appears to perform the rites, in the company of various deities. By engaging in temple construction, he repeats the act of the Creator God in establishing the Ma’at, the right order. As the patroness of the architects (Lesko 1999, 274), Seshat is shown as particularly active in most scenes. The goddess is recognizable by her characteristic and much disputed headdress (Wainwright 1941, figs 1–5), a seven-pointed sign usually interpreted as a seven-pointed star or a seven-petaled flower (Pinch 2004, 190), but recently identified as a topographic instrument (Belmonte, Molinero Polo and Miranda 2009).

Ten main scenes relate this much codified ritual,10 though they are rarely all present on the same building. The second hypostyle hall of the temple of Edfu provides the whole sequence, discussed in detail with other examples by Montet (Montet 1964). It starts with the king leaving his palace to reach the place where he had chosen to build a temple (scene I) and ends with the presentation of the finished and purified temple to the deity to whom it is dedicated (scene X). The foundation ceremony itself includes a rite which fixed the plan and orientation of the building called ‘Stretching the Cord’. The king would then dig the foundation trench, later ordinarily filled with clean sand. He is represented moulding the first brick or bricks, burying foundation deposits, usually at the four corners of the future edifice, and initiating the building work. Some of these operations are symbolically illustrated within the material of the foundation deposits, and they are discussed, when appropriate, in the following presentation and analysis of the finds.

Foundation deposits have performed various roles that seem to have evolved, as one can surmise from the transformation of their contents, through time.11 They can be first perceived as an offering to the gods, against the wall of the chamber to the left hand of anyone looking into the corner’. See also Petrie 1886a, 28–9.

9 Earlier Pharaonic representations exist, but those of the Ptolemaic period count three additional rites in comparison to earlier periods: Montet 1964; Letellier 1977b. It is unclear if these additions are solely related to a more detailed account of the ceremony in the Ptolemaic period, or if the ritual evolved somehow and became more complex.

10 On the reconstruction of this complex ritual, see notably Weinstein 1973, 1–22. All steps are illustrated and listed with their ancient Egyptian titles in Cauville 2012, 263–8.

11 Such evolution is already visible and discussed in the study of J. M. Weinstein, who provides a quite extensive inventory of the foundation deposits. F. Schmitt is currently working on a database called SEMEN at the Laboratoire HISOMA (Histoire et Sources des Mondes Antiques), recording all foundation deposits discovered in ancient Egypt.
through the presence of alimentary and non-alimentary offerings within the deposit. Inscribed objects recording the name of the pharaoh who commissioned the building, and often the name of the deity to whom the building was dedicated, indicate a more commemorative function. A performative one is at last reflected by the presence of model tools and samples of materials. The foundation deposit, as noted by Schmitt, bears the ‘seeds of the architectural project’ (Schmitt 2008). All these functions, not mutually exclusive, seem to be reflected in the various categories of objects discovered in the Ptolemy II foundation deposits at Naukratis.

2.2. Types of finds

All the elements listed below were found in the foundation sand, which in addition to its value in the construction process was also perceived as ritually pure (Montet 1960, 175–6).

2.2.1 Inscribed cartouches

Three lapis lazuli plaques, carved in the shape of a cartouche, were discovered in the major foundation deposits, one in the north-east deposit (Egyptian Museum, Cairo, JE26858.9), one in the south-west (British Museum, 1885,1101.130.b) and one in the north-west (British Museum, 1885,1101.140) (Petrie 1886a, 31, pl. XXV no. 11). There is little doubt that the south-east deposit, which is very badly preserved, also had one. The first cartouche discovered is embedded in the corrosion of a model of a hoe in iron (Figs 7–8).

The cartouches bear a hieroglyphic inscription giving the name of Ptolemy II Philadelphus (283–246 BC). The prenomen, Ptolemy, is roughly incised on one side, while his nomen, Userkaenre Meryamun, is inscribed on the other (Fig. 9). The name of the king responsible for the new building is usually recorded on elements of the foundation deposit from the Middle Kingdom onwards (Marchand 2004, 8).

Such elements prove very useful to Egyptologists for precisely dating a building when the latter does not bear any decoration or inscription or
when it had been completely dismantled. In the case of the Great Temenos, not much was left of the pylon except its foundations, and if it were not for these cartouches, Petrie would have dated the monument differently: ‘If this really belongs to the first foundation & not to any re-education of the place, it would put it later than I had supposed’ (Petrie Journal 1884–5, 103).

For Weinstein, cartouche-shaped inscribed plaques are fairly common in Ptolemaic foundation deposits, especially those early in the period (Weinstein 1973, 359–60). However, later examples of foundation deposits provide more often inscribed rectangular or almost square plaques, usually with a more lengthy dedication. These plaques can bear a dedication solely written in hieroglyphs, like the faience plaques discovered in the Ptolemy IV Philopator (221–204 BC) foundation deposit at Tanis (Montet 1933, 147–8, nos 548–9 and 587–9; Shore 1961, 16). They are sometimes bilingual, like the glass and gold plaques from a foundation deposit of the Temple of Hathor who-is-(in)-Heaven / Aphrodite Urania in Qis (Kusae), also dated to Ptolemy IV Philopator. One of the glass plaques reproduced here (Fig. 10) is inscribed in black ink in hieroglyphic script on one side and in Greek on the reverse.

