Lower Egyptian communities and their interactions with Southern Levant in the 4th millennium BC

Studies in African Archaeology
Vol. 12

Agnieszka Mączyńska

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Poznań 2013

"Lower Egyptian Communities and Their Interactions with Southern Levant in the 4th Millennium BC"

Poznań Archaeological Museum
Studies in African Archaeology vol. 12

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PL ISSN 0866-9244
ISBN 978-83-60109-33-5

Published under the project:
The Nile Delta as a centre of cultural interactions between Upper Egypt and Southern Levant in 4th millennium BC
financed by the Foundation for Polish Science
(Programme PARENT BRIDGE 2/2010)

FOR MY FAMILY

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Preface

This monograph is based on my doctoral dissertation written under the supervision of professor Lech Krzyżaniak and defended in the fall of 2004. Although many people encouraged me to publish the dissertation and the Council of the Faculty of History at Adam Mickiewicz University in Poznań, Poland, issued a positive opinion on the matter, I did not manage to have my thesis printed. Some of the issues addressed there were presented at conferences and published as research papers. In May 2011 I received a grant to finance a 3-year project entitled *The Nile Delta as a centre of cultural interactions between Upper Egypt and Southern Levant in 4th millennium BC*. The grant was part of the Parent Bridge program financed by the Foundation for Polish Science, aimed at providing assistance to young parents-researchers returning to research work after a parenting break. Publishing my doctoral dissertation was originally one of the project tasks. However, I well realized that archeological evidence and its interpretation had changed (sometimes significantly) after 2004. Likewise, my own views and knowledge had evolved during those years. It was thus only natural to update the dissertation and to revise my views presented back in 2004. As a result, this monograph is not merely an English translation of the dissertation defended nearly 10 years ago, but also addresses new discoveries from the Nile Delta and Southern Levant. In addition, it presents my current views on the interactions between the Delta, Upper Egypt and Canaan, reflecting the last two years of intensive research.

Agnieszka Mączyńska

Acknowledgements

Ever since I started my lifetime adventure as a member of the Polish Archaeological Expedition to the Eastern Nile Delta my research work has depended heavily on the support of many people whom I would like to thank with all my heart.

Firstly, I thank the late professor Lech Krzyżaniak, who was my first mentor and my guide to the archeology of Predynastic Egypt. His knowledge and experience were exceptionally helpful in writing a doctoral dissertation on a topic I was only beginning to understand. Another important person is dr. Marek Chłodnicki, who made it possible for me to join the team exploring the Tell el-Farkha site and to work for Poznan Archaeological Museum. His kindness and trust offered from the very start allowed me to come the point where I am right now. I would further like to thank professor Krzysztof M. Ciałowicz for his positive review of my dissertation and his scholarly support which I have enjoyed over the years of our cooperation, not only in Ghazala. I am also profoundly grateful to professor Michał Kobusiewicz, the other reviewer of my dissertation. I also thank dr. Marzena Szmyt, manager of Poznan Archaeological Museum, for her vast and ongoing support.

I am also thankful to all my friends and colleagues from the Polish Archaeological Expedition to the Eastern Nile Delta who have accompanied me for countless hours, days and months in Ghazala, sharing my joys and sorrows, including in particular my regular roommate Renata Abłamowicz, as well as Marcin Czarnowicz, Joanna Dębowska-Ludwin, Mariusz Jucha, Maciej Jórdeczka, Piotr Kołodziejczyk, Ewa Kuciewicz, Jacek Kabaciński, Anna Longa, Lucy Kubiak-Martens, Grzegorz Pryc, Michał Rozwadowski, Robert Słaboński, Michał Wasilewski, and Halina Żarska-Chłodnicka. People like you make successful work possible even in the most difficult conditions.

For over a decade of professional work I have experienced kindness and assistance from many international researchers. I would like to take this opportunity to thank Eliot Braun, Nathalie Buchez, E. Christiana Köhler, Karla Kroeper, Beatrix Midant-Reynes and Yann Tristant for their feedback, comments and support.

This monograph would not have come true without the efforts of Michał Cieślak, who translated it to English struggling with tight deadlines and challenges of archaeological terminology. Much appreciation is also due to Maciej Jórdeczka for his understanding and cooperation in text formatting.

Publication of this book would not be possible without the financial support of the Foundation for Polish Science, helping young parents-researchers to recommence research work. I would like to thank the Foundation for its open-minded approach allowing me to develop and to achieve my goals, which were previously too difficult or simply impossible to achieve.

All my work would not make much sense had it not been for the three people I love – my husband Dominik, and my two children: my son Tymoteusz and my daughter Jowita. Thank you for your support and patience, as well as for your uncomplaining tolerance of me being so often away. I do like my work, but the three of you are the most important part of my life.

Introduction

1. Goals

This monograph is an attempt at presenting the development of the Nile Delta in the Predynastic period. Particular attention will be paid to the role played by the contacts between the Delta communities and the Chalcolithic and Early Bronze Age societies from Southern Levant.

Many researchers of the ancient Near East have already presented their interpretations of the Egyptian-Southern Levantine contacts. They concentrate primarily on analyzing imports from Southern Levant found in Egypt, dated to the Protodynastic period and the beginnings of the Early Dynastic period, as well as Egyptian imports in Southern Levant dated to the end of the Early Bronze Age I and Early Bronze Age II (*i.e.* Yadin 1955; Yeivin 1960; 1967; 1968; Ward 1963: 1-4; 1964: 121-135; Amiran 1970; 1974; Gophna 1976; 1987; 1992; 1995b; Ben-Tor 1982; 1986; 1991; Tutundžić 1985; 1989; Brandl 1992; van den Brink 1992b; 2002; Andelković 1995; de Miroshedji & Sadek 2000a; 2000b; 2005; de Miroschedji *et al.* 2001; Hartung 2001; Kansa & Levy 2002; Levy & van den Brink 2002; Paz *et al.* 2005; van den Brink & Gophna 2004; Braun 2004; 2011; van den Brink & Braun 2006; Braun & van den Brink 2008; Dessel 2009; Sowada 2009; Czarnowicz 2011). Thus far, more comprehensive attempts at interpreting Egyptian-Southern Levantine relationships in the early Predynastic period have not been taken, mostly due to the scarcity of source materials. However, intensified excavations in the Nile Delta and today's Israel and Jordan in the recent years have brought materials that shed new light on the origins of Egyptian-Canaanite contacts (Mączyńska 2006; 2008; Braun & van den Brink 2008; Czarnowicz 2012b). This monograph is intended to fill in the gap in the research on the prehistoric Nile Delta and its contacts with Southern Levant.

The sources used by the author include materials from 24 sites in the Nile Delta, where traces of the Lower Egyptian culture have been discovered (Fig. 1; Tab. 1; *cf.* Mączyńska 2011: tab. 1). However, only 7 of those have seen a comprehensive publication of all materials, addressing the most important aspects of the said culture. These are: Maadi – settlement and cemetery (Rizkana & Seeher 1987; 1988; 1989; 1990), Buto settlement (von der Way 1997; Faltings 1998ab; Köhler 1998), Tell el-Iswid (van den Brink 1989), Tell Ibrahim Awad (van den Brink 1992b), Tell el-Farkha (Chłodnicki *et al.* 2012) and cemeteries in Wadi

Figure 1. Lower Egypt in the Predynastic period.

Digla (Rizkana & Seeher 1990), Heliopolis (Debono & Mortensen 1988). A considerable delay between the excavations on the one hand and the corresponding publications on the other causes certain difficulties *e.g.* in the cases of Maadi, Heliopolis and es-Staff sites (Debono & Mortensen 1988; Habachi & Kaiser 1985; Rizkana & Seeher 1987; 1988; 1989). Some materials from the most recent research projects still await proper publication and are currently available in the form of detailed excavation reports only, *e.g.* Tell el-Masha'la (Rampersad 2006), Kom el-Khilgan (Buchez & Midant-Reynes 2007; 2011; Midant-Reynes *et al.* 2004), Sais (Wilson & Gilbert 2003; Wilson 2006); Tell el-Iswid[1] (Midant-Reynes 2007;

1 Excavations of the French Institute of Oriental Archaeology (IFAO) in Cairo under the direction of M. Beatrix Midant-Reynes.

Table 1. Sites of the Lower Egyptian culture.

No.	Site name	Site type	References
1	Buto I-IIIa	settlement	von der Way 1986, 1987, 1988, 1989, 1992ab, 1993, 1997; Faltings 1998ab, 2003; Faltings & Köhler 1996; Köhler 1998
2	Beni Amir	cemetery	el-Moneim 1996
3	Ezbet el-Qerdahi	settlement	Wunderlich 1988; Wunderlich *et al.* 1989
4	Giza	settlement?	Mortensen 1985; el-Sanussi & Jones 1997; Scharff 1928
5	Heliopolis	cemetery	Debono & Mortensen 1988
6	Kom el-Kanater	settlement?	Levy & van den Brink 2002
7	Kom el-Khilgan	cemetery	Buchez & Midant-Reynes 2007, Midant-Reynes *et al.* 2004; Tristant *et al.* 2008;
8	Maadi	settlement, cemetery	Menghin & Amer 1932, 1936; Badawi 1987, Rizkana & Seeher 1987, 1988, 1989, 1990; Caneva *et al.* 1987, Watrin 2000; Hartung 2004
9	Mendes B3	settlement	Hansen 1965, 1967; Brewer & Wenke 1992; Friedman 1992
10	Merimde Beni-Salame	cemetery?	Badawi 1980
11	Mersa Matruh A/600	cemetery?	Bates 1915; 1927; Levy & van den Brink 2002
12	Minshat Abu Omar I	cemetery	Kroeper & Wildung 1994; 2000; Kroeper 2004
13	Qasr Qarun	settlement?	Caton Thompson & Gardner 1934; Wenke *et al.* 1983
14	es-Saff	cemetery	Habachi & Kaiser 1985;
15	Sais	settlement	Wilson 2006; Wilson & Gilbert 2003
16	Sedment J	settlement?	Petrie & Brunton 1924ab; Williams 1982
17	Tell el-Fara'un – el-Husseiniya	cemetery	Levy & van den Brink 2002
18	Tell el-Masha'la	settlement	Rampersad 2006
19	Tell el-Murra	settlement	Jucha *pers. comm.*
20	Tell el-Farkha 1-3	settlement	Chłodnicki *et al.* 2012
21	Tell Ibrahim Awad	settlement	van den Brink 1989, 1992b; van Haarlem 1998;.
22	Tell el-Iswid 7	settlement	van den Brink 1992b; Tristant *et al.* 2011
23	Tura	?	Junker 1912, 1928; Kaiser & Zaugg 1988
24	Wadi Digla	cemetery	Rizkana & Seeher 1990

Tristant *et al.* 2011; Guyot *in press*). An interesting case is that of the cemetery in Minshat Abu Omar, which had been considered as typically Naqadian for many years. Recently however some researchers have claimed that the two oldest groups of graves (I and II) could have belonged to a Lower Egyptian culture community who buried their dead right there, judging by the presence of specific grave goods, such as lemon shaped jars (Köhler 2008: 518-519; Mączyńska *in press* c). Materials from the other Lower Egyptian culture

Table 2. Sites intentionally excluded from this publication.

