Abstract

The focus of this paper is to establish a precise relative chronology of the Nile Delta sites which are contemporary with the first two cultures of Naqada (around 3850-3300 BC). The paper tackles various technical questions concerning the chronological position of the Buto and Ma'adi sites, as well as the chronology of a group of Delta sites which are mainly contemporary with the period of Naqada IIb. The precise timing of the various exchanges with the Near-East is determined. Imports from Palestine, then from Uruk into Egypt enable us to clarify the chronologies. Lastly, the relative chronology of the Harageh and Gerzeh prehistoric sites, in the Fayyum area, is also discussed, as is the role of the Badari region in interregional transfers.*

Keywords

Archaeology, chronology, Naqada, Buto, Ma'adi, Harageh, Lower-Egypt, Near-East.

*See the Arabic version of this paper in Volume II.

The Relative Chronology of the Naqada Culture: a view from Buto, Ma'adi Harageh and Gerzeh

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Introduction

Any reconstruction of the past must be based on a chronological framework, a succession of dates or markers against which we place the known facts. For the cultures without any writing system in Lower-Egypt and Upper-Egypt in the 4th millennium BC, the chronology is only based on archaeological material. The more precise the framework classification is, the more accurate the reconstruction will be. If this classification is poorly done, the succession of events will be scrambled. In this perspective, fine dating of material imported to Egyptian sites is a key tool for detailing the evolutionary phases, and may be the only parameter which allows a site's relative chronology to be determined.

The proximity of Lower-Egypt with Palestine, and the riches held by one and sought-after by the other led to early contacts, trade, and then the organization of ever more structured trade networks. For the same reasons, exchanges also took place between Lower-Egypt and Upper-Egypt. In Mesopotamia, the framework is less clear. While the importation of goods from the twin river region to the Nile is attested around 3500 BC by jars imported from Uruk that were found in the Badari region, there is no evidence that the trade was reciprocal. No Egyptian goods seem to have reached the Urukian sphere during the Middle Uruk.

This certainly implies an intermediary region acquiring Mesopotamian or Iranian goods and redistributing them in the Nile Valley. Thus the question is raised of the chronology of the trade networks, the itineraries used and the impact that the exotic trade goods had on local populations.

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Reassessing the chronology of Lower-Egypt: a prelude to any inter- and extra-regional research

The chronology used in this paper for the Uruk period in Mesopotamia and in Iran is largely based on that defined at Santa-Fe, which was founded on comparative stratigraphies of the relevant sites and radiocarbon dates (Rothman 2001). For Palestine in the Early Bronze Age I (EB I) period, the chronology used was defined by Yuval Yekutieli (2000), based on the stratigraphy of several sites in south-western Palestine, which subdivides the EB I into four distinct phases. For Upper-Egypt, the chronology used is based essentially on the relative chronology of Werner Kaiser (1957) which was extrapolated from the Armant cemetery with a few adjustments concerning the Naqada II-III transition. The chronology of Lower-Egypt, is largely based on our own work, which takes into account all the investigations conducted on this region for the periods preceding early Naqada III. It has been developed on the re-evaluation of the chronology of the earliest phase of Buto, which we have repositioned in a far earlier timeframe contemporary with the dawn of the 4th millennium, and on a precise dating of the Ma'adi site, which, within the framework of this paper, is slightly re-dated in relation to the Buto site.

Despite the intensification of research in Egypt, there still does not exist a relative chronology covering the whole of Egypt. The only tool currently used is a ceramic periodization based on Upper-Egyptian cemeteries, which is best applied to the sites of that region. This situation can be explained by the policy of archaeologists around 1900 who favoured the excavation of major cemeteries in the south which contained attractive objects in better condition than in the settlements. That suited western museums, which, in exchange for financing excavations, were able to quickly amass collections (Sowada 1996).

This excavation strategy, under the pressure of sponsors, had the effect of producing often incomplete publications (*e. g.* Diospolis Parva, Ballas) and moreover of neglecting at least half of the archaeological data. It is extremely difficult to establish an accurate chronology based only on cemeteries. Thankfully, the Ma'adi site in the southern Delta is particularly rich in prehistoric features and artifacts which are not limited to funerary contexts. This site is central to prehistoric reconstruction because it is the hinge between two worlds: the Near-East and Upper-Egypt, and has hosted numerous and complete excavations revealing its major scientific potential. Yet it is often neglected by researchers who recognize the difficulty of grasping its chronology (Cialowicz 2001/15) or understanding its relationships, and has remained "enigmatic" for many, as Stan Hendrickx himself commented (1999/20). For these reasons, Ma'adi is often underused in reconstruction work on prehistoric Egypt. In the latest Oxford edition, this major Delta culture was simply "forgotten" (Shaw 2000). In the last publication of Tell El-Farkha, Ma'adi is missing from the comparative table summarizing the evolution of the various cultures of Lower-Egypt (Jucha 2005/78). When it is integrated, Ma'adi is often ill-positioned chronologically; placed randomly in Naqada II-III (Spencer 1993/47) while everything in its material indicates that this site is contemporary with Naqada I. The work of Branislav Andelkovic (1995) devoted to a comparative study between Egypt and Palestine summarizes in its title alone *(The Relations between Early Bronze Age I Cannanites and Upper-Egyptians)* the difficulty of incorporating the Delta cultures. Yet the pre-Naqada period in the Delta produced an original culture with a strong archaeological potential whose chronological parameters

may help to specify the relative chronology far more accurately, in the long run, than the current systems. The Delta is also a main trading hub with the Near-East, firstly with Palestine in a period contemporary with Early Uruk, then with Palestine and Uruk in Middle Uruk. These exchanges also benefited the Naqada chiefdom as it always maintained some level of trade with the North.

The chronology of Upper-Egypt: history and evolutions

Petrie's Sequence Dating

The current chronology of Upper-Egypt is founded on an archaic periodization of ceramics done by Flinders Petrie. He defined a succession of chronological "ranges", based on the analyses of graves containing at least five different types of ceramics. In a numbered system that Petrie termed *Sequence Dating* (SD); the earliest Predynastic pottery was placed at SD 30 and the latest at SD 80.

This seriation system was elaborated during the excavations of four cemeteries in the region surrounding the Great Loop of the Nile and published in "Diospolis Parva" in 1901 (see also Petrie 1939). Three major "cultures" were recognized and named after type sites; Amratian (= SD 30-37), Gerzean (= SD 38-60) "divided into early (SD 38-44) and late (SD 45-60)", Semainean (= SD 61-75) or after later periods (Dynasty 0 = SD 76-78, Dynasty I = 79-82). Petrie based his system on ceramics and distinguished nine classes of pottery according to different criteria, pursuing the aim of finding the relative age of 900 graves unearthed from the cemeteries of Naqada, Ballas, Hu and Abadiya. The nine pottery classes are B (Blacktopped) class, P (Polished-Red) class, C (White-Crossed-Lined) class, D (Decorated) class, R (Rough) class, L (Late) class, F (Fancy) class, N (Nubian, also named Black-Incised) class and W (Wavy-Handled) class. Each group includes a great number of types, each designated by the upper-case letter of the class it belongs to and followed by a number, and a lower-case letter is added when necessary, for distinguishing between two similar types. An initial observation of the tomb recording cards shows that no grave contains both C-class and W-class pottery. These two classes are thus not contemporary. In observing the absence of the C-class in the graves early in the 1st dynasty (3050 BC) and the strong presence of W-class in the same graves, Petrie understood that the C-class was the earliest. The W-class was individualized by a morphological detail, the ledge-handle. The first models of ledge-handled jars are imported from Palestine and were adopted by Egyptian potters at the beginning of the Middle EB I, around 3500 BC Labelled "W-class" (Wavy-Handled), this class of pottery did not appear at SD 30, which starts with graves containing only Blacktopped (B-class), the oldest key-fossil, but extends from SD 40 to SD 80 (Petrie 1901/10). The W-class is used by Petrie as the key-fossil. Petrie supposed that over time, jars with ledge-handles evolved from the globular shape of type W 1 (= SD 40) to the more cylindrical shape of W 51 (= SD 71-75). At the same time, the handle progressively lost its usefulness starting at W 1 (= SD 40), where it is protruding and located in the middle of the body, eventually becoming a simple decoration progressively rising toward the top of the vase in the form of a slight circular relief as in type W 71a (= SD 78-80) or a line of dots in type W 80 (= SD 79-80) before disappearing as in type W 90 (= SD 80) under the reign of King Aha. The evolution of these W-class types allowed Flinders Petrie to mark the transitions from one SD to another. This intuition was verified statistically by its author and turns out to

be generally accurate. Initially founded exclusively on ceramics, this system then made it possible to date by extension other objects in the graves. This method allowed Petrie to determine a relative chronology for a full range of artefacts: slate palettes, flint and copper implements, ivories, stone vases, amulets, and beads (Petrie 1901).

Kaiser's Stufen chronology

In 1957, Werner Kaiser undertook to improve Petrie's system by re-evaluating it using the "horizontal distribution" of the graves inside cemeteries, an approach neglected by Petrie. Kaiser justified the undertaking by the fact that a system based on intuition concerning the evolution of one pottery class (the W-class) was only able to generate errors: this is what happened for example with Petrie's large W 31-32-33-35 type jars that were placed before the small W 41-43-44 type jars, when they are, in fact, more recent. For his revision, Kaiser chose to study the publication of the Armant cemetery, which provides an accurate chronological succession system for the graves as well as a quality chart. Firstly, he distinguished three ceramic groups (B-R-L classes), each dominating one area in the necropolis, to which he assigned a chronological value. According to him, these values correspond to the three major phases of the Naqada culture (early-middle-late) that is Naqada I-II-III. The W-class remains crucial to this system, even if W. Kaiser tends to play down its importance.

Based on the distribution of the two groups of W-class and D-class pottery in conjunction with the three groups of B-R-L pottery as well as on other *criteria* (such as palette types, layout of the graves), Kaiser detailed the chronology of these three ceramic groups in the necropolis and defined 11 subgroups: *Stufen* Ia-b-c, *Stufen* IIa-b-c-d1-d2, *Stufen* IIIa1-a2-b. The types defined by Petrie were integrated into these subgroups (W 24 = *Stufen* IId1-d2, etc.). It was obvious to Kaiser that each phase was clearly separated from the preceding one by a new type of artefact which justifies a new *Stufe*. This system offers both a narrower and easier chronological framework than the SD one, and is also more accurate since it takes into account the geographical distribution of the graves. Beyond Armant, it was then extended to other cemeteries in Upper-Egypt and Nubia. Surprisingly, it has not been possible to completely verify the *Stufen* system, as it has never been published in detail. Indeed, one major piece of information is missing: the duration of each *Stufe*. The most pertinent criticism appeared in 1973 when Jean-Louis de Cénival questioned the break-lines in the material of the Naqada culture. For Cénival, they do not correspond to the separations defined by Kaiser. Cénival places the *Stufen* Ia-b-c in the first half of Naqada I, the *Stufe* IIa in Naqada I's second half, the *Stufe* IIb in Naqada II's first third, the *Stufen* IIc-d in the second third of Naqada II, and the *Stufen* IIIa-b in the Naqada II's final third (de Cénival 1973/56).