Finally, they can also be solely inscribed in Greek, such as the foundation gold plaques of Ptolemy III Euergetes (246–222 BC) discovered in Abqir (Fig. 11) (linked with the foundation of a temenos dedicated to Osiris: Bailey 1984) and in Herakleion-Thonis (mentioning a gymnasium dedicated to Herakles: Goddio and Fabre 2008, 140–3). The Naukratis cartouches hence follow a more traditional Pharaonic tradition, a trend also visible in other finds of the deposits.

12 See, for example, the foundation deposits belonging to a portico that Thutmose IV once erected in front of the fourth pylon of the Temple of Amun in Karnak, subsequently dismantled and reused in the 3rd pylon of Amenhotep III; their situation even helped the anastylosis of the monument in the Open Area Museum in Karnak (Masson and Millet 2007). Another interesting case is illustrated by the 15 foundation deposits discovered in the Temple of Hatshepsut in Deir el-Bahari, the majority of which do not relate to the actual plan of the temple as constructed. According to a study by K. Spence, they relate to different foundation ceremonies for a particular project or part of the building; the analysis of their position allows a reconstruction of how the architectural project evolved (Spence 2008).

13 They indicate that the commemorative aspect of the ritual is particularly emphasized in this period (Marchand 2004, 17).

14 Breccia 1931, 276, no. 1; Fraser 1956; Shore 1961, 35–6; Fraser 1962, 144 n. 11; Clère 1963. Similar bilingual plaques were discovered in various foundation deposits in the Serapeum of Alexandria: those for the Temple and sacred enclosure of Serapis dated to Ptolemy III Euergetes (Rowe 1946, 1–10 and 51–2); those belonging to a shrine dedicated to Harpocrates and dated to Ptolemy IV Philopator (Rowe 1946, 54–8); see also Clère 1963, 17–18.
2.2.2. ‘Models’

Numerous small-sized tools and vessels were discovered in each deposit, including the minor ones in the central hall. Although they are often used as synonyms, an important difference must be made between models and miniatures. S. Allen, who discussed both terms in a study on models and miniaturization in ancient Egypt (Allen 2006), qualifies models as non-functional and votive in nature.\(^{15}\) They can be full size, although they are more often an expression in a smaller scale of ritual equipment used in funerary ceremonies and probably also in temple settings (Allen 2006, 21). On the other hand, a miniature is an element which was ‘produced at a significantly reduced scale but retaining its functional ability’ (Allen 2006, 21). Miniatures and models can occur in the same context, even along full-size elements, indicating that they had different functions (Allen 2006, 22). In the case of the foundation deposits of Naukratis, it seems more accurate to designate most of the items described below as models, although some of the vases could have had a more practical use.

Ceremonial instruments and tools

The foundation deposits of Naukratis have yielded a wide variety of models of ceremonial instruments and tools, a very characteristic type of finds in foundation deposits since the Middle Kingdom. In Naukratis, they are made out of various materials, stone, copper alloy and iron. Wooden elements, such as handles, probably existed and were, at least in one case, noted by Petrie (see below). The preservation of wood is scarce in such a damp and salty environment, but beautiful examples are attested in foundation deposits discovered in drier contexts, like those from Hatshepsut’s temple at Deir el-Bahari.\(^ {16}\)

Despite being small in size and poorly made (as usual in foundation deposits of the Late and Ptolemaic periods: Weinstein 1973, 297, 307-8, 356), the metal models can still be easily compared to actual ancient Egyptian tools, and notably to some discovered in Naukratis itself or its vicinity (Petrie 1886a, 29; see also forthcoming chapter on tools and weapons).

\(^{15}\) Models ‘stand for the real thing […] it is their outward form that is symbolically important and their contents [in the case of models of vessels] are implied by their shape’ (Allen 2006, 20).

Stone

The most common tool within the foundation deposits of Naukratis is a calcite tool, oblong in shape with blunt pointed extremities, identified as ‘pegs’ by Petrie (Petrie 1886a, 31, pl. XXV nos 7–10) (Fig. 12). Petrie indicated in his journal the presence of green paint in the middle of the ‘pegs’, but none of the ones I have seen directly bear any such traces. Weinstein suggests other possible identifications, such as ‘rollers (for moving large blocks of stones), boning rods, mallets (for hammering the stakes into the ground at the foundation ceremony), or possibly even burnishing tools’ (Weinstein 1980, 377, n. 70). Each of the best preserved deposits, in the north-east and north-west, had a complete set of four of them, while only three were recovered in the south-west and two to the south-east. Delimiting the four corners of the monument to be erected is one of the major steps in the foundation ceremony. It is often illustrated on temple reliefs, like in the temples of Edfu and Abydos (Cauville 2012, 263–4). In these scenes, the king is depicted facing Seshat, with both driving a stake with a mallet into the ground. Petrie’s first identification as a peg seems quite pertinent in such a context.