Name	Site	Chronology	References
Mersa Matruh A/600	cemetery (15 graves)	Merimde culture/Lower Egyptian culture?	Bates 1915; 1927
Tell el-Fara'un/ el-Husseiniya	cemetery	Lower Egyptian culture?	Levy & van den Brink 2002: 11
Kom el-Kanater	settlement	Lower Egyptian culture?	Levy & van den Brink 2002: 11

sites relied on by the author have been published incompletely, with emphasis on selected aspects only (*e.g.* Engelbach 1923; Caton-Thompson & Gardner 1934; Badawi 1980; Williams 1982 ; el-Moneim 1996). This results first of all from the fragmentary and accidental nature of the finds (Giza, Tura), small scale of research (Ezbet el-Qerdahi) or mistaken chronology of finds (Haraga, Qasr Qarun, Sedment J). In the last case, chronology was verified on the basis of pottery analysis, as no archive information about stratigraphy, context, *etc.* was available. Materials from sites of uncertain or unspecified chronology, only available as enigmatic or brief excavation reports, were not taken into account (Tab. 2).

The Lower Egyptian culture, when identified in the 1930s, was first referred to as Maadi culture, named so after the first site bearing the traces of this culture's activity. In this way it became one of the four cultural units discovered in the first half of the 20th century in the Nile Delta. Not unlike Faiyumian, Merimde and el-Omari cultures, Maadi units were known from a single site only and seemed a part of the cultural tradition of the first farming communities in Lower Egypt. This situation changed in the 1980s, when intensive surveys and excavations began in the Delta area. Traces of Maadi culture were then discovered on Buto site. Excavations by the German Archaeological Institute (DAI) showed that Maadi culture was much more diverse than originally believed. As a result, the name was changed to Maadi-Buto culture. The following years brought the discoveries of new sites of the same culture: Tell el-Iswid, Tell Ibrahim Awad, Tell el-Farkha, Sais and Kom el-Khilgan. Researchers quickly realized that the phenomenon in question was quite different from the three other Neolithic cultures, as it was strongly diversified and its geographic range covered nearly the entire Delta. When the original views on Maadi-Buto culture were revised, it was necessary to update its name, so reminiscent of the first farming communities in the Delta. The term "Lower Egyptian culture" was coined in the literature (*cf.* von der Way 1992b: 217; Ciałowicz 1999; 2001; Buchez & Midant-Reynes 2011; Mączyńska 2011), making it clearly different from the traditions of Faiyumian, Merimde and el-Omari cultures. Although the term "Maadi-Buto" is still used frequently, the author insists on using the name Lower Egyptian culture in this monograph, as it is more adequate for the culture's character (see also Mączyńska 2011).

2. Chronological range

The Lower Egyptian culture appeared in the Delta area in the beginning of the 4th millennium BC. Radiocarbon dating allows to see the culture in the period between 3800 and 3300/3200 BC, corresponding to the period from Naqada I to beg. Naqada IIIA in the relative Upper Egyptian chronology (Ciałowicz 1999: 46; Watrin 2000: 170-173). The genesis of the Lower Egyptian culture has not been fully explained yet. There is no cultural continuity between the Lower Egyptian society and its predecessors, *i.e.* Faiyumian, Merimde and el-Omari communities. However, analyses of the oldest Lower Egyptian pottery from Haraga and Sedement J revealed coexistence of features associated with cultural traditions of early Predynastic Lower Egypt (Williams 1982: 216-219; 221). Most researchers believe that the beginnings of the Lower Egyptian culture are linked to the influence of multiple early Neolithic cultural traditions, including Merimde and el-Omari (Levy & van den Brink 2002: 10).

An analysis of Lower Egyptian culture materials allows one to discern a clear developmental pattern. Table 3 presents the division of the said development as used herein. It is based on both the newest results of studies carried out on Tell el-Farkha site and on the results of analyses of materials from other, previously known Lower Egyptian sites. As compared to the divisions used thus far, the author proposes two important changes (see also Mączyńska 2011). Although the new overall chronology continues to assume 3 developmental phases, the respective chronologies of those phases have changed (Tab. 4).

Table 3. Relative chronology of the Lower Egyptian culture (Chłodnicki & Ciałowicz 2003: 66-67; Jucha & Mączyńska 2011: tab. 1; Chłodnicki 2012: tab. 1).

Phases	Upper Egyptian chronology	Sites
early phase	Naqada I-IIAB	Maadi Wadi Digla I-II Heliopolis Buto I-IIa Tell el-Farkha 1 Kom el-Khilgan 1
middle phase	Naqada IIC-D1	Buto IIb Tell el-Farcha 1-2 Tell el-Iswid Tell Ibrahim Awad 7 Mendes B3 (?) Kom el-Khilgan 2 Minshat Abu Omar I Beni Amir
late phase	Naqada IID2-beg. IIIA1	Buto IIIa Tell el-Farcha 3 Mendes B3 Tell Ibrahim Awad 7 Minshat Abu Omar I Beni Amir

Table 4. Relative chronology of the Lower Egyptian culture according to T.E. Levy & E.C.M. van den Brink (2002: 13, tab. 1.4).

Phases	Upper Egyptian chronology	Buto chronology
early Maadi	Naqada I	Buto I a-b
middle Maadi	Naqada IIa-b	Buto IIa
late Maadi	Naqada IIc-IId1(-2)	Buto IIb
'transitional'	Naqada IIIa1-2	Buto III

The first novelty is the merger of the first two phases from the original division into a single early phase of the culture. An analysis of source materials (pottery, flint and stone tools) showed considerable similarities between both phases in terms of forms and decoration. Furthermore, nothing indicates any changes in the area of subsistence strategy and social organization. However, the scarcity of data renders more in-depth analysis impossible, thus preventing one from understanding the rationale behind those differences. It seems likely that those differences follow from social and ideological changes that began in the early phase. However, the results of those changes are clearly visible in the middle phase of the Lower Egyptian culture development. Therefore, one can assume that both initial phases can be considered as one.

There is one more new element in the Lower Egyptian culture chronology proposed by the author. Thus far, researchers did not take into account a transitional phase between Lower Egyptian and Naqadian culture, dated to Naqada IID2/IIIA1. As a result, the final stage in the development of the Lower Egyptian culture was overlooked. Importantly, this period saw the so-called cultural unification, more accurately referred to as the Lower Egyptian-Naqadian transition, when elements of the local cultural tradition began to be accompanied by new elements originating from the south. The phase in question is marked by the presence of such elements among local pottery or stone and flint tools. The cultural change that took place in the said period is still debated. Recently, the said process can be viewed as acculturation, (*cf.* Buchez & Midant-Reynes 2007; 2011; Mączyńska 2011).

In Southern Levant, the 4th millennium BC coincided with the late Chalcolithic period (c. 4800/4700-3650 BC) and the beginning of EB I (Bar-Yosef 1995: fig. 2). Ca. 3650 BC important social and economic processes began in Southern Levant (Tab. 5). Changes in the settlement system (sedentary societies, establishment of fortified towns) and in economy (pastoralism losing ground to farming – Grigson 1995) were so powerful that their effects can be seen in the material culture. Therefore, archaeologists were forced to draw a clear cultural boundary between the two periods. Despite new discoveries, the cultural change between the Chalcolithic and EB I has not been fully explained and is still subject

Table 5. Chronological correlation between Egypt and Southern Levant (Levy & van den Brink 2002: 19, tab. 1.8; Braun & van den Brink 2008: tab. 1; Braun: 2011: 122; Jucha & Mączyńska 2011: tab. 1; Chłodnicki 2012: tab. 1; Czarnowicz 2012b: tab.1; *pers. comm.*).

Southern Levant	Lower Egypt	Upper Egypt
late Chalcolithic	Maadi Buto I, IIa	Naqada I-IIA
EB IA1	Maadi Buto IIb Tell el-Farkha 1	Naqada IIB
EB IA2	Buto IIb Tell el-Farkha 1-2	Naqada IIB-IID1
EB IB1 – Erani C	Buto IIIa Tell el-Farkha 3-4	Naqada IID2-IIIB
EB IB2	Buto IIIb-IV Tell el-Farkha 4-5	Naqada IIIB-C1

to numerous scholarly discussions (Gophna 1995a: 269-272; Levy 1995: 241). Taking all the above factors into account one needs to realize that the genesis of Early Bronze Age societies in Southern Levant was complex and not limited to the material aspects of the culture (Commenge & Alon 2002: 139; Levy & van den Brink 2002: 7).