Computer-assisted periodization

In a manner similar to Barry Kemp (1982), Toby Wilkinson (1996) attempted a computer-assisted periodization based on ceramics alone. He only took into account graves containing at least two types of pottery unearthed in five Predynastic cemeteries and two Protodynastic ones (not dealt with in this paper). These sites are different from the ones used by Petrie but include the one chosen by Kaiser (Armant). A new typology is defined, with a drastic reduction in the number of Petrie's ceramic types

and the number of graves taken into account (*e. g.* 60 % of Armant's graves). The periodization results were confirmed by the geographical distribution of the graves ("horizontal stratigraphy") only in three of the five Predynastic cemeteries, due to the absence of any charts in several excavation reports (Matmar, Mahasna, Mostagedda).

The result of this work is largely supportive of Kaiser's classifications though it is also concerned with determining the division lines between the *Stufen* and thus the break lines in the material, which strongly upholds some of Jean-Louis de Cénival's observations. T. Wilkinson thus confirmed the clear separation line observed between the *Stufe* IIa (which marks the end of the C-Class) and the *Stufe* IIb (when the first D-class with geometrical motifs appears). *Stufe* IIa is now integrated in the Naqada I period (Wilkinson 1996/64), a result supported by our own work.

Stan Hendrickx's system

A decade ago, Stan Hendrickx made his own revision of Kaiser's *Stufen* system, and though much heralded, it has not yet been published [1]. Some pertinent possibilities have been brought up (Hendrickx 1996). The first is to redefine the transition period between Naqada II and Naqada III. It thus concerns Kaiser's *Stufen* IId2 and IIIa1, two divisions occupied by the same types of W-class vessels (*e. g.* W 43b) and the *Stufe* IIIa2, which concerns two very distinct types of cylindrical vases (*e. g.* W 50 mixed with W 62). This proposal for Kaiser's classification contrasted strangely with Petrie's evolution system. Hendrickx replaced these pottery types in their former order, corresponding to the evolution that Petrie had observed in his time. But Hendrickx's periodization, as opposed to Kaiser's system, implies the need to redefine the periods of Naqada IId2, Naqada IIIa1 and Naqada IIIa2.

The types W 43b, W 50 and W 62, for example, are among the most frequent of the W-class wares in the graves, and are re-dispatched within the three *Stufen* with a new numbering, using upper-case letters to distinguish it from the Kaiser's *Stufen* system which uses lower-case letters. This reclassification is necessary, significant, and we support it *(infra)*. Hendrickx also raised the issue of a clear break in the material between the *Stufen* IIb and IIc, which Jean-Louis de Cénival had pointed out in the past. That point isn't entirely new since *Stufe* IIc corresponds to the advent of W-class ware and figurative scenes on the pottery of the D-class of which the most famous motif is a boat, two kinds of potteries lacking in *Stufe* IIb. While a reassessment of the transition Late IId-IIIa seems perfectly legitimate to us, discussing the limit between the *Stufen* IIb and IIc may not be the right starting point. Was it really necessary to propose a complete replacement of the *Stufen* system by a new one using a similar but incompatible numbering scheme? It seems a little bit premature given that all the reassessments in Hendrickx's work cannot yet be verified. The relative chronology of some graves is given without any analysis (Hendrickx 1996). Finally Hendrickx provides no equivalence between Kaiser's system and his own system, except for the Wavy-Handled ware (though this class only begins at Naqada IIc). It can disorient researchers and generate dubious connections, which is exactly what he wants to avoid. The question thus remains " IIb or not IIB " (Van den Brink 2002/9).

The Chronological Dimensions of Early Egypt: new perspectives

Our own chronological system differs from both previous systems, which were

derived exclusively from Upper-Egypt graves, in that it stems from research on material and stratigraphy from Lower-Egypt sites. It originated from the work performed on-site at Ma'adi. The first research phase involved assessing the relative chronology of Ma'adi with those of Palestine and of Upper-Egypt based on a group of products imported from those regions. Secondly, the Ma'adi material was correlated with material found at other sites of the Delta. Positioning Ma'adi according to Buto is complex, and in this paper we present our latest results that have been slightly adjusted since our previous publications *(infra)*.

The following research phase involved the correlation of the Ma'adi artefacts found on the actual site with those found in Upper-Egypt graves. This means looking for northern artefacts in the south and southern artefacts in the north. Then the same work was done with the material from later sites emerging in the northern Delta (subsequent to Ma'adi) before the influx of the Naqada culture in Lower-Egypt. The relative chronology between the sites that are both post-Ma'adi and pre-Naqada was also verified. The last research phase began at Naqada itself. The relative chronology of the graves of this type-site was evaluated on the basis of a typological analysis of the archaeological artefacts, taking into account all of the material (including imports) and not only Naqada ceramics. The F-class excluded by Kaiser in his *Stufen* system is also incorporated in the seriation. Periodization was conducted for each type of object and the data was then crossed-checked to obtain an overall sequence of the material. This work was largely inspired by the principles set out by Petrie and Kaiser, involving horizontal distribution of the graves (planigraphy) and pottery types in the cemetery not only for verifying the periodization, but also as an information source concerning the chronology. Then the chronology was extended from the Great Cemetery of Naqada to other Upper-Egyptian cemeteries. Preliminary results of this work confirm problems in the transition between Naqada II and Naqada III as expressed in the *Stufen* system, implying a small change in the chrono-terminology for the Naqada II-III transition period (referenced Late IId, Early IIIa and Late IIIa) corresponding approximately to the new IID2, IIIA1 and IIIA2 suggested by Hendrickx (Watrin 2004/48). Our system also led to some slight modifications on some of the other *Stufen* [2]. In this paper, there are also additional chronological markers provided for the sites of the region located east of the Fayyum (*e. g.* Harageh) whose relative chronology has been shifted slightly from Kaiser's evaluation *(infra)*.

The importance of pre-Naqada networks among the early inter-regional trade markets

The evaluation of the contemporary cultures flourishing in the Delta is the starting point to understand Naqada's role among the prehistoric cultures of Egypt. Due to its geographical location as the African gateway, Lower-Egypt was the unavoidable passageway for trade with the Near-East long before the appearance of the Naqada culture in this region. Yet, significant miscalculations have led to a misreading of the exchange phases. Further scrutiny of the chronologies of the Delta cultures makes it possible to improve the assessment of the successive phases of trade both with the Near-East and with Upper-Egypt.

The expansion of the Naqada Culture from South to North, from its heart in the Great Loop of the Nile took place gradually during the 4th millennium BC. This

expansion occurred in several stages, and was conditioned by environmental and human factors such as the demographical transition demonstrated by the increasing number of graves in the cemeteries from Naqada I to Naqada III periods. The attraction of the Delta's economic wealth was certainly one of the catalysing factors to this expansion.

Merimda

The earliest Neolithic settlement discovered to-date in Lower-Egypt is Merimda Beni Salama, located on a low terrace at the edge of the western Nile Delta. The earliest layer (Merimda I, *c.* 5000-4800 BC), is characterised by a fine burnished ware bearing a herringbone pattern incised into plates, dishes and deep bowls, that researchers have cited as indicating an early contact with the Near-East (Mesopotamia or/and Palestine). However the connection that Josef Eiwanger (1984/61) suggested with the Upper-Tigris culture of Hassuna cannot be established. The Hassuna culture, situated in the Mossul and Sinjar regions in northern Iraq, did indeed produce an incised ceramic with a herringbone pattern, but it took place during a much earlier timeframe (*c.* 6500-6000 BC) and the chevron pattern appears as one motif among numerous other geometrical motifs on the same pots, leading us to dismiss suggestions of a relationship for both reasons. The other link proposed by Josef Eiwanger is based on the documentation from the Late Neolithic sites of Palestine (*i. e.* al-Qahwaneh) or from northern Jordan. In fact, the Neolithic culture of Yarmuk (*c.* 5600-5000 BC) also provide pottery with a banded herringbone impression, as demonstrated by potteries from 'Ayn Ghazal and from Jebel Abu Thawwab (Kafafi 2001/51).

Based on radiocarbon datings, Merimda and Yarmuk cultures do not appear to be contemporary (Merimda I emerged while Yarmuk was closing), but the temporal closeness makes a connection possible. Nevertheless the decoration on the two ceramics groups is organized differently: the Yarmuk pottery features chevrons between two horizontal lines whilst the Merimda incised herringbone has no such borderlines, Yarmuk pottery has small geometrical spines whilst the Merimda pottery has large, uneven, and non-geometrical spines. These divergent graphic characteristics invalidate the links which have too often been drawn in the literature (*e. g.* Eiwanger 1984). Like F. Wendorf (pers. comm. "personal communication", Poznan 2000), we think that any connection drawn between Merimda and the Near-East based on herringbone patterns is diachronic and hence wrong and that the origin of the first settlement of Merimda must be sought elsewhere.

In the current state of research, the Neolithic sites of the El-Omari region fill more or less the timeframe between the latest layer of Merimda (layer V, around 4500 BC ?) (Hassan 1985/98) and the sites of Buto and Ma'adi in Lower-Egypt [3]. Radiocarbon datings situate the absolute chronology of El-Omari between 4600 and 4000 BC (Mortensen 1992/173). To date, no relationship between the El-Omari culture and the Near-East has been confirmed, in contrast to the two following cultures of Buto and Ma'adi, whose earliest radiocarbon dating draw almost the same picture, fixing their beginnings around 3900-3800 BC [4].

Buto

The earliest Buto settlement (Buto I, *c.* 3900-3800 BC), located in the Northwestern Delta, is the most useful site for evaluating the impact of Near-Eastern societies on

Egypt. The first trenches conducted by the DAI in 1989 yielded a complete series of sherds from Palestinian bowls decorated with bands of white paint that the first excavators, Kristina Köhler and Thomas von der Way, unfortunately mistook for Middle Uruk Syrian productions (Amuq F-ware). This led to a great confusion as to the nature of the archaeological artefacts at Buto and to the emergence point of the site, which both placed much too late, at Naqada IIb (*c.* 3600 BC), and too often quoted by researchers (*e. g.* Hendrickx 1999/20). This interpretation of the ceramics that we first refuted conjointly with Dina Faltings at the Cambridge Egyptology Congress in 1995 served to reinforce the theory of the existence of an "Uruk-style" temple at Buto I (von der Way 1992/219).