Six models of corn-grinders in yellowish brown quartzite were discovered in the foundation deposits: one lower corn-grinder in each large deposit (Petrie 1886a, 29 and 31, pl. XXVI, no. 32) (Fig. 13); one upper corn-grinder in the south-east deposit and another in the north-west (Petrie 1886a, 29 and 31, pl. XXVI, no. 33) (Fig. 14). In the best preserved north-west deposit, they were closely associated with a two-handled mortar in limestone: ‘below the mortar were a pair of corn rubbers’ (Petrie Journal 1884–5, 115). These mortars were present in each of the main deposits (Petrie 1886a, 29 and 31, pl. XXVI, no. 34) (Fig. 15). With their high flared walls, direct rim and flat base, these models resemble contemporary mortars (Aston 1994, 158, no. 201) (see also chapter on the Stone vessels).

Petrie identified the grinders and mortars as ceremonial, ‘most likely referring to some ceremony of grinding corn and pounding food’; he also proposed an alternative, but incorrect, function: ‘it is possible, however, that the building may have been a granary belonging to the emporium, and these implements then symbolic of the use of the building’ (Petrie 1886a, 29). Grinding stones are actually one of the most common elements in foundation deposits associated with a variety of sacred buildings; they can be made in a variety of stones, such as sandstone, granite, quartzite or limestone, but can also be a simple terracotta reproduction (Azim 1982, 104). They are commonly found in foundation deposits of the Ptolemaic period, continuing a tradition well attested in the Pharaonic period (Weinstein 1980, 297, 307). Mortars are also common in foundation deposits and their shape evolved through time, with truncated mortars attested from the Late Period onwards (Letellier 1977a, col. 908; Weinstein 1980, 298). Foundation deposits of Psamtik I at Tell el-Balamun, for

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18 The last part of this study discusses this stage of the ceremony in more detail.
19 Whether they represent in all instances pegs or rods, used in the rite of ‘Stretching the cord’, is hard to tell. There are others examples of narrower form in carnelian discovered in Tell el-Balamun: Spencer 1996, 85–6, cat. nos 100g and 101g (discussion citing additional parallels).
example, provided thick-walled, handless model mortars (Spencer 1996, 85–6, pl. 91), while two-handed mortars similar to the Naukratis examples are first attested in a foundation deposit belonging to a destroyed temple of Nectanebo in Abydos (Petrie 1902, 33, pl. LXX, no. 11; Weinstein 1980, 298 and 345, no. 150). The presence of mortars could be related to the word hwsj (WB III, 248) written with a mortar sign in ancient Egyptian and meaning ‘to found’.

**Copper alloy**

Fourteen models, belonging to five different categories of ceremonial instruments and tools, were made of copper alloy. The models seem to be made in one piece out of sheet metal, although some are so corroded that it is difficult to be sure that this technique was used for all of them. Some might have been attached to wooden handles, but none was preserved.

One model of an adze with blade and handle in copper alloy was discovered in each large deposit, bar in the disturbed south-east deposit (Petrie 1886a, 31, pl. XXV no. 3) (Fig. 16). The adze is one of the most commonly represented tools in foundation deposits of all periods (Azim 1982, 103). The pharaoh is often depicted hoeing the foundation trench with an adze (hnn) during the foundation ceremony (Montet 1964, 85–7). Some texts accompanying these scenes (such as Chassinat 1928 = Edf., III, 106) reveal that the pharaoh digs the earth down to the primordial water (Nwn) to reinforce the divine house. Beyond this powerful metaphor, digging to the limit of the water table would also ensure a horizontal plan to start the construction (Montet 1964, 86).

A second type encountered in each main deposit, with the exception of that in the south-east, is a sacrificial knife with blade and handle in copper alloy (Petrie 1886a, 31, pl. XXV no. 18) (Fig. 17). Sacrifices of animals often accompanied foundation rituals, with bones belonging to birds, bovines or other animals discovered within numerous foundation deposits. 20 Although this practice is attested in the Ptolemaic period – such as in the foundation deposits of Ptolemy IV in Tanis (Montet 1933, 143–6), it seems that the deposits of Naukratis did not contain any animal bones. Considering how careful Petrie was to retrieve even the smallest piece from the deposits he excavated himself, he would have noticed such an element. Sacrifice in Naukratis is only symbolically implied by the presence of a sacrificial knife. Also possibly associated with sacrifices are the two axe models retrieved from the south-west main deposit and the north-west one (Petrie 1886a, 31, pl. XXV no. 19) (Fig. 18). These axes have an almost rectangular blade and inward curving haft in copper alloy. Long-handed axes were usually meant for sacrifice and not construction (Petrie 1886a, 29; Petrie 1917, 8, pl. II, no. 80; Kühnert-Eggebrecht 1969, 121, M GD/21). Only one hatchet in copper alloy, with a blade tapering slightly from butt to cutting end and an outward curving haft, was discovered at the south-east corner main deposit (Petrie 1886a, 31, pl. XXV no. 1; Davies 1987, 48, nos 147–8, pl. 25) (Fig. 19). It could similarly relate to the sacrificial act. Petrie suggested

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20 Already in the earliest known foundation deposits and still documented in Sudan during the Meroitic period (Azim 1982, 105 and n. 47).
that the hatchet and axe ‘might be both for the same purpose as they were not found together in any one deposit’ (Petrie 1886a, 29).