3. Territorial range

The boundaries of the territory hosting Lower Egyptian culture communities are marked by the sites where materials characteristic for the said culture were recorded (Figs. 1-2). On that basis it has been assumed that the Lower Egyptian culture covered Lower Egypt up to Faiyum in the south. Sedment cemetery is the southernmost site of the Lower Egyptian culture (Kaiser 1985; Ciałowicz 1999: 127).

Even thought the territorial range covered by this publication goes beyond the geographical boundaries of the Nile Delta, whose tip is located in the vicinity of Cairo, the author interchangeably uses the terms Lower Egypt and Nile Delta. This is a common practice among Predynastic researchers, originating from the Old Egyptian language where a single word (*t3-mḥw*) was used to denote both regions (Kroeper 1989b: 5).

The picture of Lower Egyptian settlements in the Delta reflects the current state of research. A relatively small number of discovered sites is caused by challenging field work conditions. High groundwater level makes it difficult or simply impossible to reach the older settlement stages in the area (Butzer 2002: 83). Therefore one cannot preclude the existence of Predynastic sites under thick layers of silt.

Figure 2. Southern Levant in the Chalcolithic and Early Bronze I periods.

The territory of Southern Levant corresponds to today's Israel, Jordan and the Palestinian Autonomous Territories (Fig. 2). Another name for the same region used in this monograph is Canaan. Although it first appeared in written sources in the 15th century BC (Schmitz 1992), it is used by many researchers in EB contexts, despite chronological differences. Eventually, Canaan became so common in literature that it was considered to be a legitimate name with respect to Early Bronze communities (Levy & van den Brink 2002: 7).

4. Methodology

The author assumed that the research process reflects the theory followed by the researcher, because it involves taking actions aiming at interpreting a given phenomenon (Popper 1992). Therefore, a key element of each publication should be the presentation of theoretical assumptions for the issue in question. The aim of this book is to present the trajectory of the Delta Nile development in the Predynastic period, with particular attention paid to the role of the contacts between Delta and Southern Levant communities. To achieve that aim the author needs to discuss the characteristics of the Lower Egyptian culture. The starting point is the system-based approach to the world, where the world is seen as a logical entity. A culture is a complex, socio-cultural system composed of numerous elements that interact with and depend on each other, such as: people in various roles, relationships or groups, their activities and products pervaded with meanings and values that intertwine in various disciplines, spatial areas and social structures (Golka 1992: 100).

The system theory was introduced to archaeology by L. Binford (1972: 22, 24-25) as part of the New Archaeology concept. The theory assumes that culture is man's extrasomatic means of adaptation, or a tool used by man to adapt to external conditions (Binford 1972: 105). Culture is treated as a system composed of subsystems of specific function, whose purpose is to accomplish that adaptation. The system functions in a state of equilibrium that can be disrupted by stimuli coming from the environment or from neighboring, competitive cultural systems. If so, the system naturally seeks to restore the balance and the changes taking place in all its aspects are interpreted as adaptive responses to those stimuli, taking the form of new social and economic behaviors. Treating culture as a system makes one concentrate on local adaptation processes as a means for explaining cultural changes.

Products of material culture – artefacts – are believe to be the effect of new behaviors and activities. Since the archaeologist investigating a past reality has access to artefacts only, he/she is supposed to use them as a basis for drawing conclusions relating to other elements of culture, such as ideology or social structure (Hodder & Hudson 2003). L. Binford (1962) distinguished three integrated culture subsystems (technological, social, and ideological), corresponding to human activities. He considered the technological subsystem to be the most important one, claiming that its role was superior to that of the social subsystem. The role of the third (ideological) subsystem was to mimic the changes taking place in the other two. Subsequently, Binford attributed specific artefacts to each of the subsystems on the

basis of their main function. The system theory in archaeology is not perfect. It has been broadly criticized for materialism, ecological determinism and the view of the artifact as a "mirror" of human behaviour (Hodder & Hudson 2003). Therefore the author decided to supplement the system theory with certain elements developed in other approaches.

The environment's role in culture formation is to some extent limited by cultural ecology introduced by J. Steward (1983; 2006) and by biocultural evolution. They allow one to investigate bilateral relationships of humans and their environment, but they do not link culture's structures and form to environmental factors only. Humans are seen as active entities in the adaptation process, and their decisions are set in a cultural context. Thanks to cultural background, one can control adaptation processes in a way. Humans recognize the surrounding conditions and – relying on "extra-genetically inherited cultural information" – take certain decisions on how to use the surroundings in adaptation and exploitation processes (Chmielewski 1984: 359-397; Piontek & Weber 1988; Piontek 1993).

In the 1980s attention was drawn to depositional and postdepostional processes and their influences on archaeological records, which could no longer be seen as a mirror image of past behaviours (Schiffer 1976). Furthermore, ethnoarchaeological research questioned the existence of a kind of a dictionary where each behavior corresponded to one effect (artefact). It was shown that the same behavior could lead to different effects (artefacts) and that the same artefact can reflect different behaviors.

If the Lower Egyptian culture is treated as a social and cultural system, then particular attention should be paid to its adaptation to the natural environment. The author wishes to present the ways in which the Nile Delta inhabitants used the unique conditions offered by that ecological niche. To avoid environmental determinism, the deliberations will not be limited to discussing adaptation benefits. The form of each subsystem in the Lower Egyptian culture depended not only on the natural conditions in the Delta, but first of all resulted from human activity in broadly defined human culture. One should remember that human existence is determined by nature insofar as humans are part of the animal world. Equipped with their physical and first of all cultural features, humans creatively choose rational solutions necessary to enable existence in diversified environments (Pozern-Zieliński 1978: 146-147). For this reason, an important part of this monograph will be the overview of each Lower Egyptian culture system in the context going beyond adaptation benefits. Lower Egyptian culture participants made their culturally-dependent choices, thus determining the shape of the entire system, as the diversity within the Lower Egyptian culture testifies. Despite the characteristics shared across the entire culture, connected *inter alia* with lifestyle, economy or burial customs, one can notice certain differences between each site. It seems that each settlement was inhabited by a group belonging to the cultural tradition of the entire Delta on the one hand, but on the other hand nurturing its own, local tradition determined by the cultural choices of its members. Presentation and interpretation of materials from each Lower Egyptian site will allow the author to simultaneously show this cultural uniformity and diversity.

Another important aspect will be to identify the role played by Southern Levantine communities in the development of the Lower Egyptian culture. As far as archaeological material is concerned, the only proof for the existence of a mutual relationship between the two regions are Southern Levantine imports found in the Delta area and Egyptian imports registered in Southern Levant. Most of them are clay pottery, flint tools and stone items, *i.e.* material sources. However, their analysis provides one not only with information about raw materials, manufacturing techniques, forms and motives of ornamentation. By employing additional analyses, one can identify the source of raw material, and comparative studies can determine the origin of the artefact's form or ornamentation motive. Interpretation of the mechanisms behind and the character of the contacts requires one to go beyond simple analyses of artefacts' features and to rely on additional methods of investigating mutual relationships between two communities. The presence of imported items, differing from the local ones in terms of raw material, manufacturing technology or technique, form and ornamentation can be explained in a variety of ways. Imports could have come through trade, as gift exchanged in order to establish a symbolic relationship, or as travel keepsakes. However, it should be remembered that material traces of exchange are but one of the many elements of broadly understood contacts. The encounter of two societies involved not only the exchange of vessels, flint or bone tools, but also the exchange of information and ideas (Renfrew & Bahn 2000: 352-355). C. Renfrew (1975) sees the relationship between goods and information as a natural element of exchange between moneyless societies without organized sales markets. Furthermore, one should remember the diversity of mutual relationships between individuals participating in the exchange. According to C. Renfrew (1975), exchange between two communities affects two subsystems: social and economic, and thus the analysis of contacts cannot be limited to exchanged goods and services. Equally importantly, such analysis must include the social aspects of exchange, *e.g.* the way it is organized.

Social contacts between groups could have taken place at various layers of social life (ethnical, linguistic, political, cultural and economic). Most material traces were left by trade and it is rather difficult to attribute them to non-material aspects of the inter-societal relationship. The first challenge encountered by the researcher investigating such relationships consists in identifying the underlying reason why such contacts were initiated at all. In archaeology it is common to explain such contacts by a conflict between the society's goals and the possibility to achieve them. This means that a given group or society was unable to satisfy its own need for certain goods or services. Therefore, trade contacts consisted in exchanging goods that were abundant for goods that were scarce or non-existent. On the other hand, the purely economic dimension can be questioned in the case of gift exchange, where the material aspect is of secondary importance. Gifts are interpreted in terms of their own symbolic meaning referring to social or ideological life (Mauss 1954).