This hypothesis was built up around the presence of a handful of Nile-clay "nails", which were understood to be the same as decorative cones used on Mesopotamian buildings. However, these "pseudo nails" could have any number of functions, such as being tools for salt production (Wilde and Behnert 2002). The reassessment of the documentation of Buto I invalidates all the work stemming from such misinterpretations (*e. g.* von der Way 1993). The ceramic artefacts from Buto I are now better known through later excavations on the site, which yielded more consistent and diversified objects (Faltings 1998/368), notably complete shapes or decorated bowls re-identified as Palestinian productions from the very end of the Chalcolithic period. This reassessment implies that phase I of Buto must be brought backward several centuries. The beginning of the site in terms of Upper-Egypt chronology must now be situated in the late Badarian/early Naqada Ia periods. These Palestinian wheel-made V-shaped bowls are associated with containers with thumb-indented rim and jars with loop or plain-ledge handles comparable to Chalcolithic productions from Ghassul IV, a site which ended around 3900 BC according to the most recent radiocarbon datings (Stephen Bourke, pers. comm., Copenhagen 2000). However, the artefacts from Buto have closer parallels elsewhere, at a late site from the Palestinian Chalcolithic culture, Nahal Mishmar in the Dead Sea region, whose absolute chronology can be estimated around 3800-3700 BC in spite of later radiocarbon datings. The various types of decoration which are specific to Buto kitchenware, particularly the bowls with the white painted bands on the inside, have closer parallels with Nahal Mishmar. Petrographical analyses have revealed that almost all of the Palestinian artefacts of Buto (which vary from 30 to 40 % of the ceramic set depending on excavation squares), were indigenous and not imported from Palestine because the clay used for these pots is Nile clay. These discoveries underscore the local presence of a Palestinian potters group producing a large portion of the kitchenware in the earliest Buto village, around 3900-3800 BC.

Ma'adi

The second contact phase between Egypt and the Near-East takes place at Ma'adi (*c.* 3800-3600 BC) located in the Southern Delta. Its chronological position with regard to Upper-Egypt is Naqada Ia-IIa because according to our analysis, all the key fossils imported from Upper-Egypt are earlier than Naqada IIb period (Watrin 2002/52). In no case, can its position be assigned to the period between Naqada Ib and Naqada IId as can be read in literature (*e. g.* Hendrickx 1999/20). Dating the last phase of the Ma'adi site at Naqada IId instead of Naqada IIa, as suggested by Hendrickx, generates a chronological mistake of at least 250 years. Our stratigraphical work conducted in 1995

under the direction of Ibrahim Rizkana on the northern section of the Ma'adi village allowed the identification of two occupation phases that we have designated Early and Late Ma'adi. The emblematic artefacts of the site, notably the ring-based jars made in light brown-ware, are present during both phases (Watrin 2000/170). Sava Tutundzic (1976) links the Ma'adi pottery both to the Chalcolithic culture of Ghassul IV and to the Early EB I Lachish culture, because there are indeed some similarities between the pottery of the three sites. However the Palestinian ceramics imported to the Ma'adi site appear to be closer to the pottery of the Early EB I Lachish culture (*infra*). For this reason, we have placed the Buto Ia phase several generations before Ma'adi (Watrin 2000/171). Indeed the Palestinian pottery from Ma'adi is more recent than that of Buto Ia. Buto Ia also provides pottery similar to that of Ma'adi, particularly small globular jars in blackware [5] (von der Way 1997/pl. I: 8). But blackware vessels of this shape can also be found in the El-Omari Culture. Buto Ia apparently also produced a fragment of a ring-based jar in light brown-ware (von der Way 1997/pl. 34: 9), which made it possible to draw a link between Buto Ia and Ma'adi. However the presence of ring-based kitchenware in the cultures of Merimda and Ghassul incites one to be careful about making such a linkage to Ma'adi. The clues are scanty, and the presence of a Ma'adi-type jar with a decoration of impressed drips around the neck (von der Way 1997/pl. 7: 1) in the "Buto Ib-II layers" makes it clear that there was a relationship between Buto and Ma'adi but in a much more recent timeframe. In the same way, an almost complete Ma'adi-type ring-base jar (von der Way 1997/pl. 3: 3) in the "transition layer of Buto I-II" confirms the relationship with Ma'adi but much later than Buto Ia. In conclusion, Early Ma'adi must be contemporary with Buto Ib. Late Ma'adi must be contemporary with the "transition layer of Buto I-II" and with the first half of Buto IIa (strata 65 to 63), which is right before the arrival of the D-ware from Upper-Egypt (pots with spiral motifs) which began to appear in the Northern Delta as of the second half of Buto IIa (strata 62 to 60) (von der Way 1997/pl. 47). Buto Ia, located in the Northwestern Delta, signals the arrival of a late Chalcolithic Palestinian population around 3800 BC, whilst Ma'adi, located in the Southern Delta, remains outside of this "Dead Sea Connection" during its initial phase (Early Ma'adi). In the following period (Late Ma'adi), Ma'adi is connected with later Palestinian cultures from the Early EB I around 3650 BC. At this time Buto is apparently excluded from this connection *(infra)*. To summarize, Buto Ia is apparently a little bit earlier than Ma'adi (Table 1).

A prosperous lithic industry using Palestinian technologies such as hundreds of fan tabular scrapers and "Canaanean blades" (a key-fossil for Early EB I in Palestine) has been found at Ma'adi. These technologies could indicate that the site hosted Palestinian craftsmen just like in Buto but this time with stone knappers rather than potters and in a slightly more recent timeframe. Furthermore, local tools include both stone axeheads (Lukas 1931/pl. 2: 4) and ones made of copper. The metallographical analyses have demonstrated that the copper ore used at Ma'adi was imported from the Wadi-Feinan area in Jordan (Pernicka and Hauptmann 1989/140) and smelted at the site. This is shown most notably by bad casts and slag (Casini 1988/508) making Ma'adi the oldest metallurgical centre identified in Egypt. This earliest copper metallurgy in Africa probably implied the presence of Palestinian craftsmen at Ma'adi; whose skills were without any doubt the most accomplished in the whole Near- and Middle-East (see the Nahal Mishmar treasure). A basalt vessel recently discovered in Jordan at Tell Hujayrat el-Ghuzlan (L. Khalil, pers. comm., Amman 2002) may demonstrate that the fine basalt

Table 1. Chronological correspondences between Near-Eastern and Egyptian Cultures during the Fourth millennium BC.

Cal BC	**Lower-Egypt**	**Palestine**	**Upper Egypt**	**Upper and Lower Euphrates Sites**	**North Syria Mesopotamia**
4000-3900	El-Omari (late)	Ghassul IV	**Badarian**	Tell Brak (TW 19-18) Hacinebi A Uruk XII-X	Early Uruk LC 2
3900-3800	Buto Ia	Late Chalcolithic of the Dead Sea Nahal Mishmar			
3800-3700	Early Ma'adi Buto Ib Digla I		**Naqada Ia-b** Naqada 1783 Naqada 1676		
3700-3600	Late Ma'adi – Digla II – Heliopolis Buto transition I-II Buto IIa (strata 65-63)	Early EB I (EB Ia1) Afridar E Sidon Dakerman	**Naqada Ic-IIa** Naqada 1858 Naqada 1260 Matmar 3131	Tell Brak (TW 17-14) Hacinebi B1 Sheikh Hassân (8-13) Susa 22-19 Uruk IX-VIII Nuzi G 50	**Uruk Expansion I** Middle Uruk (Early) LC 3
3600-3500	Tell el-Farkha Ia Tell Eswed A (I-III) Tell Ibrahim Awad (phase 7) Buto IIa (strata 62-60) Harageh H 471 (tomb with impressed ware)	Early EB I (EB Ia2) En Besor Site H Tor Ikhbeineh V-IV	**Naqada IIb** Naqa ed-Dêr 7501 Naqa ed-Dêr 7298 El-Adaima 404 Abydos U-392	Tell Brak (TW 13) Hacinebi B2 Sheikh Hassân (5-7) Susa early 18 Uruk VII-VI	**Uruk Expansion II** Amuq F Middle Uruk (Late) LC 4
3500-3350	Buto IIb Tell el-Farkha Ib Tell Eswed A (strata IV-VI) Minshat I (M 757) Harageh H 452 Harageh G 404 (tomb with W 14)		**Naqada IIc** Naqada 454 Naqada 1863 Naqada T 29 Hierakonpolis 100		
3350-3250	**Naqada Expansion I** Buto IIIa Minshat I Harageh G (tomb with W 22)	Middle EB I (EB Ib1) Tor Ikhbeineh III-II Azor tombs 1-4-40 Tel 'Erani C	**Naqada IId1** Naqa ed-Dêr 7304 Matmar 3039		
3250-3150	Buto IIIb-c Minshat I-II Tell Eswed VII Abusir el-Melek 1035		**Late Naqada IId** Abydos U-127 Abydos U-134 Abydos U-503 Sayala 137 tomb 1 **Early Naqada IIIa** Abydos U-a Abydos U-j	Tell Brak (TW 12) Sheikh Hassân (4) Habuba Kebira Djebel Aruda Arslan Tepe (VI A) Hassek Hoyük Godin Tepe V Susa late 18/early 17 Uruk V-IVc-b	**Uruk Expansion III** Amuq F Late Uruk (Early) Early LC 5

vases of which Ma'adi was a distribution centre and/or producer may have been one of the Ma'adian goods that were exchanged for Jordanian copper. These exchanges with the Near-East are confirmed at Ma'adi by several other imported products, notably pieces of asphalt from the Dead Sea, wooden jar's covers of cedar which are most likely from Lebanon, grey burnished ware jugs indicating a connection with Northern Palestine, and ledge-handled Palestinian jars [6] which apparently contained olive oil (Rizkana, pers. comm., Ma'adi 1994), whose closest parallels can be found in Southern Palestine at Lachish. Lachish also yielded ring-handle jars similar to those of Ma'adi, which allow us to link the Ma'adi culture to the earliest phase of the Southern EB I (Yekutieli's EB Ia1).

One significant fact is that, next to their wattle and daub huts, the Ma'adians built semi-subterranean structures made of brick and stone or only stone, of which at least one was inspired by Near-Eastern architecture. In 1995, during our work on the western section of the Ma'adi site (well before the reopening of excavations at Ma'adi by the DAI from 1999 to 2002), we demonstrated that the sub-rectangular stone structure located at Ma'adi west discovered by Fathi Afifi Badawi in 1986 was indeed contemporary with the prehistoric site and linked to the classical model of dwellings at the beginning of the Palestinian and Lebanese Early Bronze Age I period (Afridar, Saidah) (Figure 1), testifying to close interactions with the southern Levant cultures around 3650 BC [7].

Naqada and the Ma'adi Cluster: the Blacktopped and basalt connection

Ma'adi, as shown by its location, imports and size in the Southern Delta, controlled the trade from the Northern Delta and from Palestine during the Naqada Ia-IIa periods. The earliest village of Naqada emerged almost at the same time as Ma'adi, around 3850/3800 BC. The Naqadan sites differed from Ma'adian sites in that they did not master copper metallurgy in their first development phases (Naqada I-IIa).