The models of chisels would be more symbolic of construction work. Their blades taper at one end and their hollow sockets were maybe once attached to wooden handles (Petrie 1886a, 31, pl. XXV no. 4) (Fig. 20). There should have been one model of chisel in each main deposit, but none were found in the much jumbled south-east one. Petrie compared these models with actual chisels he found at the site, including one that he dated to the mid-6th century BC (Petrie 1886a, 29). It is not easy to recognize the last type of copper alloy tool, tentatively identified as trowel (Petrie 1886a, 31, pl. XXV no. 2) (Fig. 21). Two of them were discovered, one in the north-east corner and one in the south-east one.

Iron

Fewer tools made in iron were retrieved from the deposits, but their size is slightly more significant than those made of copper alloy.21 Model tools in iron are unusual and not attested in foundation deposits of the Late Period in Egypt (normally solely made of copper alloy: Weinstein 1980, 297), but attested elsewhere in the 4th century BC.22 This peculiar choice of material might suggest interestingly metallurgical and/or trade activities in the harbour town. Petrie described Naukratis as a ‘great centre of the iron trade’, as he noticed the presence of iron ore, slags and tools in the ‘low strata of the town’ (Petrie 1886a, 39).23

Two types of iron tool were discovered, each type represented by two examples. Hoes with a broad blade and long handle (Petrie 1886a, 31, pl. XXV no. 5) (Fig. 8) were found in the north-east and south-west deposits, while mortar-spreaders with a broad blade and socket for a handle (Petrie

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21 See the old photograph taken by Petrie showing various objects from the foundation deposits of Naukratis (Fig. 34) with six small copper alloy tools in the middle, framed by two larger iron ones.

22 The foundation deposit from the royal tomb of Harsiyotef (404–369 BC) in Nuri provided several elements in iron, including models of adze (British Museum, 1922,0513,360) and axe (British Museum, 1922,0513,359), along with other more traditional elements (Dunham 1955, 194 and 198). These finds are even more exceptional because iron was very scarce in Sudan during the Napatan period.

23 These early contexts include the scarab factory, of which the main period of activity can be dated c. 600–570 BC (see forthcoming chapter on Scarabs, scaraboids and amulets). On the correlation between cultic or votive objects in metal and the trade of metals in Naukratis see Masson forthcoming a.
Models of vessels form one of the most constant elements in foundation deposits from the Old Kingdom until the Roman Period (Marchand 2004, 8), but models of vessels, as well as miniaturized vessels, are not limited to such contexts in Egypt (see Allen 2006). Despite them being so common, the use of vessels during the ceremony is little recorded in ancient texts or iconography (Marchand 2004, 9). Libations of wine, milk, beer and water are attested in a Late Period relief in Medinet Habu (Weinstein 1973, 8) and vessels – two globular $nw$ vases for libations and one cup – are included in the representation of a foundation ceremony in the 5th dynasty Sun Temple of Nyuserra in Abusir (Marchand 2004, 10, fig. 1).

According to archaeological evidence, models of vessels are often clearly associated with the alimentary offerings which took place during the foundation ritual: they sometimes still contain food remains, such as fruits, grains and animal bones, as illustrated by various Middle and New Kingdom foundation deposits (Marchand 2004, 12–15). Non-alimentary offerings start to be associated with vessels in the New Kingdom (Marchand 2004, 15). In the Late Period, ceramic vessels, rather rare and limited in their shapes, are no longer associated with food offering (except one example of the 26th dynasty: Weinstein 1973, 340). From the Middle Kingdom until the Late Period, they were usually made out of pottery, while by the end of the Late and during the Ptolemaic periods, small faience vessels tend to act as substitutes of pottery models in the foundation deposits (Weinstein 1980, 356–7; Marchand 2004, 17). In the Ptolemaic period, they are often simple small cups, but they can reproduce more complex vase shapes (see for example a double Hes vase from a probable foundation deposit at Herakleion-Thonis; Goddio and Fabre 2008, 346, cat. no. 390).

The Naukratis foundation deposits yielded essentially two types of vessels, small cups and libation vases. They were discovered in each of the main deposits as well as in the smaller ones. Actually, the south-east and north-west deposits of the central hall provided only such finds: one libation vase and one or two broken cups for each deposit (Petrie 1886a, 32). They are all made out of faience, with a medium hard porous cream core and displayed a light green glaze. The glazing, however, often has decayed into a paler yellowish or dull greyish green glaze.