Investigating mutual relations of various communities requires one to determine their nature. In archaeology, two basic models are used, namely the peer-polity interaction model and the core-periphery model. The former refers to relations between communities of an

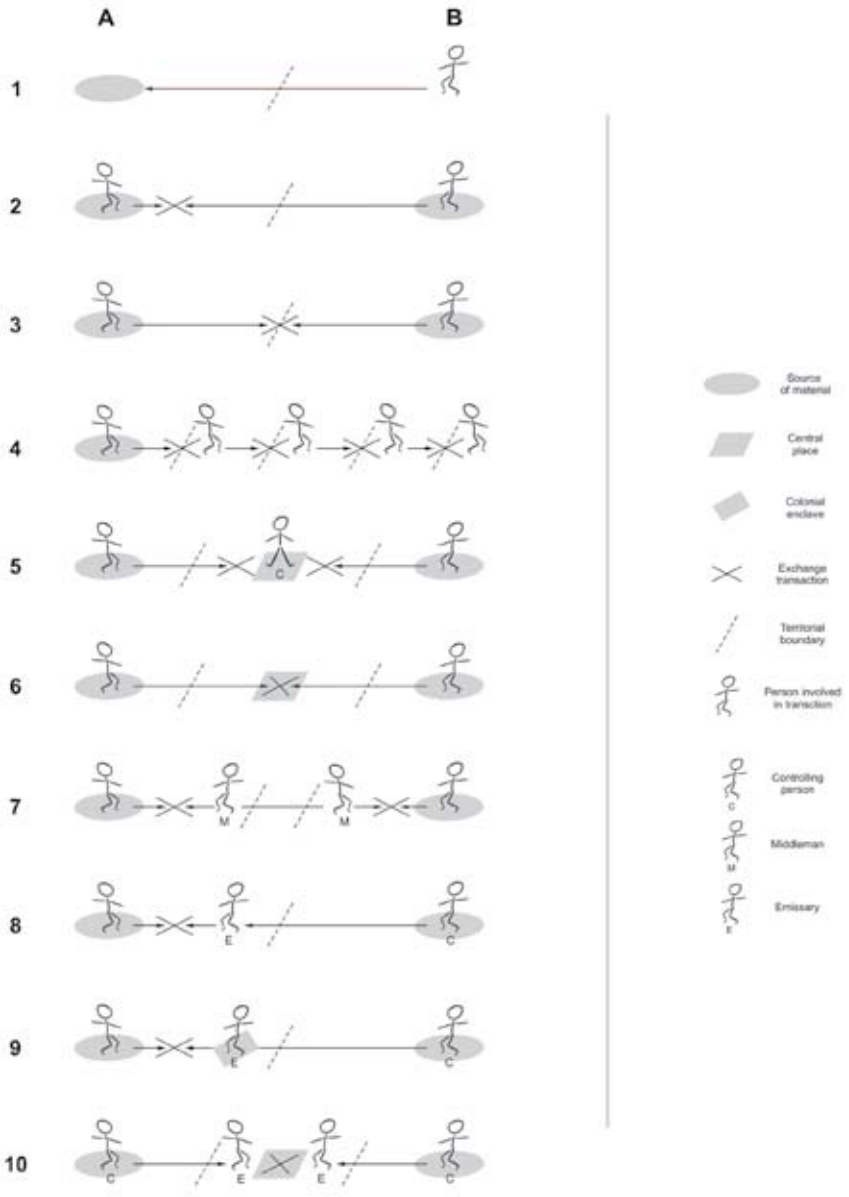

Figure 3. Exchanges modes according to C. Renfrew.

equal status (Renfrew & Bahn 2000: 368), whereas the latter is applied if each community is at a different stage of social, political and economic development (Levy & van den Brink 2002: 5-6). An analysis of social, political and economic situation in the prehistoric Delta and in the Chalcolithic and EBI Southern Levant will allow one to determine the status of both regions and the choice of the most adequate interaction model.

Determining the exchange mechanisms is another problem connected with investigating the relationship between two societies. In 1975 C. Renfrew (1975; Renfrew & Bahn 1991; 2000: 368) proposed 10 models of trade exchange (Fig. 3), differing from one another in terms of exchange organization and place, and the presence or absence of middlemen. The first model – *direct access* refers to a situation in which party A has direct access to the sources of raw materials, goods and services without relying on the assistance of party B. Another model – *reciprocity – home base* describes the exchange of goods between parties A and B on the territory of A. The third model – *reciprocity – boundary* also describes the exchange of goods between parties A and B, but taking place at the border of the two territories. The fourth model – *down-the-line trade* describes the exchange typical for models 2 and 3 between A and B, but with the participation of other territories and their representatives (K, L). The fifth model – *central place redistribution* assumes the existence of a central territory with a representative of C. Both A and B supply goods or materials to C as tribute, imposition or levy, receiving part of the other party's contribution in return. The sixth model – *central place market exchange* assumes a situation similar to the fifth model, but without the participation of C. The exchange between A and B takes place directly, in a central place. The seventh model – *freelance – middleman trading* assumes the existence of an independent middleman between A and B. The eighth model – *emissary trading* also assumes the existence of a middleman, but in this case he depends on one of the parties. In this case, party B has its own emissary who is in charge of exchanging goods with A. In the ninth model – *colonial enclave* the exchange is organized by a legitimate enclave of B in the territory of A. The last of C. Renfrew's models describes a situation where the place of the exchange between A and B is located outside the jurisdiction of both parties (*port of trade*). The above models differ from one another in terms of exchange organization, the presence or absence of middlemen and the place of exchange.

An analysis of available data on the exchange between the Nile Delta and Southern Levant in the early Predynastic period will make it possible to determine which of the above models should be employed for the purposes hereof. However, one should take note of certain limitations, resulting from concentrating on material sources only and overlooking the symbolic aspects of exchange, unavailable for archaeologists. An important element of this monograph will be the analysis of Southern Levantine imports known from Lower Egyptian culture sites and comparing them between one another, in terms of both quantity and quality (imports, hybrids of local and foreign elements, local imitations of foreign elements). Apart from a basic description of the artefacts' physical characteristics, the investigation will also include the results of material (*e.g.* petrographic) and comparative analyses taking into

account the description of similar Chalcolithic and EB I materials from Southern Levant. Another important element of the analysis will consist in discussing the distribution of Canaanite artefacts in the Delta and Egyptian artefacts in Southern Levant, as well as in proposing a possible trade route between the two regions. Last but not least, the author will present a short overview of the cultural situation in Southern Levant in the Chalcolithic and the beginnings of EB I, underlining the most important issues. The aim of the said overview is to provide a broader background for analyzing the contacts between the Delta and Southern Levant and to facilitate the comparison of both communities in the context of the exchange between them.

The assumption of one or more exchange models for the Delta and Southern Levant will also require determining the method of redistribution of imported goods among the inhabitants of the Delta. The Lower Egyptian culture is far from uniform. It consists of groups occupying each of the sites, which – apart from the characteristics shared by the entire Lower Egyptian culture – have certain endemic features, resulting from the group's adaptation to specific local conditions. Despite being part of one socio-cultural system, each such group constitutes a separate, self-contained unit. An analysis of the Lower Egyptian culture system will allow the author to determine its internal organization and the relationships between each of its individual elements. Determining those relationships will be important when trying to present the organization of the exchange of goods coming from Southern Levant in the Nile Delta, or perhaps even in the entire Nile Valley.

This monograph is an attempt at presenting the development of Delta Nile communities in the early Predynastic period. It should be treated as one of the many possible interpretations based on available sources, theoretical assumptions and research procedures. The said approach is in keeping with the interpretation model currently prevailing in the humanities, allowing one to present prehistoric reality in a different (but not any) way, using different methods (Topolski 1998: 15).

PART I

THE NILE DELTA AND THE SOUTHERN LEVANT IN THE 5TH AND IN THE FIRST PART OF THE 4TH MILLENNIA BC

Chapter 1

Key issues in and the current state of research

1. Overview of issues in and the state of research on the Predynastic period and the Lower Egyptian culture

The remains of the Egyptian civilization attracted people's attention already in antiquity (*cf.* Herodotus, Strabo). In the modern times people have been primarily fascinated by monumental tombs and temples. The Near East has been wandered about by wealthy amateur travelers who published reports, memoirs and drawings from their journeys (*e.g.* David Roberts, Amelia Edwards). Popular interest in monumental relics of the past influenced the character of scientific excavation research, which, in the middle of the 19th century, was practiced within temple complexes (Giza, Saqqara) as well as tombs (The Valley of the Kings). Additionally, numerous researchers of that time, including W.M.F. Petrie, the father of modern scientific archeology of the Near East, denied the existence of an Egyptian civilization before the emergence of a centralized Pharaoh's state, and the findings of Predynastic excavations were interpreted as a result of the activity of representatives of a "new race", who were believed to have arrived in the Nile Valley towards the end of the Old Kingdom period (Petrie & Quibell 1896).

The progress of research at the turn of 20th century changed this view. Excavation works at Naqada, Abadaija, Hu, Abydos, Hierakonpolis as well as new publications (*e.g.* de Morgan 1896-1897; Quibell 1900; Petrie 1901; 1900-1901; 1902-1903; Quibell & Green 1902) shifted the beginnings of the Egyptian civilization to an earlier date, thus acknowledging the Predynastic period.

The beginning of the 20th century saw intensive excavation works in Pre- and Early Dynastic sites, *e.g.* in Saqqara (Quibell 1905), Tura (Junker 1912), Tarkhan (Petrie 1914). Those works, however, were not followed by comprehensive analyses. While numerous reports and studies were indeed published, most of them contained only that part of information which according to the researchers was the most important.

In the 1920s and 1930s excavation research spread on to the Delta area and to the Faiyum Oasis. New cultural units, older than previously known Predynastic cultures, were discovered, *e.g.* the Faiyumian culture (Caton-Thompson & Gardner 1934), the Merimde culture (Junker 1929-1940) and the Maadi culture, today referred to as the Lower Egyptian culture (Menghin & Amer 1932; 1936). An accumulation of data from the Predynastic

period paved a way to new synthetic analyses, attempts at periodization and classification systems (Petrie 1920; de Morgan 1925). The first efforts at interpreting the processes of Egyptian unification were published (*e.g.* Breasted 1931), and so were the first museum catalogues (*e.g.* Scharff 1929).

The postwar period was also characterized by progress in Early Dynastic research. Synthetic interpretations were now supplemented by materials derived from older research projects. Particular attention should be drawn to those relating to the periodization of the Predynastic period by H.J. Kantor (1944) and W. Kaiser (1957; 1958; 1961; 1964), which redefined the relative chronology of the period in question. The postwar times also saw synthetic interpretations of various aspects of Egyptian archaeology (Vandier 1952; Baumgartel 1955; 1960; Hayes 1965; Arkell 1975; Krzyżaniak 1977; 1980). All those publications were accompanied by intensive excavation works, both on new sites, such as Helwan (Saad 1969), Heliopolis, Wadi Hof (Debono & Mortensen 1988; 1990), areas adjacent to the Birket Qarun lake, Faiyum Oasis (Ginter *et al.* 1980; Ginter & Kozłowski 1986; 1989), Elkab (Vermeersch 1978; Hendrickx 1984; 1994; 1995), and on previously investigated sites in Merimde Beni-Salame (Eiwanger 1984; 1988; 1992), Hierakonpolis (Adams 1974; 1987; 1995; 1996; Hoffman 1982; Friedman 1990; 1994; 2008; 2009; Friedman *et al.* 2011) and Umm el-Qaab in Abydos (Dreyer *et al.* 1988; 1990; 1993; 1996; 1998; 2000; 2006; Hartung 2001).