These Upper-Egyptian Neolithic sites produce luxury ceramics inherited from the Badarian period, Blacktopped ceramics, which must have been very sought-after in Lower-Egypt since they were imported and crudely imitated at Ma'adi. It is not surprising that only sherds from the B-class have been unearthed from Ma'adi, corresponding for the most part to beakers imported from the south and local imitations of them. The reason is essentially - if not only - chronological, since we believe that the first culture of Naqada (I-IIa), which mostly produced this pottery class, is the only culture contemporary with Ma'adi. In Upper-Egypt during Naqada Ia, around 70 % of the ceramics are B-class, the second class in quantity being the C-class (15 %), which is a red-polished ware decorated with a white painting.

Numerous patterns from the White Cross-Lined pottery (C-class) also appear on the painted ceramics of Ma'adi. This relationship with the Upper-Egyptian C-class *(infra)* shows that various types of Naqada pottery, and not only the B-class, inspired the Ma'adians. The Naqada I Culture also imported goods from Ma'adi. Some Ma'adian potteries of the red-burnished class (about 10 % of the Ma'adi ceramic set), decorated with an impressed row of oblique strokes or oblong dots around the neck made with a stick, reached Upper-Egypt. One specimen of this ware (Petrie's P 40f) was found in Naqada grave 1783 among a group of four beakers of the B-class. This grave can safely be dated in Naqada Ia, which clearly demonstrates that Ma'adi was already trading with the south at that time. For the German school, Ma'adi started at Naqada Ib (Kaiser) or at Naqada Ic (Rizkana and Seeher 1989/81).

Figure 1. Comparison between prehistoric domestic structures from Lebanon and from Lower-Egypt.

Trade goods included light grey luxury basalt vessels whose forms, notably the rounded barrel-shaped or tubular vases with ring or flat base, derived from the Ma'adian pottery (Figure 2). That confirms its local production (Rizkana and Seeher 1988/68). Recent petrographical analyses show that the basalt used for the making of these vases originated from the "Haddadin lava flow" near Cairo (Mallory-Greenough 2005/80), which is in immediate proximity to Ma'adi. One of the earliest basalt vessels of the Ma'adi type discovered in Upper-Egypt was found in Naqada grave 1676 among

Figure 2. Imports and imitations of Ma'adian basalt vessels in Upper-Egypt

a group of three White Cross-Lined bowls with geometrical decorations. This grave is easy to date in Naqada Ia. Basalt vessels are also found in the Northern Delta at Buto, but not *in situ*. They are disseminated in disturbed deposits. These Ma'adian-type basalt vases appear in the graves of four great regions of Upper-Egypt: Badari, El-Amrah, Naqada and Hierakonpolis. Those for which the chronology can be established are earlier than the Naqada IIb period (Watrin 2003/570). Ma'adian-type basalt vases were sometimes copied by Upper-Egyptian potters, using grey polished, brown polished or black polished ware, as exemplified by the black polished vase from Naqada grave 1693 (UC 6009) (Figure 2). This imitation of a Ma'adian basalt vessel was associated with two class-B vessels (B 77d and B 62b) which are found, according to our seriation system, between Naqada Ic and Naqada IIc.

In such a case, the B-class is not the most precise key-fossil for determining the chronology of the grave. The end of the Ma'adi emporium took place during the middle of the sequence of these two Blacktopped vessels, which allows us to place the relative chronology of grave N 1693 around Naqada IIa-b. Other ceramic imitations of Ma'adi basalt vessels were discovered in grave 94 of sector HK43 of Hierakonpolis (Friedman *et al*. 1999/4) (Figure 2). The excavators did not provide a specific date for this grave, but place the overall chronology of the cemetery in Naqada IIa-b, which corresponds either to the very end of the trade with the "Ma'adi Cluster" at late Naqada IIa, or else to a period when supplies from Ma'adi were cut off in early Naqada IIb. One of the particular and recurrent characteristics of the Naqadan potters appears here for the first time: the integration into their own ceramic set of foreign shapes (first from stone vases then ceramic types) imported from other cultural spheres *(infra)*, in this case from Lower-Egypt.

Naqada and the post-Ma'adian cultures of the Northern Delta: the D-class and impressed ware connection

In addition to basalt vessels exported towards Upper-Egypt, Ma'adi also traded some goods imported from Palestine as demonstrated in Matmar grave 3131 (Seeher 1991) which reveals a Palestinian jar and a Ma'adian copper axe. Matmar 3131 dates to Naqada Ic-IIa and not Naqada IIb as suggested by U. Hartung (1994/108). During this period (Ic-IIa), Ma'adian and Palestinian products were traded to Upper-Egypt but products from Uruk were not. It is only after the collapse of the Ma'adi trading centre,

during Naqada IIb-c, that the Nile Valley sites began to receive the earliest artefacts made in Uruk *(infra)*. The Naqada IIb period corresponds in Upper-Egypt to a new tradition of painted ceramics (Petrie's D-class) which replaced the C-class. This D-class first featured pots with geometrical spirals and wavy line motifs as of Naqada IIb and then, as of Naqada IIc, pots with more elaborate motifs, the most famous of which being the boat with oars. The D-class is a good key-fossil for establishing a relative chronology with the Delta Cultures. It is missing from Ma'adi, due in all certainty to the chronology of the site. We guess that the local painted ceramics of Ma'adi have no relationship with the D-class from the Naqada IIb period contrary to the links that some researchers have put forward (*e. g.* Seeher 1990/138). On the other hand, the painted ceramics show numerous similarities with the C-class from the Naqada I-IIa periods, with identical motifs (like the plant motif painted inside the bowls), another indication showing that Ma'adi was indeed in contact with the first culture of Naqada. The D-class of the second Naqada period (that we found in the South from Naqada IIb to IId), in contrast, appears on more recent sites than Ma'adi in the Northern Delta *(infra)*. These sites are contemporary with the second phase of Buto ("layer" II), and are distinguished by a decorated ceramic of a totally different nature, marked by impressed motifs.

A group of sites in the north of the Delta represents an original culture which was identified first at Tell el-Eswed and Tell Ibrahim Awad (van den Brink 1989). This cluster is characterized by a ceramic made up of 90 % rough ware and 10 % red or brown slip ware. The type-fossil of this culture is a ceramic bearing an impressed decoration. Several types of decoration co-exist (Figure 3). One consists of a zigzag motif made with a rocker-stamp occurring on small pots in rough ware. It is the main technique used for the impressed pottery decoration. The geometrical design consists of a horizontal incised zigzag**s** or else a vertical or a horizontal zigzag of impressed "dot-to-dot" lines. A second technique involves an alternately pivoting stamp performed on small red-burnished pots. A third technique involves simple impressions made with a nail or a stylus on small pots in rough ware. Some bowls in rough ware were also decorated with impressed semi-circles, occurring on the upper-sections of bowls, just below the rim (Buto II, Tell el-Eswed A, Tell el-Farkha Ia). To date no ceramics decorated with a rocker stamp have been unearthed from Ma'adi, as Jurgen Seeher observed (1990/141). Likewise, the thousands of ring-based jars found at Ma'adi are lacking on the Northern Delta cluster sites. On the one hand, the lack of any Ma'adi key-fossils on the Northern Delta cluster sites and, on the other hand, the lack of Northern Delta key-fossils at Ma'adi would indicate that these two groups of sites are not contemporary. According to the Buto stratigraphy, all the sites with impressed ceramics bearing a zigzag motif – a hallmark of the Northern Delta culture – are contemporary and emerge short after the collapse of the Ma'adi village.

The chronology of the Northern Delta sites following Ma'adi is currently in debate. Buto's material and some indications by Sandro Salvatori (pers. comm., 2000), indicate that this cluster began as of Naqada IIb, a period when the first pottery with zigzag and semi-circles motifs appeared at Tell el-Farkha (layer Ia). This chronology (Naqada IIb) corresponds to the appearance of pottery with impressed decoration in Upper-Egyptian graves (Watrin 2003/572). For example, jars decorated with an alternately pivoting stamp have been discovered in a late Naqada IIa – early Naqada IIb grave at Mahasna (H 33) and in another grave from the Naqada IIb period at El-Adaima - SP 404 - (S. Hendrickx, pers. comm., 1998) (Figure 3). The Buto stratigraphy also confirmed the

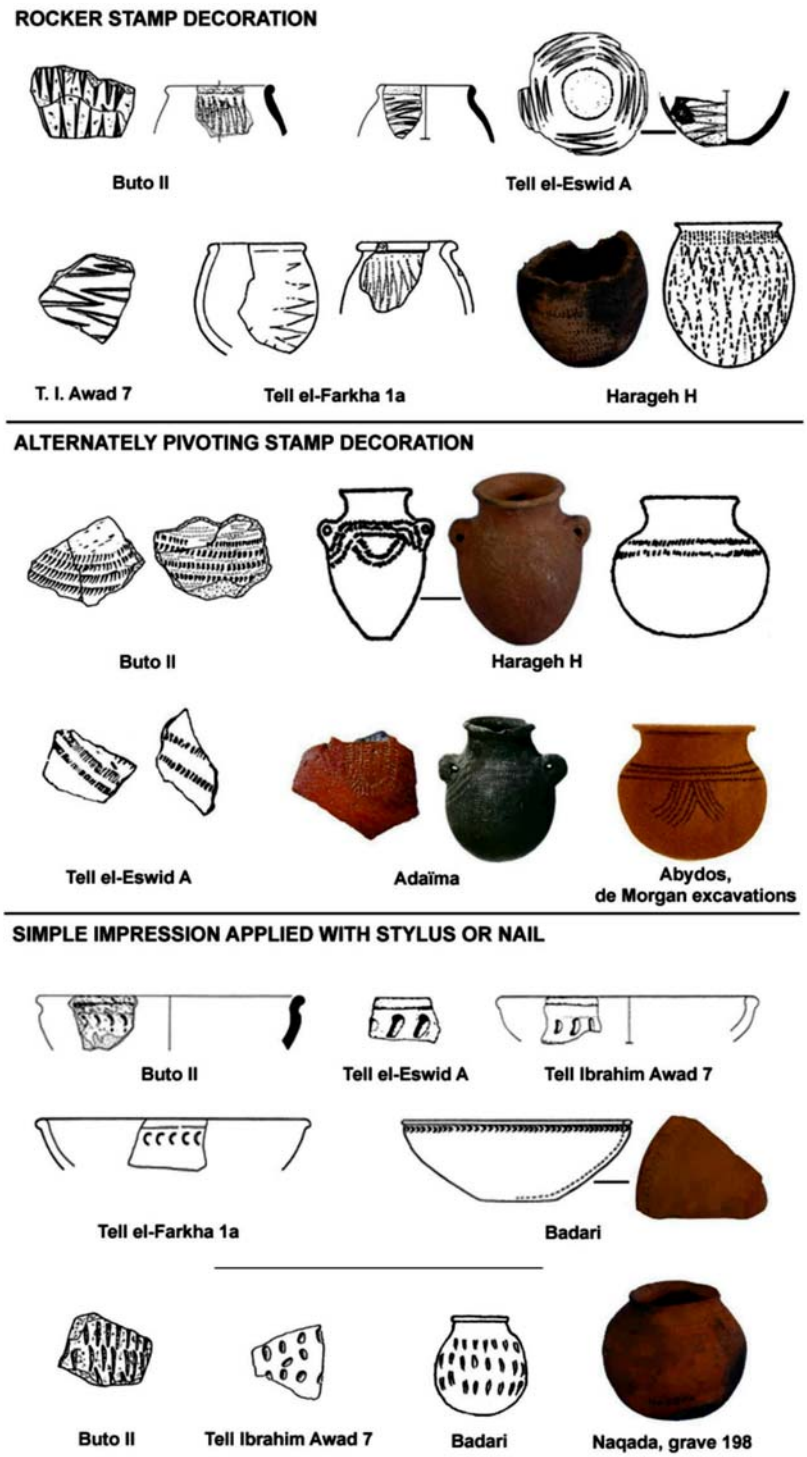

Figure 3. Impressed ware of the Northern Delta Culture.