24 The socket ‘has wood still in it from a wooden handle’ (Petrie 1886a, 29).
25 Petrie did not provide any information as to where these finds were kept (not listed in Petrie 1886a, 31). The British Museum register records that the libation vase 1920,1113.1 was ‘found in the Museum’ and, subsequently, transferred to the Department of Ancient Egypt and Sudan, along with four other faience vessels (the offering cups nos 1920,1113.2–5). These vessels possibly belong to the minor deposits of the central hall, or maybe with the consignment intended for Berlin (Petrie 1886a, 30–1).
**Libation vases**

The first type of vessel replicates the shape of a libation vase, a jar with a small perforated spout attached to rounded shoulders, a narrow collar rim and a flat base (Petrie 1886a, 31, pl. XXV nos 12–13) (Figs 23–4). Two such jars were discovered in each of the main foundation deposits, while each of the minor deposits produced one example.

These vases seem rather standardized in size with their height varying between 5.6 and 6.5cm. They were formed around a core of grass or reed stalks, as can be surmised from the imprints visible on the inner surface of one broken example (Museum of Fine Arts, Boston, 86.707). The same technique is visible in other faience vessels discovered at Naukratis (British Museum, 1886,0401.1501 and 1886,0401.1767), but also elsewhere in Egypt (the technique is discussed in the chapter on *Archaic mixed style faience vessels*).

Allen argued that models can be ‘derived from vessel shapes already archaic […]’, and be an ‘interpretation of traditional shapes such as the hs vase or nmst jar […] almost exclusively restricted to funerary contexts’ (Allen 2006, 21). The Naukratis libation vases reproduce the shape of a nmst jar. This particular type of vessel is already attested in the Old Kingdom, although nmst jars did not yet feature a spout in this period (Bomhard 2012, 42), a distinctive element that became more visible in New Kingdom and later specimens. They are well attested in the Ptolemaic period, and not only in foundation deposits. One faience example bears a demotic inscription with an invocation to Osiris on behalf of PA-dj-HkA, probably from a funerary context (BM 1878,1109.46 = EA35005, Fig. 25). A libation vase bearing the cartouche of a Ptolemy was discovered among numerous Ptolemaic silver vessels offered to the goddesses Hathor and Isis, in a cache near the Sacred Lake in Dendera; the set includes offering cups similar to the ones from the Naukratis foundation deposits (Musée du Louvre, E 11661–11665).

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See for example the spouted New Kingdom libation vase belonging to a priest of Amun, Amenemipet, discovered in Thebes (British Museum, 1881,0614.17 = EA13151); see also the silver nmst jar with an elongated spout, naming the 21st dynasty pharaoh Psusennes I, from Tanis and kept in the Egyptian Museum in Cairo. On the twin stelae recording the decree of Sais discovered in Naukratis and Heracleion-Thonis, Nectanebo I is represented offering similar vases to the goddess Neith (see illustrations of the lunette for each stela: Bomhard 2012, figs 3.13–3.14).
These spouted vessels were usually used for pouring libations of water in various divine and funerary rituals (i.e. for the daily purification rituals or the ceremonies of the opening of the mouth: Bomhard 2012, 42–3 quoting numerous references; for the 'salutation with the nmst jar for the New Year Festival': Eaton 2013, 18, pl. 219). Traunecker, however, distinguished nmst jars in precious metal and those made out of hard stones, with the first intended to hold water and the second ointment (Traunecker 1972, 204–6, fig. 2, 213, n. 2). It is unclear as to whether the Naukratis faience nmst jars were used to perform rituals during the foundation ceremony, as they could well have functioned as mere symbolic references to a ritual act.

Offering cups

Twelve offering cups were discovered in the main foundation deposits: three in the north-east deposit, four in the south-east, one in the south-west and four in the north-west (Petrie 1886a, 31, pl. XXV no. 14–17). To these examples must be added two to four additional ones that Petrie claimed to have found in the minor deposits of the central hall.

These cups all show the same profile, a flat base, slightly flared sides and a small out-turned rim (Fig. 26). The complete examples suggest that their dimensions are almost uniform: their height ranges between 2.3 to 2.9cm, and the diameter at the rim from 4 to 4.7cm.

This type of cup appeared in foundation deposits by the end of the Late Period and was particularly common in the Ptolemaic period (Marchand 2004, 16). Non-alimentary offerings were sometimes discovered within them, such as bitumen, resin or fragments of metal. In Naukratis, the cups contained small samples of semi-precious stone, as discussed below.

2.2.3. Samples of materials

The foundation deposits produced samples of a wide range of materials – various semi-precious stones and metals, as well as glazed composition and mud. Such samples can be rectangular in shape or be just rough fragments of raw material. They constitute a common find in foundation deposits, particularly those of the Ptolemaic period (Weinstein 1980, 359–60).