The 1980s brought the discovery of new Predynastic sites in the Nile Delta area, such as the necropolis in Minshat Abu Omar (Kroeper 1988; 1989a; 1992; Kroeper & Wildung 1985; 1994; 2000; Krzyżaniak 1992a), where a great deal of Predynastic materials were found, or the settlement in Buto-Tell el-Fara'in (von der Way 1986; 1987; 1988; 1989; 1997; Faltings & Köhler 1996; Faltings 1998ab; Köhler 1998; Faltings *et al.* 2000; Hartung 2003), which shed more light on the Lower Egyptian culture, previously known from a single eponimic site in Maadi. Consequently, the name of the cultural unit in question was changed to the Maadi-Buto culture. An analysis of the inventories from the said sites showed the presence of artefacts typical for the Upper Egypt and Southern Levantine imports, both accompanying typical Lower Egyptian items. Thus, archaeologists were confronted with the issue of relationships between the Nile Delta, Lower Egypt and Levant. A number of researchers tackled the problem (*e.g.* Yadin 1955; Yeivin 1960; 1967; 1968; Amiran 1970; 1974; Gophna 1976; 1987; 1992; Ben-Tor 1982; 1986; 1991; Tutundžić 1985; 1989; Brandl 1992). Discoveries of more sites in the Delta - Tell el-Iswid, Tell Ibrahim Awad (van den Brink 1989; 1992b) and Tell el-Farkha (Chłodnicki *et al.* 1991; 1992a; 1992b) provided more research material. As a result, the culture's name was changed from the spatially-limiting Maadi-Buto culture to Lower Egyptian culture, thus stressing its broader territorial range, corresponding to the entire Lower Egypt. Intensified research in the Delta contributed significantly to understanding the cultural situation in the Lower Egypt area in the Predynastic period. However, one must not forget that some processes, such as the Lower Egyptian-Naqadian transition have not been fully explained and continue to be interpreted by and debated among researchers (*i.e.* Buchez & Midant-Reynes 2007; 2011; Köhler 2008; Mączyńska 2011).

The state of research on the Lower Egyptian culture cannot be analyzed separately from the state of research on the entire Predynastic period. The acknowledgement of the native character of Egyptian culture by 19th century scholars marked an important moment in Egypt's archaeology. It opened up the possibility to study Neolithic cultures in Egypt and moved the onset of the country's history by over a thousand years back. Further studies and publications shed more light on the key stages in Egyptian civilization. Researchers realized that without understanding those periods it would not be possible to understand the processes that ultimately led to the formation of a unified Egyptian state.

2. Overview of issues in and the state of research on the relations between the Lower Egyptian and Southern Levantine communities

One of the key goals of this publication is to discuss the existing interpretations of contacts between Lower Egyptian and Southern Levantine communities in Pre-, Proto- and Early Dynastic periods. The said issue has appeared in archaeological deliberations as a result of the discoveries of Egyptian imports on Chalcolithic and Early Bronze sites in Canaan, as well as Southern Levantine imports on the sites in the Nile Delta and Nile Valley.

2.1. Relations between Egypt and the Southern Levant

Originally, the oldest Egyptian findings in the Southern Levant were dated to the period between the 18th and 20th Dynasty, or even later (Andelković 1995: 25). It was only through the discoveries of new sites with Egyptian artefacts from Pre- and Early Dynastic period in the 1950s that a new trend in investigating the earliest Egyptian-Southern Levantine relationships began. In 1955 Y. Yadin (1955) published a provocative paper demonstrating his theory of the conquest of Canaan by Egyptians in the EB I period. From then on, as more and more sites were found, researchers have made attempts at explaining the character and the mechanisms of those contacts. The issue has been addressed at numerous scientific conferences, and proceedings published afterwards continue to be an important source for the investigators of the relationships between the two regions (*i.e.* van den Brink 1992b; Krzyżaniak *et al.* 1996; Levy & van den Brink 2002). However, the works published so far mostly concentrate on the Egyptian and Canaanite contacts in the late EB I and in EB II, *i.e.* in periods corresponding to NIII and the First and Second Dynasties. They either fail to address or only briefly mention the origins of those contacts in the Chalcolitic period (NIA--IIA) and in the beginning of EB I (NIIB-D1). New discoveries point out to the need for addressing the underlying causes of the relationships in question, as well as their functional mechanisms in the early and middle Predynastic period.

In 1995 B. Andelković (1995: 25-56) published a list of 31 sites from the South Levant with inventories featuring Egyptian imports or their local imitations. Despite such a large number of sources, materials from only six sites on the territory of today's southern Israel

(Site H, Lachish, Tel Erani, Taur Ikhbeineh, Tell Halif and Nizzanim) can be helpful in understanding the beginnings of Egyptian-Southern Levantine contacts (Gophna 1996: 311). Recent intensification of the studies by the Israel Antiquities Authority have brought about discoveries of many Early Bronze sites, such as those dated to the middle and late EB IB in Ashqelon-Barnea, Tell es-Sakan and Tell Lod, where Egyptian imports were found. However, still missing are sites with Egyptian materials dated to the early and middle Predynastic period (Braun 2002; Kansa & Levy 2002; van den Brink 2002; Braun & van den Brink 2008).

Southern Levantine imports in Lower Egypt are less numerous. This could be attributed to the state of research on the Lower Egyptian culture itself. The small number of recorded sites significantly affects the number of known Southern Levantine imports. One may expect an increase in the number of artefacts imported from Canaan as the research in the Delta intensifies. This claim has been confirmed by Tell el-Farkha, where research has been held for several years and where dozens of Southern Levantine pottery fragments dated to EB I have been found (Mączyńska 2006; Czarnowicz 2011; 2012b).

An analysis of the existing publications on Egyptian-Canaanite relationships shows the presence of four theories explaining the reasons for and the functional mechanisms of the contacts between both regions.

The first theory was presented by Y. Yadin (1955) on the basis of an analysis of representations on the Narmer palette. The theory assumes the conquest of Southern Levant by Egyptians in the early First Dynasty. Egyptians' military strength allegedly gave them power in Canaan, as a result of which Egyptian culture was imposed on the local population. According to E.D. Oren (1973), Southern Levant was to become a domain of Egypt, being a rich source of various materials. Evidence supporting this hypothesis was to be provided by research on Tel Erani site and by the cache from Kafr Monash. In Tel Erani S. Yeivin (1960) proposed a stratigraphically separate stratum V, dated by him to the end of EB I, which he claims to have been linked to a sudden and brief presence of Egyptians during Narmer's rule. This assertion was based on the findings of Egyptian pottery recorded in that stratum only, coupled with the stratum's small thickness indicating its short formation time. On the basis of the above data S. Yeivin concluded that the inventory of stratum V in Tel Erani can be explained only by an Egyptian invasion and possible brief domination of Egypt over southern Canaan.

According to S. Yeivin (1968), of similar importance for the interpretation of Egyptian-Southern Levantine contacts was the scorpion-shaped decoration on the blade of a metal saw, found in Kafr Monash. In that author's opinion, the artwork of that decoration was closely linked to the scorpion pattern engraved on the ceremonial macehead of King Scorpion. The blade was found in the company of other items originally belonging to a unit of four soldiers. S. Yeivin (1968: 47-48) is of the opinion that the soldiers' presence was linked to the military conquest of Southern Levant towards the end of King Scorpion's reign or soon afterwards.

Currently, the theory assuming an armed expedition of Egyptians to Southern Levant in EB I, aimed at conquest and exploitation is far from being the leading interpretation of the contacts between the two regions, for the lack of clear evidence. E.D. Oren (1989) considered the military conquest of Canaan by Egyptians to be unlikely, since Canaan's culture and sociopolitical organization allowed one to wield power without military intervention. The political organization and socioeconomic structure of Early Bronze communities in the region was much less developed than that of Naqadian communities. Nonetheless, E.D. Oren accepts that the Egyptian army may have been present in Southern Levant. In his opinion, a limited number of troops could be there to ensure the safety of Egyptian colonies and traders. This assertion is supported *inter alia* by knives and maceheads found in En Besor, Tel Halif, Horvat Illin Tahtit, Tel Maahaz, Megiddo, arrowheads found on Site H and in northern Sinai, as well as by a copper axe from Tel Erani.

Another theory excludes the use of military force, assuming that the contacts between Egypt and Southern Levant in w EB I were purely commercial in nature. R. Amiran (1970: 94; 1974: 10-11) and A. Ben-Tor (1982; 1986) are of the opinion that the rationale for those contacts were shared commercial interests. Southern Levant may have exported to Egypt such goods as wine, olive, aromatic oils, various sorts of resins, bitumen, copper and organic products, none of which have been preserved in archaeological materials due to their physical properties. Egyptians provided Southern Levantines with luxurious goods, such as stoneware, golden jewelry, semi-precious stones and possibly small amounts of food. Archaeologists propose a number of different interpretations of the organization of trade. A. Ben-Tor (1982: 11) believes that both Egyptians and Southern Levantines were actively involved. On the other hand, R. Gophna (1987: 16-18) claims that trade was organized by Egyptian traders staying in Southern Levant, either among the local population or in special trading posts.