general chronology of the northern Delta culture to which Buto belongs because impressed ware appears in the Buto phase II (von der Way 1997). In the same phase II (but only as of Buto mid phase II), there are key-fossils of the Naqada IIb period in Upper-Egypt, that is the earliest models of the D-class (*i. e.* small pots with spiral and wavy line decoration).

This Northern Delta culture, characterized by ceramics with impressed decoration, seems to fit in the time between Ma'adi's collapse (around 3600 BC) and the beginning of the Naqada Culture's expansion into the Eastern Delta, which only starts during the Naqada IId period (around 3350 BC). Concerning this significant point for relations between the Delta and the Naqada Cultures, Thomas von der Way solidly demonstrated that the layers of Buto were influenced by the Naqada Culture only as of Naqada IId (von der Way 1992/217). This is attested by the presence of W-types characteristic of this period at the interface between phases II and III (Von der Way 1997/pl. 45). In the Eastern Delta, at Minshat Abu Omar, the same evolution can be observed in the graves. The Minshat graves initially contain an overwhelming majority of small rough ware jars from the Delta, alongside a few samples of Upper-Egyptian ceramics imported as of Naqada IIc, as in grave 757 where a D-class vase with a boat motif is found beside four small rough ware jars. Then Naqada types increase as of Naqada IId, until Naqada types dominate completely as of Early Naqada IIIa, as demonstrated by the presence of W 50-51 types, for instance in grave 184 of Minshat (Kroeper and Wildung 1994/54). Phase IIIb of Buto tends to confirm such an acculturation process since the complete assimilation of the Naqada Culture by the Northern Delta Cultures took place during this phase, which corresponds to Early Naqada IIIa, as advanced in the work of Kristina Köhler at Buto (1992/17).

Until our work presented in 2000 in Poznan (Cialowicz 2001/250), this Delta culture with rocker-stamp decorated ceramics had been totally "compressed" in chronological reconstructions (Figure 4). According to Jurgen Seeher (1990/154), the Naqada Culture in the Delta directly replaces the Ma'adi Culture. Nonetheless, there is an intermediary period between the collapse of Ma'adi and the expansion of the Naqada culture into Lower-Egypt. This intermediary period which correspond to Buto II is typified by settlements with a distinctive culture that progressively took on Naqadan characteristics until the "transitional phase" ("Übergangsschicht") of Buto IIIa (von der Way 1997/3). This "missing link" between the collapse of Ma'adi and the "Naqada IId expansion" in the Delta has thus been obliterated by the Buto stratigraphy, which served as a reference for the other Predynastic Delta excavations. This omission has lead to a lot of confusion. The earliest phase of Buto (Buto I) was placed too late in the relative chronology, set at Naqada IIb rather than early Naqada Ia, and it automatically shifted all the following phases to a much more recent chronological horizon. Notably the error sets the beginnings of Buto II incorrectly in the Naqada IIc period, while its real relative chronology should have been located at the end of Naqada IIa and in Naqada IIb (Table 1). This Culture which decorated its ceramics with a zigzag motif has been defined as "post-Ma'adian and pre-Naqadan" (Watrin 2002/52) to define its chronological position according to the Delta Cultures. This original village culture appears between the end of Naqada IIa and the beginning of Naqada IIb. It corresponds to the earliest phase of Tell el-Farkha determined during the first excavations on the settlement (Chlodnicki et al. 1992/185).

Tell el-Farkha Ia currently illustrates at best the post-Ma'adian/pre-Naqadan Culture of the Nile Delta (around 3600-3400 BC).

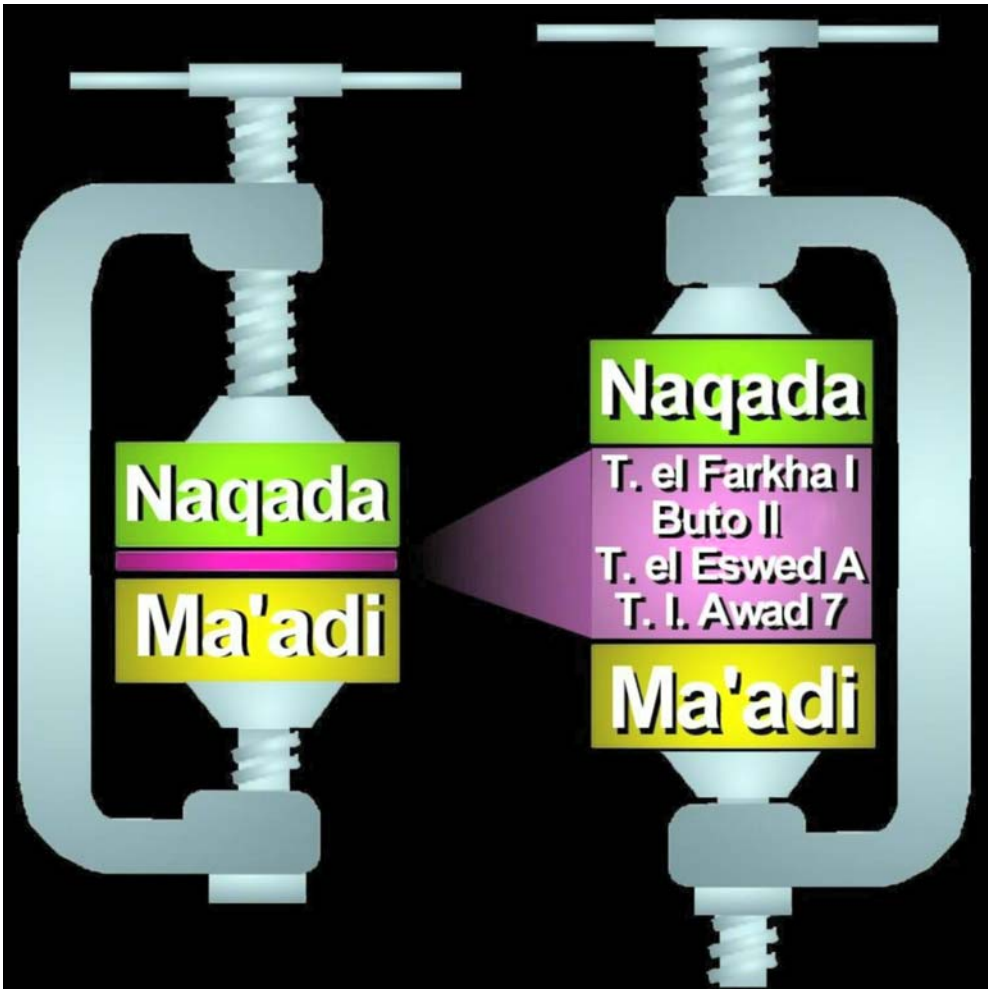

Figure 4. Post-Ma'adi and pre-Naqada Delta Cultures.

The chronology and role of the "Harageh-Gerzeh Cluster" in North/South exchanges

Along the trade routes linking the Delta sites to those of Upper-Egypt, some settlements on the eastern limit of the Fayyum may have played a significant role because of their geographic location and their chronological position *(infra)*. In their reconstructions, Prehistorians tend to favour a single unidirectional movement, meaning the south-to-north expansion of Upper-Egyptian Naqada Culture into Lower-Egypt during the 4th millennium, with various hypotheses ranging from phased military conquest (W. Kaiser) to progressive and peaceful acculturation (K. Köhler). In both proposals the movement is unidirectional and shrouds the north-to-south dimension of international trade from Lower-Egypt to Upper-Egypt, which went through a very active phase in Naqada IIb-c. Lower-Egypt appears to relay innovations to the Naqada Culture, as indicated by the numerous local copies of material made in or transited by

the Delta *(infra)*. The Nile Delta, in earlier periods, was a leading hub for trade between Egypt and the Near-East around the end of the Badarian period/early Naqada Ia (Buto I) and then around Naqada Ic-IIa (Ma'adi) *(supra)*. During the Naqada IIb-c periods, after the collapse of Ma'adi, Lower-Egypt is still the entryway for eastern products as illustrated by Palestinian imports in Eastern Delta at Tell el-Eswed (phase A strata III-I).

Tell el-Eswed A (Strata I-VI) was originally set in Naqada IIc-d (van den Brink 1989/59), which was chronologically too late since it was "locked" to the erroneous stratigraphy of Buto; the reference for the Delta in the 1990's. This stratigraphy set both the earliest phase of the Tell el-Eswed and the supposed close of the Ma'adi village much too late. Concerning the earliest phase of Buto, von der Way has placed phase I of Buto at Naqada IIb, this means 300 years later than the actual chronology. As for the supposed close of the Ma'adi village, Seeher has placed it at the end of Naqada IIc, this means 150 years later than the actual chronology. In addition to those errors, Buto's phase II was also set too late chronologically (von der Way has placed it at Naqada IIc-d1; this means 150 years later than the actual chronology). As a result the earliest layers of Tell el-Eswed A (Strata I-III) were placed in Naqada IIc and the following layers (Strata IV-VI) in Naqada IId (Van den Brink 1989/78). The absence of any Upper-Egyptian ware in the earliest Eswed village (van den Brink 1988/7) made dating even harder. The presence of rocker stamp decorated ceramic with zigzag motifs places the opening of Eswed at the end of Naqada IIa or at the beginning of Naqada IIb, like the other post-Ma'adian sites of the "Northern Delta Cluster". It is also the case at Tell Ibrahim Awad (phase 7), whose relative chronology was positioned too late since it was placed in Naqada IId1 by the excavator (van den Brink 1992/54). Awad 7 had exactly the same key-fossils as Farkha Ia, Eswed A and Buto IIa, including rough ceramics bearing the zigzag motif placing it at the end of Naqada IIa or early Naqada IIb (= Buto IIa) at the earliest, and Naqada IIc (= Buto IIb) at the latest.