Semi-precious stone plaques and chips

Twelve rectangular plaques cut from various semi-precious stones were recovered from the foundation deposits. Their surfaces are smoothed and uninscribed. Plaques in lapis lazuli were most common with six discovered in total, one in the north-east main deposit, two in the south-east, two in the south-west and one in the north-west (Fig. 27). Other semi-precious stones were only present with two plaques, with one turquoise plaque at the south-west and north-west corners (Fig. 28), one plaque in agate at the south-east and north-west corners (Fig. 29) and one plaque in red jasper at the south-east and north-west corners (Fig. 30).
Petrie also mentioned a ‘quartz plaque’ within the north-west deposit, the best preserved of all.²⁷ Had he mistaken it for a glazed composition plaque, since there is no mention of such a plaque in his final publication? According to registers, the Egyptian Museum in Cairo also has a limestone plaque from a foundation deposit (JE26858.6).²⁸ Petrie, however, did not list any such item in his inventory of the material discovered in the foundation deposits of the Ptolemy II gateway (Petrie 1886a, 31). If it really belongs to this foundation deposit, it is doubtful that it is made out of limestone. Plaques from limestone are not attested in Ptolemaic foundation deposits, as opposed to plaques in semi-precious stones.

The south-east and north-west deposits of this pylon also yielded chips made of various semi-precious stones (Petrie 1886a, 29–31, pl. XXV no. 31) (Fig. 31). These small sized uneven fragments of stone might have been missed in the two other deposits, which were not excavated by Petrie himself. The samples were chiefly placed in some of the faience offering cups (Petrie 1886a, 29–30). As for the plaques, lapis lazuli is the most represented semi-precious stone among the chips, followed by turquoise and some rare fragments of obsidian and jasper.²⁹

**Metal plaques**

Nine metal plaques were retrieved (Petrie 1886a, 30–1, pl. XXV nos 22–6). Five different metals have been recognized, though no scientific analysis has been conducted to determine their precise composition. In his Journal, Petrie supposed that one of the metal plaques from the north-west deposit was a tin ingot (Petrie Journal 1884–5, 116), but later proposed to identify the metal as lead (Petrie 1886a, 31).

One square thick sheet of gold was discovered in the north-west foundation deposit. Petrie’s publication indicates that it ended up in the Bulak Museum, Cairo. The British Museum’s registers, however, also note a fragment of gold from the foundation deposit of Naukratis (1885,1101.135, not located yet).

All other metals – silver, copper (or copper alloy?), lead and iron – are each represented by two plaques. They are usually solid cast elements and initially rectangular in shape, but badly preserved to the point that several of them are stuck to one another through corrosion (Fig. 32).³⁰ The north-east deposit provided one of each. The north-west deposit has an example of each of the metal’s samples, bar one of silver, while the south-east deposit had only one of silver.

²⁷ Part of the composition of the north-west main foundation deposit as described in Petrie Journal 1884–5, 116: ‘mud brick, as before; porcelain brick, as before; red jasper plaque, lapis lazuli plaque, agate plaque, turquoise & quartz plaque, ingot of iron, ingot of copper, ingot of tin (?), thick gold foil.’

²⁸ So far we have not yet been able to study this object.

²⁹ Petrie provides some additional details in his journal regarding these chips. At the north-west deposit, he observes: ‘In the small cups in two cases, & just beneath the other two which were overturned, were chips of precious stones lapis lazuli (34), turquoise (4) red jasper (3) & obsidian (1)’ (Petrie Journal 1884–5, 116). For the south-east corner, he noted a similar association: ‘Chips of lapis lazuli (14) turquoise (3) & obsidian (1) mostly found near the broken cups. In the unbroken cup chips of lapis lazuli (38 mostly very small) turquoise (6) obsidian (3) jasper (1)’ (ibid., 123).

³⁰ One of the entries in the registers of the Egyptian Museum, Cairo (JE26858.2), records a large lump of iron, stuck to a calcite tool, with a lead plaque and a copper alloy plaque encrusted in the corrosion of the iron (not seen).
The absence of silver in the well-preserved deposit of the north-west corner could be interpreted in two ways. Either it was missed during the otherwise careful excavation by Petrie, or the symbolism of having nine plaques (five in semi-precious stones and four in metal) was more important. Weinstein proposed that nine was seemingly the number of plaques required in Ptolemaic foundation deposits; this sacred number in Egyptian theology was notably related to the divine Ennead of Heliopolis (Weinstein 1980, 368–9, quoting Sethe 1916, 38–9). Yet, as we will see, nine is not the number of plaques that was required in Ptolemaic foundation deposits according to textual and iconographic evidence.

**Functions of the stone and metal plaques**

The particular importance of the plaques is echoed in Ptolemaic representations of the foundation ritual, which mainly favour the act of ‘placing the plaques at the four corners’ (Marchand 2004, n. 10). The king can be seen carrying a tray with seventeen plaques. This number appears to have been of some significance, since it is this exact number that is quoted in a text of the Ptolemaic Temple of Edfu (Chassinat 1918 = Edf., II, 32). This passage also specifies the material of these plaques – gold, bronze, lapis lazuli and turquoise as well as other stones described by a more general term (Montet 1960, 176). The Naukratis foundation deposits contain all these materials in addition to others. Silver, lead and iron are noticeably not mentioned in the text.