By analyzing the available data some researchers concluded that Egyptian-Southern Levantine relations could not have been based on trade alone. According to R. Gophna (1992: 386), bilateral trade is possible only between societies at a similar stage of development. If one side dominates the other, as was the case in the relationship in question, such relationship should be described using a more accurate notion of economic exploitation. Similarly, N. Porat (1986/87) concluded that Egyptian-Southern Levantine relations in EB I could not have been purely economic and that Egyptian finds in Southern Levant should be attributed to the presence of a considerable number of Egyptians who – while preserving strong links to their homeland and culture – strongly influenced the local community, thus causing its "Egyptianization".

As research works progressed, archaeologists were inclined to propose a third theory. Having assessed the hypothesis of commercial exchange between Egypt and Southern Levant, both N. Porat (1986/87) and R. Gophna (1992) concluded that most probably an Egyptian colony existed in Canaan. A similar theory was put forward by B. Brandl (1992: 441-448). He was of the opinion that the colony was founded by Egyptians, who then

peacefully assimilated to the local community. The colony's territory stretched from Rafiah in the south to the Yarkon river in the north, encompassing the coast and the lowlands in the east. The underlying reasons for establishing the colony were related to the exchange of minerals and agricultural produce. However, according to B. Brandl (1992: 447) the main cause for Egyptian presence along the northern coast of Sinai was the need to protect the maritime trade route to Byblos. For this very reason B. Brandl attributes the end of the colonization to the progress in navigation techniques, as a result of which Egyptians were able to sail directly from the Delta, without the need to follow the coastline.

Most researchers focused their efforts on determining the character of the Egyptian colony in Canaan (*e.g.* Andelković 1995: 68-72; Ben-Tor 1982; Kempinski & Gilead 1991; Stager 1992: 40). Various definitions of a "colony" were tried and referred to. One of them assumes that a colony involves a compact settlement of a group of people of the same nationality living in a foreign territory (state) while remaining loyal to their homeland (Andelković 1995: 69 after Haas 1963). More thorough source material analyses showed however that the above definition could not be used in interpreting the organization of the Egyptian colony in Southern Levant in EB I. No compact and closed settlements inhabited by Egyptians only were registered. In most settlements from the period in questions Egyptian and Southern Levantine materials were found together, thus indicating coexistence of the outsiders and the local population. The only exceptions could be En Besor and Tel Maahaz, both being important Egyptian administration centers (Andelković 1995: 69-70). Another definition of a colony refers to a territory reigned not by its local community, but by representatives of a foreign territory (state), being a minority and differing from the local inhabitants in terms of culture, history, beliefs, and sometimes also race. The rulers' policy consists in imposing its own social, economic and political structure (Haas 1963). It was generally accepted, in EB I in Southern Levant the power was most probably held by Egyptians. Their culture, both material and symbolic, differed from the culture of the Early Bronze societies from Southern Levant. The presence of the Egyptian administrative apparatus is apparently confirmed by royal serekhs found on vessels and impressions of cylindrical seals (Levy *et al.* 1995). The main factor attracting Egyptians' attention to Southern Levant was the demand for copper and other mineral and agricultural materials. Originally, in EB IA Egyptians sourced those materials and reinforced their own position by settling small groups of their people in the foreign territory. In EB IB that position grew stronger and enabled them to establish a colony in Southern Levant. By and large, the coexistence of Egyptians and Southern Levantines was peaceful, although one cannot rule out the presence of a small number of Egyptian troops in Southern Levant. The colony sent to mainland Egypt such goods as copper (both metal and ore), bitumen, salt, sulfur, turquoise, resins, aromatic oils, olive, wine and other food products. It is likely that the Egyptian colony was the easternmost Egyptian outpost trading with non-colonized territories. The golden age of the colony continued for approximately 200 years. During that time Egyptians formed a network of major centers and smaller settlements all over the colony. Contacts with mainland

Egypt were maintained via northern Sinai. The likely reasons for the colony's decline included a process of political, social and economic changes in Canaan. Political and socioeconomic development, population growth and the emergence of major, fortified city-states in Southern Levant turned Egypt's attention to Syria and Lebanon, both more easily accessible by sea. Isolated Egyptian finds in Southern Levant were registered also in EB II contexts, but by that period the golden age of the colony was well long gone.

Another theory explaining Egyptian-Southern Levantine contacts in early EB I was put forward by J.P. Dessel (1991; 2001) and A.H. Joffe (1991). It also assumes the existence of an Egyptian colony in Southern Levant. According to J. P. Dessel, there exist no archeological materials adequately proving the military conquest of Southern Levant by Egyptians, or regular trade between the two regions. He believes that Egyptian presence in Canaan in EB I was symbolic and ideological in nature and was more of an exercise in planning and logistics by a newly centralized elite. All Egyptian efforts made in Southern Levant were "experimental practice" preceding the actual unification and centralization in mainland Egypt. A similar theory was presented by A.H. Joffe (1991), claiming that Egyptians established an administrative system in Southern Levant whose purpose was to imitate a fully-fledged state with all its elements, such as distributable goods. The purpose of this experiment was to try out the social and political system by controlling the Egyptian colony in Southern Levant. Due to the fact that the said theory is unverifiable and rather loosely correlated with archeological data, it has won only a few supporters.

Table 6. Egyptian-Levantine relations according to L. Watrin (1998: 1215-1226).

Phase	Exchange pattern	Chronology	Southern Levant	Lower Egypt	Upper Egypt
1	middleman trading	3900-3650 BC	late Chalcolithic	early LEC	Naqada Ia-b
2	dual access trading	3650-3400 BC	EB IA	late LEC	Naqada Ic-early Naqada IIc
3	emisary trading	3400-3150 BC	early EB IB	Naqada IIc-d/ Naqada IIIa1-a2	
4	colonial enclaves	3150-3000 BC	late EB IB	Naqada IIIb – Dynasty 0	

All the above theories explaining the nature of Egyptian-Southern Levantine contacts refer to relationships existing at a later stage of EB I, *i.e.* from Naqada III. Most of the above-quoted authors were of the opinion that Egyptian-Southern Levantine contacts in the late Chalcolithic/EB IA were linked to small-scale exchange of goods.

The recent years saw papers by authors setting out to present a comprehensive analysis of Egyptian-Canaanite relationships with a breakdown into phases, taking into account the temporal changes in the nature of those relationships. Relying on the exchange models presented by C. Renfrew (1975), L. Watrin (1998) identified four phases in the contacts between both regions, varying in terms of the organization of the exchange (Tab. 6). In phase 1, the

exchange was via intermediaries. Subsequently, trade was controlled by small groups of Levantine traders who settled in Lower Egypt towards the end of the Lower Egyptian culture. A similar situation occurred in Southern Levant, where the presence of Egyptian traders was registered. The next phase in the trade development process involved the presence of a larger group of Egyptians, linked to the Egyptian administration. The final phase in the development of Egyptian-Southern Levantine contacts saw the formation of an Egyptian colony in southern Canaan, accompanied by Egyptians' full control over bilateral trade.

Another model of Egyptian and Levantine relationships was proposed by T.E. Levy and E.C.M. van den Brink (2002: 18-21). They identified six phases of Egyptian-Levantine Interaction (ELI) contacts (Tab. 7). The first three phases were related to contacts between the representatives of the Lower Egyptian culture and those of the Late Chalcolithic to beginning of EB IB of Southern Levant. Due to the scarcity of materials dated to that particular period the authors merely provided a brief presentation of data, without in-depth interpretations of the nature of those contacts. The remaining phases were related to more sophisticated relationships accompanying the complicated processes of Egyptian unification and urbanization in Southern Levant.

Table 7. Egyptian-Levantine interaction phases according to T.E. Levy and E.C.M. van den Brink (2002: tab. 1.7, 1.8).

Phase	Chronology	Southern Levant	Lower Egypt	Upper Egypt
1 ELI	c. 3900 BC	Chalcolithic period	Buto Ia	
2 ELI	c. 3650 BC	EB IA	Buto Ib	Naqada IIb
3 ELI	c. 3650-3300 BC	early EB IB	Buto II	Naqada IIc-IId2
4 ELI	c. 3300 BC	middle EB IB	Buto III	Naqada IIIa2
5 ELI	c 3100 BC	late EB IB	Buto IV	Naqada IIIb1-IIIc1
6 ELI	> c. 2900 BC	EB II	Buto V	Naqada IIIc2-3

Another set of criteria for analyzing Egyptian-Southern Levantine contacts was applied by P. de Miroschedji (2002). Primarily based on materials from the territory of Canaan, he identified 7 phases in the development of contacts between Egypt and Canaan in Early Bronze (Tab. 8). Phase 1 was to be characteristic for infrequent contacts between both regions, aimed at investigating their respective natural resources. Phase 2 saw the first wave of Egyptian expansion, followed by the establishment of a regular exchange network in Southern Levant. In phase 3 Egyptians apparently formed a colony, whereas in phase 4 they established state administrative structures in Canaan. In the Early Dynastic period the exchange was reorganized due to the development of city-states in Southern Levant. Egyptian settlements disappeared from Southern Levant and the exchange came to be more official and first of

Table 8. Egyptian-Canaanite interaction according to P. de Miroschedji (2002: 40, tab. 2.1).

Phase	Chronology	Southern Levant	Lower Egypt	Upper Egypt
1	to 3500 BC	Late Chalcolithic	early LEC	Naqada I
2	3500-3400 BC	EB IA	late LEC	Naqada IIa-b
3	3400-3150 BC	EB IB	Naqada IIc-IIIa	
4	3150-3050 BC	final EB IB	Dynasty 0	
5	3150-3050 BC	EB II-III	Dynasties 1-5	
6	3050-2650 BC	final EB III	Dynasties 5-6	
7	2650-2250 BC	EB IV	Dynasty 6, 1st Intermed. Period	

all more symbolic (exchange of prestigious items). According to P. de Miroschedji, the rule of the 5th and the 6th Dynasties could have seen Egypt's armed expedition against Southern Levant. Eventually, in EB IV the contacts between Egypt and Canaan were severed, probably due to profound political changes. The said period brought about the collapse of both the centralized Pharaonic State and the urban network of city-states in Canaan.