The Buto stratigraphy provides us the birth date of this impressed ware. In the Buto excavation report, Thomas von der Way (1997) suggests splitting the material from Buto II into two groups, corresponding to the "early" (IIa) and "late" (IIb) phases, along with a third group for material belonging indistinctly to phase II. Impressed ceramic appears in the two sub-phases (von der Way 1997/pls. 39-41), but a greater proportion (a rate of 3 to 1) in the earliest phase (Buto IIa) compared with the latest (Buto IIb). It thus appears that impressed ware is essentially linked with the Buto IIa Culture before ebbing off by two thirds in the Buto IIb Culture. The chronology of the impressed ceramic discovered on the Hierakonpolis settlement (Adams and Friedman, 1992/321) was previously exclusively placed in Naqada IIc, on the basis of a few D-ware sherds which could be from Naqada IIb and IIc, and maybe also on the basis of Buto's stratigraphy as defined by von der Way (?). However it must be redated to Naqada IIb-c. Likewise, our own stratigraphy work performed in the 1990's at El-Adaima settlement area 1001 revealed a few fragments of impressed ware imported from the Delta in the latest phase of the settlement (Naqada IIb-c), while the earliest phase (Naqada Ic-IIa) had none. At Tell el-Farkha, the impressed ware seems to be restricted to the layer Ia, dated by the excavators to Naqada IIb (Chlodnicki et al. 1991/27).

The impressed ware of the Delta is a fundamental indicator for Egyptian chronology and its precise classification is essential for regional reconstruction. The chronological position of the sites of Harageh and Gerzeh, located at a key-point along the trade routes running north/south at a crucial moment in Lower-Egyptian and

Upper-Egyptian relationships, must be evaluated with care.

The relative chronology of the Harageh cemeteries H and G

Harageh is a small site on the edge of the Fayyum, published in 1923 by R. Engelbach and B. Gunn. It is composed of two cemeteries, refered to as H and G, set on the small slopes of Jebel Abusir near El-Lahun. Even at a glance, the material of Cemetery H seems earlier than that of cemetery G. This fact was detected by Kaiser (1957/74) who dated Harageh Cemetery H in Naqada IIc-d1 and Harageh Cemetery G in Naqada IId1. This chronology was confirmed 30 years later (Kaiser 1987/119). The chronology of Cemetery G is based on a W 14 in grave G 404 and a W 22 in an unnumbered grave, giving a dating in Naqada IIc-d1. Cemetery H chronology is, on the other hand, more complex, and we believe that its chronology needs to be reconsidered. The absence of any W-class vessels does not clear up the matter. They may be missing by pure chance (after all, the W-class represents less than 5 % of the pottery in Naqada IIc-d1 graves), or they may be absent because of the chronology: could Harageh H have opened before Naqada IIc (date of birth of the earliest Wavy-Handled jars)?

The grave H 474 of Harageh Cemetery H contained a B-class jar (B 47j), a subtype of Petrie's B 47, which in our seriation system could be contemporary with Naqada IIa, IIb, or IIc. In the same grave, there was an example of Black-polished ware (type F 83 similar to the one found in grave H 472), which reproduced some rare shapes of the P-class (*i. e.* P 80s) or of the D-class, particularly types that imitate stone vases (*i .e.* D 62-63a). These ceramics of the D-P classes appear in graves between Naqada IIb and Naqada IId1. An initial observation shows that the theoretical chronological sequence could be slightly longer and earlier than that evaluated by Werner Kaiser. Grave H 471 contained two vases from the P and L-classes that are not accurately dateable, a small pot from the Rough-class type R 69g (Bex Hill Museum K74), common in the Naqada IIb/IIc-d1 periods, and a pot with impressed decoration made with an alternately pivoting stamp (type P 80p, Engelbach and Gunn 1923/pl. 26). The shape of this vase (Figure 3), its two ring handles, its small size (8 cm) and its manufacture in red-polished ware make it precisely very similar to a pot unearthed from El-Adaima (grave 404, dated to Naqada IIb) (Figure 3). Another pot in redpolished ware featuring the same decoration of dotted lines dropping downwards in a loop on the body of the jar was also unearthed at Naqa ed-Dêr (grave 7298, dated to Naqada IIb). The parallels found in Naqada IIb graves in Upper-Egypt and the appearance of this type of decoration in the phase IIa of Buto (dated at the interface of Naqada IIa-b), indicate that Harageh grave H 471 dates from this period and not from Naqada IIc-d1 as Kaiser has put forward. Grave H 455 contained two types of R-class pottery which are not accurately dateable and a blackware vessel bearing a zigzag motif applied horizontally with a rocker stamp and covering the entire body (F 91g) - the drawing of the pot is confusing but the photograph is unambiguous. It is indubitably an example of Delta pottery made during Naqada IIb-(c), so once again the dating of this grave by Kaiser in Naqada IIc-d1 seems to be too late. Another unnumbered grave from Harageh H delivered a blackware vessel bearing a zigzag motif applied vertically on the body with a rim underlined by several rows of small dots (Petrie's type F 91n). It is also undoubtedly a jar from the Delta produced during the Buto IIa or Buto IIb periods. Grave H 470 contained the body of a woman in front of which a small stone vase and a

bracelet were placed. The stone vase reproduces D-ware shapes (small pots with a round base and tubular handles), current in the Naqada IIb/IIc-d1 periods. The bracelet is made of shells with a stone lentoid stamp-seal. E. Honoré (2007) confirms the Uruk origin of the Harageh stamp-seal and also links it to Susa B specimens in south-western Iran, which corresponds to the Middle Uruk period and in terms of comparative chronology (Table 1) to the Naqada IIb/IIc-d1 periods.

This eastern connection for Harageh grave H 470 is pertinent for several reasons. It demonstrates an early connection with the Near-East on a Naqada IIb-c horizon, contemporary with the first appearances of Urukian glyptics in Egypt, represented by the stone circular stamp-seal from Naqa ed-Dêr grave 7501 (dated to Naqada IIb). These two discoveries appear to be earlier than the earliest Mesopotamian cylinder-seals found in two graves of the Great Cemetery of Naqada that we tentatively place in Naqada IIc. The breakthrough of Urukian glyptics into Egypt is significant because in addition to this stamp-seal, an imitation of an Uruk jar was found in Harageh grave H 452, which confirms the link with the Near-East. This jar belongs to the D-ware (Petrie's type 45b) with a boat motif but with triangular lug-handles (Engelbach and Gunn 1923/pl. 25), a morphological detail borrowed from Uruk pottery. This type of jar, whose provenience has been discussed in a previous work (Watrin 2004/29) also appears in Naqada graves (*e. g.* N 454) and is clearly dateable to Naqada IIc. This example of D 45b from grave H 452 provides an additional clue for the relative chronology of Harageh cemetery H, and in particular for this grave since this type is contemporary with Naqada IIc. Grave H 452 was dated in Naqada IId1 by Kaiser, which means later than the group of graves whose chronology we just discussed.

Some graves from cemetery H classified in Naqada IId1 by Kaiser should be placed in Naqada IIc, such as H 460 whose chronology in this period is confirmed by the presence of a R-class jar of the type R 75g, a key-fossil from Naqada IIc (two of them are also present in grave H 472). Lastly, there is a chronological link between the H and G Cemeteries of Harageh because another key-fossil of Naqada IIc is found in both cemeteries: a P-class jar of the type P 75g found in graves H 462 and G 422. The presence of P 75g in Harageh also makes it possible to establish a relative chronology with the neighbouring site of Gerzeh because this vessel type was also found in grave 206 (Petrie *et al.* 1912).

All of these matters enable us to date Harageh cemetery H in an earlier time than that suggested by Kaiser. The earliest graves are to be placed at the interface between Naqada IIa-IIb and the latest ones in Naqada IIc. As such, Harageh H is contemporary with the post-Ma'adian sites of the "North Delta Cluster" and located at an optimal position on the crossroads for north/south exchanges.

Naqada IIb: a key-period for interregional trade

Harageh H is linked to the Northern Delta cultures through the impressed ware imported to the site at the time of Naqada IIb (to the contrary of Harageh G, a later site starting at Naqada IIc *(supra)*, which did not reveal any type of impressed ware). Some sherds decorated with an alternately pivoting stamp have also been discovered in the northern Sinaï and in the 'En Besor-Site H oasis in the Negev in an EB Ia2 context at the latest (Yekutieli 2000/129). Likewise, a few sherds of imported Palestinian jars were found in the earliest layers of Tell el-Eswed among the rocker-stamp decorated ceramics (van den Brink 1988/7). The collapse of Ma'adi thus did not affect the Delta

trade with the Near-East. New intermediaries in the Delta shipped exotic products to Upper-Egypt, as demonstrated by a jar in Badari/Hammamiya grave 1728 dating from Naqada IIb (and not Naqada IIc-d1 as suggested by U. Hartung (2001/fig. 49)). This small jar with a decoration of red painted lines has parallels in the Ghor region of Jordan. Ceramics with an impressed decoration from Lower-Egypt were also imported into Upper-Egypt where they appear in Naqada IIb graves, at Naqa ed-Dêr (grave 7298) and Abydos (grave U-392).

It is during this period that the earliest evidence of the Middle Uruk Culture appear in Harageh and Naqa ed-Dêr graves *(infra)*, raising the possibility of joint trade networks for goods imported from Lower-Egypt, Jordan, and the Uruk area. In the Gaza strip (Tor Ikhbeineh), for the first time, there was a painted sherd from Amuq F (Yekutieli 1992/371). This sherd, certainly imported from Syria, appears in layer 4 of Tor Ikhbeineh, which corresponds to EB Ia2 (= Naqada IIb). In a slightly later layer of the same site (Tor Ikhebeineh layer 2, EB 1b1), an Egyptian D-class sherd with boat and oars typical of Naqada IIc was found. The earliest radiocarbon datings of the site (Tor Ikhbeineh layer 4) are estimated around 3500 BC (Yekutieli and Oren 1992/381), meaning in a period contemporary with Naqada IIb-c and with the second phase of Middle Uruk (Table 1). These artefacts from the Gaza strip may indicate that the route for Uruk products toward the Nile transited by the eastern Mediterranean along the Levantine coast as of the 4th millennium BC. This Uruk trade starts during Naqada IIb *(supra)*, and continues during Naqada IIc *(infra).*

The relative chronology of Gerzeh

The Harageh graves contained a prevalence of Rough ware and a high proportion of Polished-red ware with some jars decorated with an impressed zigzag motif (Harageh H). Less numerous are examples of Blacktopped ware and Decorated ware and the slate palettes were totally missing, while common in Southern sites during Naqada IIb-c. Gerzeh, on the other hand, had a higher proportion of Naqadan goods (with the exception of B-ware which remains rare), particularly of D-ware and W-ware as well as zoomorphic slate palettes, clearer indicators of deep relations with Upper-Egypt on a more recent chronological timeframe. Gerzeh is a cemetery located in the midst of a group of low hills, 10 miles north of Harageh. Planigraphic observations suggest that the primitive necropolis developed from a central core located right in the middle of the five hills surrounding the cemetery.