The meaning of these samples is debated. Petrie suggested that ‘all these stones were probably used in some decorations of mosaic-work in the place’ (Petrie 1886a, 29). Considering the powers assigned to some of the stones, Montet saw a more prophylactic function in these plaques (Montet 1960, 177). He also connected this range of materials with the recipe of a bitumen enriched with semi-precious stones and precious metals, which was applied on divine statues and statuettes during certain religious occasions. The recipe, inscribed on the walls of the Laboratory in Edfu temple, includes ground gold, silver as well as semi-precious stones, such as lapis lazuli, turquoise, feldspar and carnelian; this precious coating would grant a supernatural strength to these divine images. Likewise the presence of the raw materials within foundation deposits would ensure the durability of the monument (Montet 1960, 177).

**Mud brick**

Less controversial, models of mud bricks are more directly associated with the construction material. They constitute a regular element in foundation deposits from the Middle Kingdom onwards (Weinstein 1980, 356). At Naukratis, three models of mud bricks were discovered in total, in the north-east, south-east and north-west main deposits (Petrie 1886a, 31, pl. XXV no. 21). The south-west deposit, very probably, would also have had one originally. One of the bricks is still attached to a lapis lazuli plaque and

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31 Montet tentatively associated this number with astrology: ‘Je serais presque disposé à croire que le nombre dix-sept attesté comme nous l’avons dit par les textes et par l’image, est en rapport avec l’astrologie. Qui sait si on ne l’a pas obtenu en additionnant les cinq planètes et les douze signes du zodiaque?’ (Montet 1960, 177).
a big lump of corroded iron (Fig. 32). The king using a wooden mould to form the first brick(s) at the four corners of the temple is another commonly illustrated scene related to the foundation ceremony (Chassinat 1934 = Edf., XII, pl. CCCLXXII). The bricks found in foundation deposits are not of the actual size of a normal brick used in the building, but miniaturized versions acting as magical substitutes.32

Glazed composition plaques

Finally, Petrie recorded three plaques in glazed composition, one at each corner, except for the south-east corner, which is probably lost (Petrie 1886a, 31, pl. XXV no. 20). Judging from the one I was able to study (Fig. 33), the rectangular plaque has a similar core and glazing as the models of vessels discussed above. The originally green glaze has decayed to a dull greyish green colour and looks quite porous, while the pale yellow core is quite fine in texture. Petrie considered these plaques representations of the ‘material (green glazed sandy ware) used for decorations’ (Petrie 1886a, 29). In the frame of a foundation deposit, faience plaques can also act as a symbolic or magical substitute (on large and inscribed faience bricks from a Ramesses II foundation deposit in Qantir, see Weinstein 1980, 244–7, 254–7; on faience plaques used as substitutes for mud bricks see most recently Forstner-Müller 2015, 532).

2.3. The Egyptian nature of the deposits

An old black and white photograph taken by Petrie himself illustrates the best preserved objects from the foundation deposits, mainly from the north-west corner, as a deliberate reconstitution of what a complete deposit would have looked like (Fig. 34). Petrie recognized these finds as typically Egyptian and thus changed his view concerning the interpretation of the Great Temenos, curiously getting the nature of the sets right but not that of the building: ‘I should add that if these tools are founder’s emblems the enclosure must of course be Egyptian, or of Egyptian origin; it could not be a Greek temple temenos (unless they borrowed wholesale from Egyptian customs); hence I incline to revert to my old camp theory, & look at it as a camp for the Greek mercenaries, founded by the Egyptians’ (Petrie Journal 1884–5, 100; see also the discussion of this passage of Petrie’s Journal in Spencer 2011, 35).

32 The dimensions of the only mud brick I saw myself are 4.20 x 2.35 x 1.70cm. The sizes recorded for the mud bricks of the enclosure wall, for example, were probably about ten times as big (Spencer 2011, n. 30). Foundation deposits of earlier periods do include full-size bricks, but this went out of fashion by the Late Period.
The content of these deposits is indeed purely Egyptian in nature and is very similar to that of Late Period foundation deposits (see for example those discovered at Tell Nebesheh, Gemaiyemi and Tell Dafana: Petrie 1888, 14–15, 40–2, 54–5, pl. V–VI, pl. XIX and XXI–XXIII). The Naukratis foundation deposits can be further compared to several foundation deposits, mainly dated between the reigns of Philip III Arrhidæus and Ptolemy IV, which were later discovered in various temple complexes of the Delta, at Coptos and in the Theban region (discussed in Weinstein 1980, 352–63, Group I).