Thus far, the attempts at understanding the contacts between Egypt and Southern Levant from their onset in the Chalcolithic period to their termination in EB II have allowed researchers to consider the relationships between both regions in a broader cultural and chronological context. However, one must not forget about the drawbacks of those attempts. The beginnings of mutual contacts between Lower Egypt and Canaan are poorly represented in archaeological material, which is probably caused by the state of research. When compared to materials representing later stages of those contacts, materials dated to the beginning of Naqada I and the beginning of Naqada II or to the end of the Chalcolithic or early EB I are – in the opinion of most researchers – too scarce to serve as a basis for general interpretations.

In their description of the first phases of Egyptian-Levantine interactions (ELI 1-3), T.E. Levy and E.C.M. van den Brink (2002: 18-19) do not make any interpretative attempts and merely present sources, such as Southern Levantine pottery and Egyptian pottery whose forms are linked to Canaanite items, found on Lower Egyptian sites (at Maadi and Buto), as well as Chalcolithic semi-subterranean dwellings from Maadi and spikes of the Nilothic catfish and *Aspatharia rubens* shells found on Southern Levantine sites. Even though these materials are indicative of contacts between the two regions, the nature of those contacts remains unknown.

Material evidence confirming Lower Egyptian and Southern Levantine contacts was commented on also by T.P. Harrison (1993) and L. Watrin (1998). Unlike T.E. Levy and E.C.M. van den Brink, Harrison and Watrin do present interpretations of those contacts.

For both researchers, the first phase of Egyptian-Canaanite interactions involved the presence of intermediaries-traders. According to T.P. Harrison (1993: 89-90) and L. Watrin (1998: 1220-1221), the exchange between the two regions was organized by a group of independent intermediaries with a profound understanding of the needs of both sides. The exchange was a private venture, taking place between two centers - entrepots, from where the traded goods could have been distributed to other locations. The entrepot in Lower Egypt was Maadi, and the one in Southern Levant was either Taur Ikhbeinah or En-Besor H. According to L. Watrin (1998: 1218), also Buto could have played a major role in trade exchange between Egypt and Southern Levant. It may have been the center out of which maritime exchange with Byblos was controlled. Recent research on the organization of the Lower Egyptian culture disprove the existence of a center (or centers) that could control various activities within the entire culture. It is more likely that exchange was organized independently by each settlement for the purpose of catering for local needs (Mączyńska 2008; 2011).

An alternative view is proposed by P. de Miroschedji (2002: 39-41), who primarily concentrates on the analysis of Southern Levantine materials. According to him, the oldest contacts between Egypt and Levant are confirmed by campsites or seasonal settlements of pastoral communities in northern Sinai, where both Canaanite and Egyptian pottery was registered. The inhabitants of those campsites (seasonal settlements) allegedly were the agents of the first contacts between the two countries. Socioeconomic changes in Southern Levant towards the end of the Chalcolithic and in the early EB IA marked an important moment in the development of the contacts. The introduction of the donkey as a means of transportation, the developments in horticulture (mainly olives and vines) or mining activities in Sinai created conducive conditions for establishing a regular Egyptian--Southern Levantine exchange network. In the beginning of EB IB, the contacts became closer and more intensive, as a result of which Egyptians appeared in Southern Levant and formed a colony whose main purpose was to control trade.

Exchange mechanisms between Lower Egypt and Southern Levant were also analyzed by F. Guyot (2008), who concentrated primarily on the exchange dynamics and emulation processes correlated to the social organization of the societies under consideration. He drew attention to strong Levantine investments in Lower Egypt and the rarity of Egyptian imports in Southern Levant, apparently resulting from the establishment of the first exchange between both regions under the impetus from the Southern Levantine centers. Moreover he also proposed a more appropriate term describing the character of the exchange: "from neighbour to neighbour contacts". According to F. Guyot (2008: 713-714) the first exchange was very random and depended on inter-community alliances. Lower Egyptians only disposed of the exogenous goods randomly dispatched to them. In the middle of Naqada II period the disappearance of foreign intermediaries could be observed, however according to F. Guyot (2008: 715) the intensity of the exchange remained the same. Nonetheless, "the encounter with the Naqadian model" in the second half of Naqada II stimulated the social dynamics of the Lower Egyptian society. The Lower Egyptian centers became consumption

centers as they were organized on the same mode as the Naqadian chiefdoms. Moreover "they organized their own distribution network, turned to Southern Levant and the Mediterranean littoral" (Guyot 2008: 722-724).

An important place in the interpretations of the early Egyptian-Southern Levantine contacts is occupied by studies of materials from Lower Egyptian sites on which Southern Levantine imports were registered. According to I. Rizkana and J. Seeher (1989: 78-80) who interpreted the finds from Maadi settlement, the Delta societies imported ceramic jars, V-shaped bowls, small basalt discs, flint endscrapers, flint sickle blades, bone combs and palettes, bitumen, resins, olive, cedar wood, skins of animals (*e.g.* hippopotamuses), animals (cattle, goat, sheep), agricultural produce as well as copper and pigments. The above proposal was considered as unconvincing by K.M. Ciałowicz (1999: 123), who questioned products unpreserved in archaeological materials. In his opinion, the list presented by I. Rizkana and J. Seeher was merely a reflection of Southern Levantine exporting capabilities of the time.

In return for Levantine items Egyptians could offer pottery, basalt vessels, flintware, Nile fish whose bones were registered on Southern Levantine sites, as well as *Aspatharia rubens* shells used as containers for cosmetics or as a material for manufacturing pendants and spoons (Rizkana & Seeher 1989: 79).

According to I. Rizkana and J. Seeher (1989: 80) imports probably did not reach the Delta directly from Southern Levant and Sinai. The eastern edge of the Delta could have been an area of intensive contacts and exchange between Egyptian and Southern Levantine traders, and only from there certain products were distributed by local intermediaries to end users all over the Delta or Southern Levant. Southern Levantine products were also distributed along the borders of the Delta territory, possibly also by water routes along the river's branches. I. Rizkana and J. Seeher (1989: 80) accepted the possibility of infrequent penetrations of eastern traders into the Delta, as the semi-subterranean dwellings discovered Maadi seem to suggest. Their similarity to Chalcolithic semi-subterranean dwellings from Beersheba region in Southern Levant is often mentioned (Perrot 1955; 1984; Rizkana & Seeher 1989: 80; Watrin 1999; 2000: 173-182; Hartung *et al.* 2003). It is likely that the presence of eastern merchants in Maadi was temporary and depended on transportation conditions, affected by annual inundations of the Nile.

Excavations held in the recent years in Buto have also shown the presence of a considerable amount of Southern Levantine pottery in layers dated to the Lower Egyptian culture. Originally its presence was considered to have resulted from trade exchange between Egypt and Southern Levant. However, a more detailed analysis showed that despite foreign stylistic features the pottery was made using local Nile clay. According to E.Ch. Köhler (1993) and D. Faltings (1998ab; 2002), a group of Southern Levantine settlers apparently arrived at Buto settlement in the Late Chalcolithic (Schicht Ia). In the beginning, the newcomers retained their separate cultural identity and used local materials to manufacture pottery characteristic for their own traditions (use of a rotating device, thumb-indented bowl rims,

V-shaped bowls). Over time, however, the immigrants adapted Egyptian pottery making techniques and technologies (Schicht Ib) and eventually gave up their own cultural tradition at all (Schicht II).

The recent years have brought about the discoveries of numerous imports from Southern Levant at the site at Tell el-Farkha (Mączyńska 2006; Czarnowicz 2012b). A number of them come from layers linked to the Lower Egyptian occupation. In addition, a fragment of a copper knife, similar to knives known from Southern Levant, comes from the same period (Czarnowicz 2012a). The discoveries of imported pottery, copper, but also structures important for understanding the role of the site in the Predynastic period (*e.g.* oldest mudbrick architecture, Lower Egyptian 'residence', brewery center) allow one to claim that the Tell el-Farkha site could have been an exchange center between Southern Levant and Upper Egypt (Maczyńska *in press* d).

New evidence of the contacts between Southern Levant and Lower Egypt in the Chalcolithic and EB I was presented by E. Braun and E.C.M. van den Brink (2008). However, apart from reporting items of Egyptian origins newly found in Southern Levant, they stressed that in spite of numerous recent excavations on Chalcolithic and EB I sites in Israel, the absence of Egyptian items is remarkable. In the opinion of those authors this situation suggests the sporadic nature of contacts in this period (Braun & van den Brink 2008: 650).

2.2. Relations between Egypt and Sinai

Thus far it has been generally accepted that in the Chalcolithic period and in the beginning of EB I the Sinai Peninsula remained under Southern Levantine influences (Stager 1992: 33). However, the research by an expedition from Ben Gurion University in northern Sinai shows that – depending on the period – the status of Sinai vis-à-vis different neighboring territories varied considerably, as suggested by numerous new sites found – pastoral campsites dating from the Chalcolithic to EB IV (Oren 1989: 400; Oren & Gilead 1981; Yekutieli 2002). Both on Chalcolithic and EB I sites, Canaanite pottery was accompanied by Predynastic Egyptian pottery. While on Chalcolithic sites the amount of Egyptian pottery was insignificant, on EB I sites it sometimes represented as much as 80% of the entire material recovered. A detailed analysis of the data collected by researchers coupled with quantitative analyses, spatial methods and simulations allowed Y. Yekutieli (2002: 429-432) to determine the character of settling activity in the north of Sinai. In his opinion, the economy of Chalcolithic settlements was primarily based on Sinai's natural resources. However, sometimes the choice of raw material was also determined by other factors, such as distance. This is true in the case of pottery which was not made from materials available on Sinai, but rather from less distant Levantine clays. Furthermore, technological and stylistic similarities between Sinaian and Southern Levantine pottery may result from the concentration of campsites in the eastern part of northern Sinai, near the Canaan border. Sinai was a kind of its dominium. In EB I the character of settlements in the north of Sinai changed as a result

of intensified contacts between Egypt and Southern Levant. In that period the economy of the local population largely depended on the activity of the trade route connecting both regions. Egyptian-Canaanite trade exchange constituted the *raison d'être* of the Early Bronze communities in Sinai, with agriculture being an occupation of secondary importance. Given that the distance that could be traveled by a caravan of donkeys in a barren, desert landscape was approximately 100 km, there must have been some kind of stop-over sites en-route. Most of the registered settlements and campsites are likely to have served that very purpose.