One of the earliest graves, grave 97, is located in this sector and produced one of the rare B-class vessel from Gerzeh. It is a B 76m, that Kaiser classified in his *Stufe* IIb and which appears in Naqada IIb-c in our periodization system. The presence of another vase more typical of Naqada IIc (R 74d) allows one to place grave 97 in the early Naqada IIc period. This central sector also features graves containing vessels imported from the Near East: a double vase (F 46b) in grave 87, a painted juglet (F 100) in grave 94 and a ledge-handled jar (W 2c) in grave 185. In the same central sector in grave 56, a ledge-handled jar made in rough ware (R 103) was found. This vase may be one of the first experiments of Egyptian W-class based on imported Palestinian models or an imitation of W 8, one of the earliest W-class with very protruding wavy handles. The study of the distribution of the graves containing D-ware is also instructive: they are concentrated in the central sector of the necropolis and also in the north-west. Graves 82 and 77, which are adjacent to three graves containing

near-eastern imports, revealed D 34d types (small round pots with spiral motifs) and D 68m (small round pots with rush-lines decoration in panels) similar to the series D 34k and D 68a which appear in Naqada IIc graves in Upper-Egypt. To summarize, the central sector of Gerzeh apparently features the earliest graves which can be placed in the early Naqada IIc period. From this point of view, Gerzeh is a little latter than Harageh H. Gerzeh dates essentially from Naqada IIc-d1 and thus confirm the chronology of Werner Kaiser. However a few potteries of the Late-class (*e. g.* type L 53r) suggest that some graves are still later dated to Late Naqada IId. There is no impressed ware with the exception of a small wavy-handled jar with a decoration of incised slashes around the neck (W 42c, grave 173); surely the only trace at Gerzeh of the (late) influence of Lower-Egyptian cultures (Figure 8). This isolated pot could indicate that the high-point of the manufacture of impressed pottery in Lower-Egypt took place before the rise of Gerzeh, at the time of Buto IIa, a phase contemporary with the very end of Naqada IIa and with the Naqada IIb period.

Harageh and Gerzeh, transmission relays for eastern influences to Naqada

By their geographical position, Harageh and Gerzeh played a relay role during Naqada IIb (Harageh H – early phase) and then Naqada IIc (Harageh H – late phase, Harageh G and Gerzeh). Located at the gateway of Lower-Egypt, these two sites are mandatory intermediaries along the trade routes for goods transiting from Lower-Egypt or from the Near-East and imported further south through sites in Middle-Egypt (Badari district) then into Upper-Egypt. Harageh in particular is connected with the sites of the eastern Deltaic belt and participated in the restoration of the trade networks with Upper-Egypt after the collapse of Ma'adi**.**

Harageh, Badari and Uruk

Harageh H is the earliest site of the eastern Fayyum Cluster. Chronological indicators demonstrate that the first connection with the Uruk sphere took place during Naqada IIb-c. This is attested to by a lentoid stamp-seal at Harageh H and another circular stamp-seal at Naqa ed-Dêr (grave 7501). These imports from Uruk are not isolated because at least two types of Uruk pottery entered Egypt at this period, as seen in the cemeteries of Badari excavated by Guy Brunton. The Badari Cemetery 3800 produced a four-triangular-lugged jar in red-burnished ware with an incised decoration and studs in relief (Brunton's D 59w = UC 9796). This jar was imported from Uruk (Figure 5) and has direct counterparts at Telloh in a Middle Uruk context (see Watrin 2004/59). Badari Cemetery 1800 also produced a spouted jar (Brunton's F 17 = EA 63003) recently reconsidered by Toby Wilkinson (2002/240), who concluded that it was a model imported from Uruk (Figure 5). We share his analysis, but this jar corresponds more to Middle-Uruk models rather than Late Uruk ones (Wilkinson 2002/ 241). The presence on this site of several vessels imported from Lower-Egypt, including a decorated bowl with impressed semi-circles (Brunton's D 82h = UC 26521), one of the key-fossils of the post-Ma'adian sites of the Delta (*e. g.* Tell el-Farkha Ia), points to a direct connection with the Northern cultures (Figure 5). This Lower-

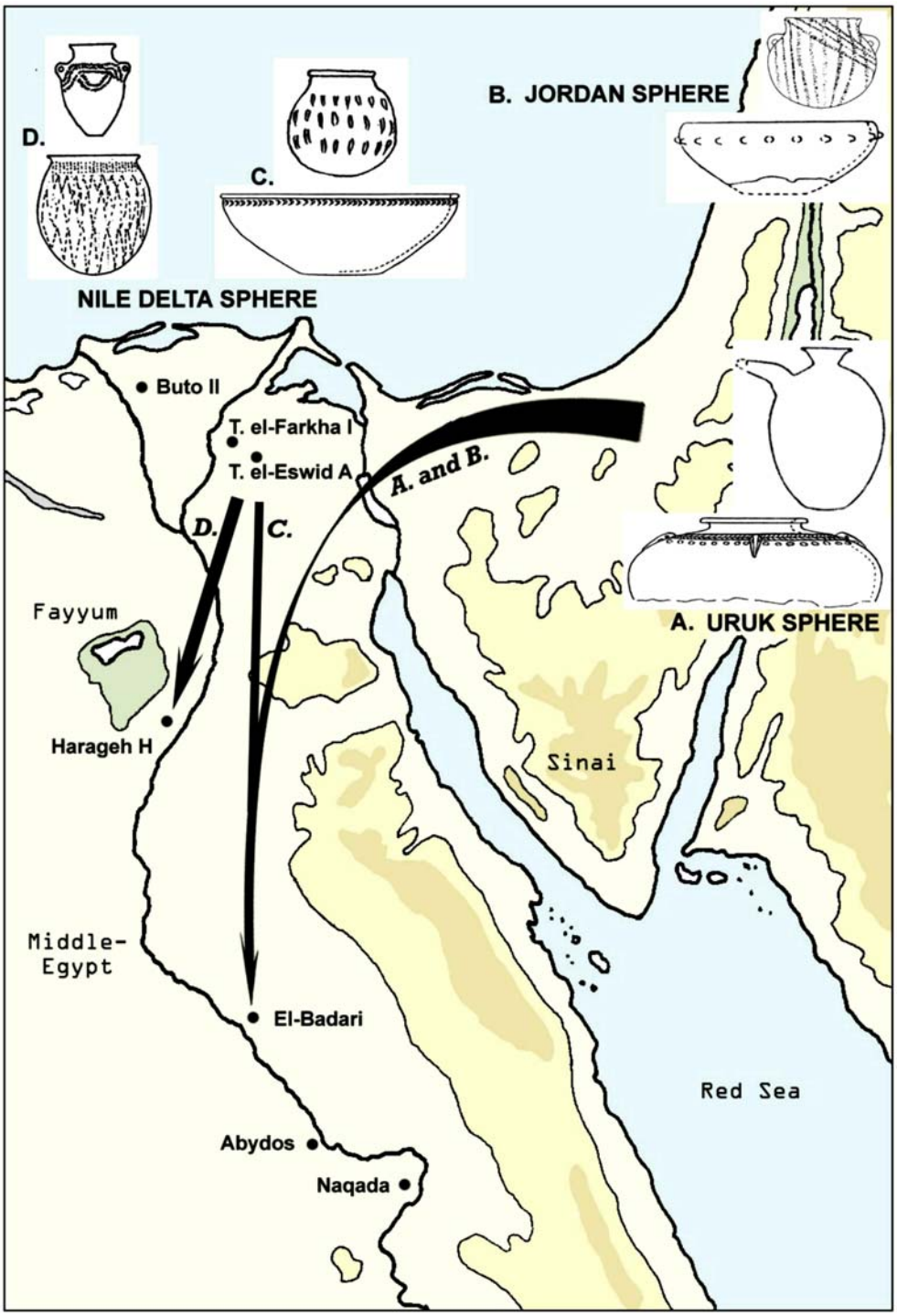

Figure 5. Imports from the Near-East and the Eastern Deltaic belt towards Upper-Egypt.

Egyptian bowl could confirm a relationship involving the importation of exotic products into the Badari region as early as Naqada IIb-early IIc rather than just during Naqada IIc-d1 as previously thought (Watrin 2004/58).

It may also be at this period (Naqada IIb-early IIc) that some Palestinian red-burnished knobbed bowls reached the Badari area, as shown by a specimen found at Mostagedda (Brunton 1928/pl. 34) (Figure 5). It is difficult to conclude whether this vessel (Brunton F 15) is actually an import or a locally-made imitation. In either way, it proves the existence of imports of this class of Palestinian pottery in Egypt. The exchanges with Palestine during this period are confirmed by a small decorated Palestinian jar from grave 1728 at Badari (Figure 5), whose chronological position is confirmed by the Egyptian material, including a B 11n typical of Naqada IIb. This Palestinian ceramic has a curious resemblance with painted Egyptian pottery from Naqada IIb in Egypt both in its shape (a small lug handled jar with a round base) and its decoration (red lines painted on the body). The similarities with ceramic types D 67-68 appearing in Naqada IIb-c, particularly at Harageh (D 68b), are striking. The pottery of the Ghor region, from where the small Mostagedda jar probably originates, includes a rich and varied range of decorations such as rush lines in panels and spiral motifs on the bottom of the vases (see ‘Ay graves and Ophel). It is noteworthy, that, in Naqada IIb, the products imported from Uruk and Jordan spheres reach Middle-Egypt but apparently do not cross over. Upper-Egyptian graves lack of Near-eastern ceramics during Naqada IIb (Watrin 2002/776), but do contain Northern Delta impressed ware (*e. g.* Abydos U 392 and Naqada 1352).