Elements more specifically Ptolemaic are, however, missing in the Naukratis deposits. With the Ptolemaic period, the function of the foundation deposit shifted more towards a commemorative one, usually reflected in its content (Marchand 2004, 17). The Naukratis foundation deposits, still quite early in the period, illustrate a transitional phase in the contents of foundation deposits. As we saw previously, there are no Greek nor bilingual plaques. Instead, they offer some traditional elements which partially evolved from Late Period practices, while the absence of ceramic vessels and animal bones, linked to alimentary offerings within foundation deposits, is also an aspect that had already progressively arisen during the Late Period.
3. The question of the orientation in the foundation ceremony and the Great Temenos in Naukratis

Astronomic observations performed prior to the defining of the sacred space permitted a specific orientation to be given to a temple or a royal tomb. Even though architects would have to take into consideration the natural environment and ground, adapting their construction accordingly, sacred texts suggest that they determined the orientation only by the ‘state of the sky’ (Montet 1960, 174–5; Montet 1964, 84; on astronomical and environment parameters, see also Gabolde 2012). The foundation ceremony includes this crucial stage in the construction. The rite, called ‘Stretching the Cord’ (prš šs),33 is abundantly depicted in Ptolemaic temples in a canon already attested in the 2nd dynasty (Engelbach 1934, pl. 24; on this specific rite and the use of ropes in the layout of ancient Egyptian buildings, see in particular Rossi 2004, 149–61). Such scenes represent the king and the goddess Seshat, face to face, each one holding a peg in one hand and a mace in the other, with a cord stretched between both pegs (see particularly Montet 1964, 78–85; Letellier 1977b; Goyon et al. 2004, 218–27). The texts accompanying some of these scenes are explicit. For example, in the temple of Edfu, the king says:

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\text{I seized the peg along with the mace. I take the measures with Seshat. I take steps in accordance with the movement of the stars. I surveyed the Bull’s foreleg (Msxtt). I am Sek-Aha (the observant?) who knows the merkhet (mrḥḥt). I establish the four corners of your temple (Chassinat 1932 = Edf., VII, 44–5).}^{34}
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The *merkhet* is a name given to instruments for astronomical observations that help the architect to orientate the building accurately. Their appearance and the way they were used are controversially debated among specialists (see for example Isler 1991a and b; Isler 2001, 159–74; Belmonte et al. 2009, 207–8, fig. 7.15). During the foundation ceremony, the king was supposed to conduct various astronomic observations (Zàba 1953, 55–64; Montet 1964, 78–85; Gabolde 2010, 248). He would first face the Bull’s foreleg, today known as the Plough or the Big Dipper – the brightest stars of the Great Bear (*Ursa Major*), a constellation which allows orientation towards true North. When he had the right orientation, the king would then aim at another star (not mentioned in the text), which would give the general chosen orientation of the building to be constructed (Montet 1964, 84). A series of recent studies in archaeoastronomy have demonstrated how varied and meaningful the orientations followed by ancient Egyptian sacred buildings were (Shaltout and Belmonte 2005;
The foundation ceremony would therefore ordinarily occur at night in order to observe the position of the stars that would guide the selected orientation of the building, often the Plough or sometimes Sirius, and it regularly happened during the New Moon (Letellier 1977b, col. 913; Gabolde 1998, 132–4, § 206-210).

Which orientation was chosen for the gateway of the Great Temenos in Naukratis? Its re-positioning according to the old plans of Petrie is very problematic since Petrie used a different triangulation network for the Great Temenos, leading to an incorrect representation of the axis of the monument (Thomas and Villing 2013; finer adjustments to the plan of the Great Temenos with the new geophysical survey results will be published in Thomas and Villing forthcoming). Future fieldwork hopefully will refine the reconstruction of the original orientation.

While awaiting new information, it is nonetheless possible to propose a working hypothesis. The gateway of the sacred enclosure in Naukratis opens to the west, towards the Canopic branch of the Nile. In this respect, the Great Temenos follows its model, the Temple of Amun in Karnak, with its first pylon also opening to the west and its main orientation facing west. It has been demonstrated that the temple of Amun in Karnak was aligned with the mid-winter solstice sunrise and that this orientation was respected from the foundation of the Great Castle of Amun by the 12th dynasty pharaoh Senusret I through the New Kingdom and until the Ptolemaic period, for the continuous reconstructions and additions to this temple. Should the Great Temenos in Naukratis have been aligned in a similar fashion, it would have enhanced the solar aspect of this temple dedicated to the solar god Amun-Ra Baded.

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35 ‘Ancient Egyptians orientated their temples according to their landscapes, both terrestrial and celestial, in a permanent quest for cosmic order’ (Shaltout, Belmonte and Fekri 2007, 437). This has been discussed by various scholars, notably in Molinero Polo 2000.

36 In Dendera, for example, the temple of Isis is precisely aligned with the point where Sirius arose, while the temple of Hathor was built to the perpendicular of the same point; such choice of orientation is significant since the star Sirius was closely related to both goddesses: Cauville et al. 1992, 41, n. 5; Aubourg 1995, 1. For other examples of alignment of temples with astral orientations, see the aforementioned studies by Shaltout, Belmonte et al., as well as Gabolde 2012, 9–10.

37 Gabolde 1998, 123–31, § 195–205. See also Gabolde 2010 refuting R. Krauss who suggested that the temple of Amun was merely built perpendicular in regards of the Nile (Krauss 2006).