Gerzeh, Uruk and Palestine

Gerzeh is the latest site of the Fayyum Cluster and is contemporary with part of the Harageh cemeteries. During Naqada IIc, shapes, morphological details, and decorations from the Near-East (Uruk and Jordan spheres) appear in Upper-Egyptian graves. These characteristics are directly inspired from jars imported into Middle-Egypt during Naqada IIb-c.
A typical Uruk VII-VI jar, featuring a tronconic base with a large body and triangular lugs, and bearing an incised motif on its shoulder, is imported in Egypt (*e. g.* Brunton’s type D 59w from Badari, *supra*), then locally imitated during Naqada IIc-d1 (*e. g.* Brunton’s type D 59q from Badari) (Figure 6). The shapes and the contour of this jar are also reproduced on Egyptian D-class models. Alongside this morphologically close relationship, there are a few secondary differences, such as the number of the handles: generally four on the Uruk jars whereas there are only three on the Egyptian copies (Watrin 2004/60). The incised decoration made up of triangular bands and net-patterns

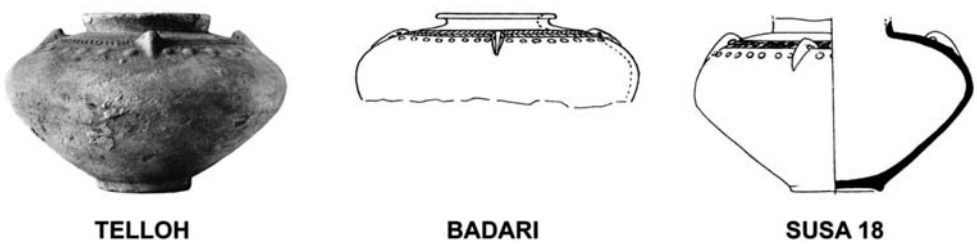

Figure 6. Comparison between a pot from Badari and Middle-Uruk four-lugged jars.

specific to this Uruk pottery is adapted in Egypt to a painted decoration with rows of triangles and wavy lines (*e. g.* St Germain 77719e). More sophisticated Egyptian models of triangular lugged jars (*e. g.* with the boat motif) are also frequent. Observations on D 59p models, which bear wavy lines under the neck and a wavy line decoration running in loops over the body, are instructive. The upper part of the ceramic bear a painted wavy line decor which seems to imitate the impressed dotted lines decoration previously produced in the Delta (models with a loop decoration), while the bottom of the vase bears a row of triangles which seem to copy the row of triangles incised on Urukian four-lugged jars. As such, it is possible that the "secret" of the D-ware decor – key-fossil for the Naqada Culture – derives from several influences: from the Delta (looped decoration of the impressed ware), from Uruk (rows of triangles), from Palestine (rush lines in panels), and from the Fayyum or Middle-Egypt (the boat motif ?). Small Urukian jars with drooping spouts are also imported in Egypt *(supra)* then locally imitated in their finest details (Figure 7). As Jean-Louis de Cénival (1973/53) noted,

Figure 7. Upper-Egyptian imitations of Urukian spouted-jars.

the pouring spout is perhaps coincidental because it may have been invented in various places at different periods. For instance, the Ma'adi culture produced it. But the likeness of the general shape of the vase, and especially the shape of the spout, its location, its conical base, and the manner in which it is curved is such that the Egyptian vases must derive from Uruk VII-VI pottery and from early Susa 18 models (*e. g.* Louvre SB 263). The small Urukian jar with a drooping spout is copied in several classes of Egyptian pottery during Naqada IIc. It is produced in Desert-ware (clay of the D and W-classes) or Black-polished ware or else Rough-ware (Figure 7). The concentration and the different types of "Uruk style" jars in Middle-Egypt (three or four-lugged jars and spouted jars) in the Badari district suggest that prototypes are perfect in this region. Along with its goods, Mesopotamian civilization also exported some cylinder-seals, an accounting tool for Uruk traders, since it is during this Naqada IIc-d1 period that the first cylinder-seals make their appearance in Upper-Egypt (Watrin 2004/68).

During Naqada IIc (around 3500 BC), Uruk pottery characteristics are not the only foreign features adopted by Egyptian potters, since they also imitate the ledge-handled ware, originally produced in Palestine since at least 4000 BC (*e. g.* Ben Shemen cave 510). The first Egyptians copies are very similar to genuine Palestinian ledge-handled jars but bear a different designation and are known as the "Wavy-Handled class". This class of pottery must derive from jars imported from Jordan and Palestine as of Naqada IIb, even if no complete jar from the Southern Levant relative to this period has yet been discovered in Egypt. There are only a few sherds of Palestinian jars in Tell el-Eswed A, which are not published and that Edwin van den Brink (1988/7) describes as models with "very protruding wavy handles". In the transmission of this pottery type to Upper-Egypt, Gerzeh may have played an intermediary role, even as a laboratory (?). This is suggested by a varied set of stone jars and pottery which all reproduce this Palestinian motif and were found only at this site. Gerzeh produced a jar imported from Palestine bearing both ring- and ledge-handles (W 2c). This jar comes from grave 185, located in the epicentre of the necropolis, where other graves with material imported from Palestine are located (graves 87 and 94). Two graves, one located in the middle of the cemetery (grave 56) and another on the outskirts (grave 235), have yielded two wavy jars made in rough-ware (R 103). A series of six miniature jars with wavy ledge-handles (types W 42) was unearthed from several graves, all of which are located on the outskirts of the cemetery (graves 173, 213, 245). The most astonishing discovery was made in grave 25, located in the south-western part of the cemetery. It is a wealthy grave containing some 40 pots (Stevenson 2006/24), including an imported Palestinian jar (W 2d) and typical models from the W-class (W 19b) - as well as a stone vase with two wavy ledge-handles (another specimen in stone was found in grave 148).

At the same period in Upper-Egypt, there are a few jars with wavy handles imported from Palestine, particularly in the Great Cemetery of Naqada, in grave 1298. This grave belongs to the Naqada IIc period. The Palestinian jar in Naqada grave 1298 is larger than the one found in Gerzeh grave 185, but they have exactly the same shape and morphological details, suggesting a contemporary and possibly mutual trade network. The Great Cemetery of Naqada also provided the earliest types from the W-class: W 3 in grave 164, W 4 and W 8 in grave 1287, W 14 and W 19 in grave 851. Other hybrid forms of pottery were experimented with at Naqada, such as this atypical jar with wavy ledge-handles from grave 177 (Crowfoot-Payne 2000/n°956). This ovoid

jar has two large flat and wavy handles located in the mid-body, just like on the Palestinian models. Around the shoulder, there is an impressed decoration made up of five doted lines, borrowed from the Lower-Egyptian impressed ware. This jar from Naqada grave 177 combines Palestinian with Nile Delta characteristics (Figure 8) and as such is probably one of the first creations of the W-class produced early in the Naqada IIc period.

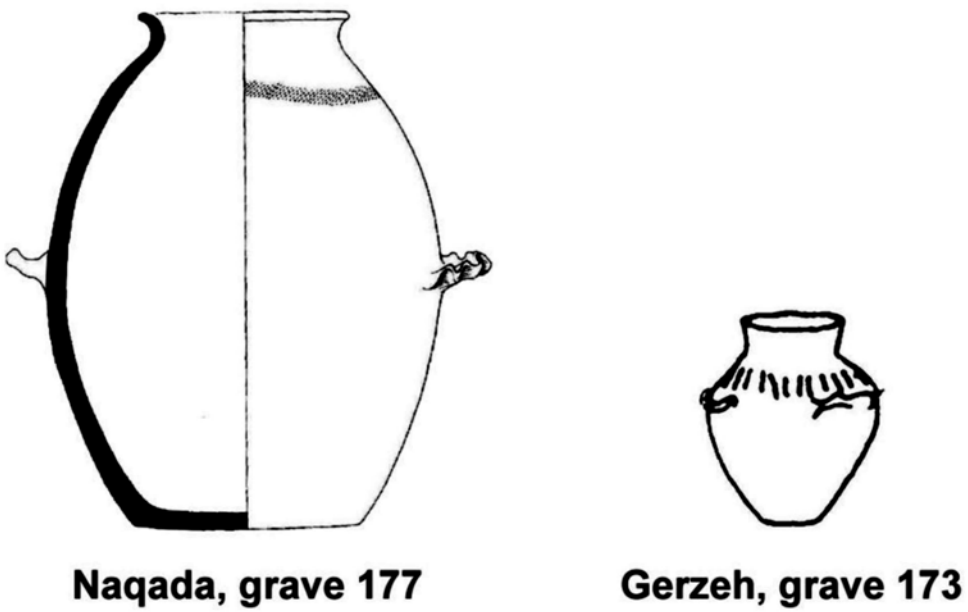

Figure 8. Hybrid jars from the W-class showing Palestinian and Lower-Egyptian influences.

Conclusion

The purpose of this work was to detail the chronological succession of the different cultures of Lower-Egypt. This region absorbed eastern influences which penetrated into Egypt as of the first half of the 4th millennium, through successive waves which are chronologically distinct. The reassessed stratigraphy and chronology of the Delta sites makes it possible to highlight regional interactions, the timeframe of contacts with the Near-East and the different trade phases between northern and southern Egyptian Cultures. Lower- and Upper-Egypt remained culturally distinct until the Buto III period, then Naqada IId-IIIa artefacts intruded progressively into the North, leading to a complete meridionalization of the Lower-Egyptian cultures around 3200 BC. Before this, the more perceptible transfers are from Lower-Egypt toward Upper-Egypt (as exemplified by metallurgy).

Regardless of the period, the Naqada Culture proved to be very receptive to innovations either from the North of the Nile Valley or which had transited through that zone, transforming such innovations before integrating them into its own material culture. Because of their geographical position along the roads leading to the South, the

sites on the edge of the Fayyum certainly played a major role in techno-cultural transmissions. The Badari district was another key relay area on the road to the South. This assessment of the Egyptian cultures flourishing between 4000 and 3300 BC also demonstrates that new chronological approaches are promising. The evaluations are based not only on a periodization of Upper-Egyptian cemeteries, but also on the stratigraphy of the Nile Delta settlements. Crossing all the archaeological data, the initial step drawn by Flinders Petrie, may in the long run be the best way to precise the chronology of the two Lands of Egypt but also that of the peripheral cultures with which the Egyptians traded.

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Notes

1 It is also the case of R. Friedman's relative chronology conducted on the Naqa ed-Dêr cemetery, of which only the final result (a map of the necropolis with the geographic location of the graves) was published by P. Podzorski (1990/5).

2 L. Watrin (1995-2000). To be published in the future.

3 There may exist at Merimda a later phase contemporary with Ma'adi (Fathi Afifi Badawi, pers. comm., 2006).

4 Buto I: 5230 +- 200 BP (KN 4015). Ma'adi : 5170 +- 65 BP (KN 3899).

5 Compare with Rizkana and Seeher 1987, pl. 7: 13.

6 Ledge-handled Jar n° 526 from Ma'adi's inventory.

7 U. Hartung, who until 2000 maintained that the sub-rectangular stone structure excavated at Ma'adi-west was not even prehistoric, seems to have forgotten to mention in his preliminary excavation report of 2003 (MDAIK 59) that the interpretation that he claims as his own - connecting this structure to the dwellings of EB I Southern Levant - is exactly the one we presented to him in detail in 1996 along with our charts. This elucidation has been published for the first time in 2000 (Watrin 2000).

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