Tracing the route connecting Lower Egypt and Southern Levant is another important issue related to the contacts between both regions. It is generally agreed that the said route ran through the north of Sinai (Fig. 4; Rizkana & Seeher 1989: 79; de Miroschedji 2002), as was confirmed by field surveys in the area. A map of all registered sites shows a clearly linear alignment, the most obvious in the case of sites dated to EB IA (Yekutieli 2002).

Some researches propose an alternative course of trade routes between Egypt and Cannan. I. Rizkana and J. Seeher (1989: 79) assume the existence of another route going from Wadi Tumilat and reaching the Delta in the area of today's town of Zagazig (Fig. 4). An interesting hypothesis on the presence of an alternative route from Upper Egypt was proposed also by D. Bar-Yosef Mayer (2002). Her analysis of bangles made of *Lambis truncata* shells from the Red Sea, found on sites in the south of Sinai and in Upper Egypt, led her to believe that despite considerable similarities bangles from each region were different in terms of workmanship. According to D. Bar-Yosef Mayer (2002: 132-133), the only place where such bangles were manufactured was located in the south of Sinai, near Wadi Watrin. The top-quality (perfectly round) bangles were exported to Upper Egypt, while the inferior ones (twisted or triangular) were supplied to the local community and to Southern Levantines. Oval bangles were sent to Upper Egypt directly from southern Sinai via a route running southwards through the Red Sea (Fig. 4). The evidence for the above hypothesis are triangular bangles found in the Delta area (*e.g.* at Maadi) which – in the opinion of D. Bar-Yosef Mayer (2002: 133) – arrived there from southern Sinai via southern Cannan, and then via northern Sinai together with other Canaanite imports.

Some researchers also accept the possibility that in the first half of the 4th millennium BC maritime routes were also used in the exchange of goods. According to I. Rizkana and J. Seeher (1989: 80), Byblos could have been the center to which traders came by sea, although they do not rule out the existence of other sea ports suitable for such exchange along the coast of northern Sinai and Southern Levant. According to K. Prag (1986), materials indicating the existence of a route connecting Egypt with Byblos only date back to the second half of the 4th millennium BC.

Also R. Gophna (2002) points out to the existence of an alternative maritime route along the south-eastern coast of the Mediterranean Sea. His research made it possible to identify more than ten sites dated to EB I along the Israeli coast. Those sites were small ports where merchant ships could have anchored. An important role in this research is played by Egyptian vessels found along the littoral. Their presence may confirm the existence of "maritime"

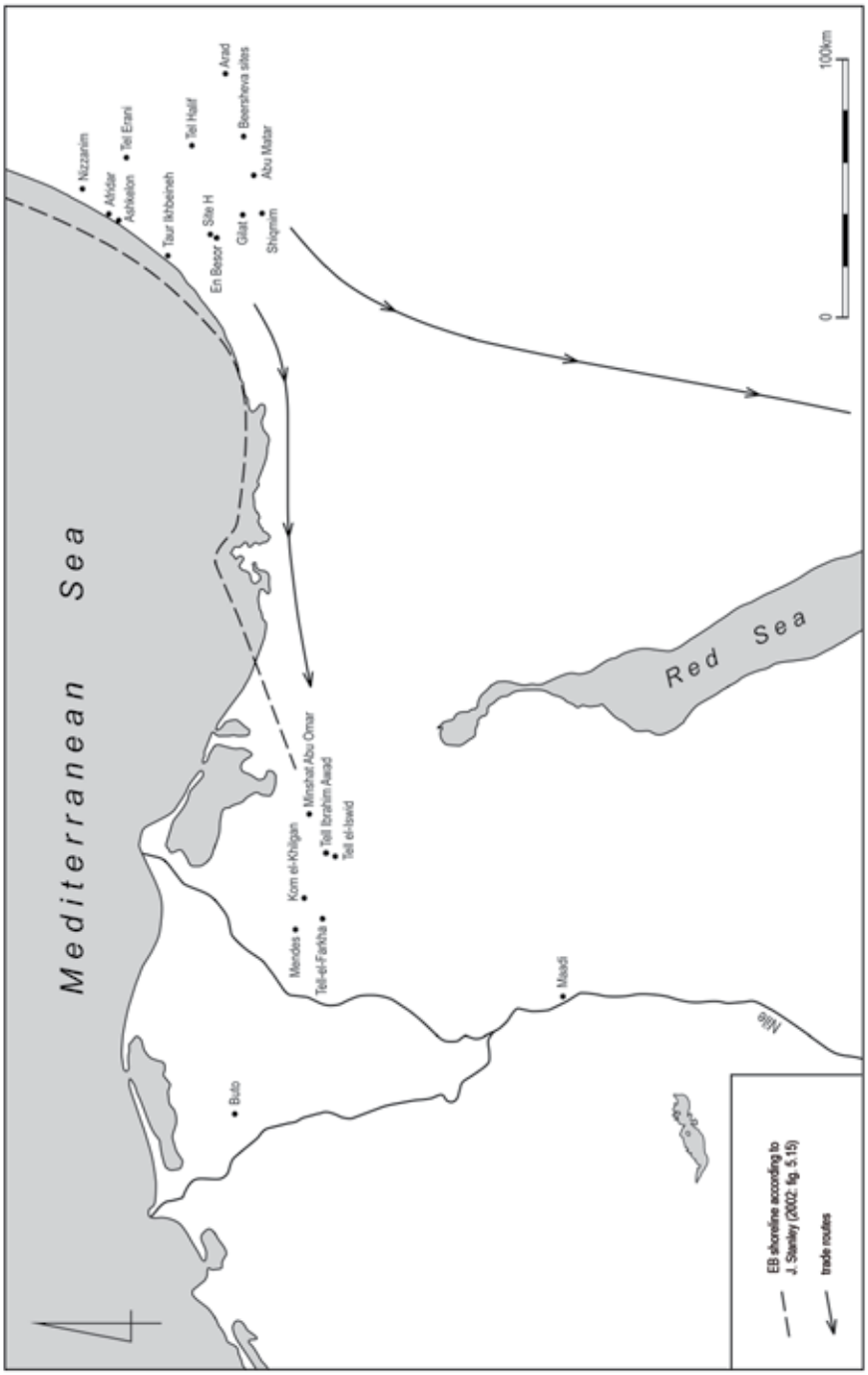

Figure 4. Trade routes in the Predynastic period.

exchange between Egypt and Southern Levant in that period (Marcus 2002: 407). According to R. Gophna (2002), in addition to the three main ports: Ashqelon, Tel Megadim and Jaffa, there also existed other ports, used much less frequently, in Tell es-Sakan, Yavneh Yam, Michmoret and Dor (Fig. 4; see also Fig. 2).

Due to the scarcity of evidence, the existence of a sea route between Egypt and Southern Levant in the middle of the 4th millennium BC continues to be an open question. Field surveys along the coast as well as underwater research provide an increasing number of findings and contribute to a better understanding of the trade routes between Egypt and Cannan. It seems highly likely that in the period in question water transport was already in use, given the favorable topography of the Delta, crisscrossed with canals and river branches. Boat travel allowed traders to reach major settlements up in the Delta (such as Buto) and to exchange their goods right there (Rizkana & Seeher 1989: 80).

2.3. Relations between Egypt and Syria/Mesopotamia

The existence of contacts between Lower Egypt, Syria and Mesopotamia in the Predynastic period is questionable (Fig. 5). The existence of relationships between the Delta and the famous Uruk culture at the time of its greater expansion and colonization of neighboring territories was first suggested by T. von der Way (1988: 245-249; 1992b; 1997: 114) on the basis of a clay nail (Grubenkopfnagel) found in Buto in layers attributed to the Lower Egyptian culture (Schicht I). According to T. von der Way (1992b: 220, fig. 2, 4) the clay nail may be reminiscent of mosaic nails put in large quantities into a thick layer of plaster attached to brick walls of temples, thus creating a decorative pattern. In his opinion Mesopotamian artefacts apparently arrived to Buto as a result of the expansion of the Uruk culture society in phase 7/6, when new colonies and trading posts were established, mostly for commercial purposes. One of the more important colonies of this kind was Habuba Kebira (Fig. 5) founded in northern Syria on the river Euphrates (Strommenger 1980). In the opinion of T. von der Way (1992b: 220-221), that colony was an intermediary between the Delta and Mesopotamia, which is seemingly confirmed by a single registered fragment of Egyptian N-ware dated to Naqada IIb. The Mesopotamian interpretation of "cone nails" sparked a great deal of controversy. Today most researchers are opposed to linking these artefacts to Mesopotamian architecture. According to D. Faltings (1998b: 374-375), clay "nails" should be linked to specific ceramic forms known as "cornets", found on nearly all Ghassulian sites in Southern Levant. Their function is unclear, although they are often considered as cultic items. Since the ceramic inventory from Buto features a large number of various miniature vessels, the Grubenkopfnagel and other clay nails could have been miniatures of cornets. So far no such nail has been found *in situ* and their number – in the light of the function proposed by T. von der Way – is too small. If they were used as mosaic elements, they should be much more common in archeological material.

Other artefacts registered in the Ia layer in Buto, which – according to T. von der Way (1992b: 221, fig. 5) – imply Egyptian-Mesopotamian contacts include pottery fragments with white spirals on the upper parts, formed by removing a whitish slip from the inside of the vessel.

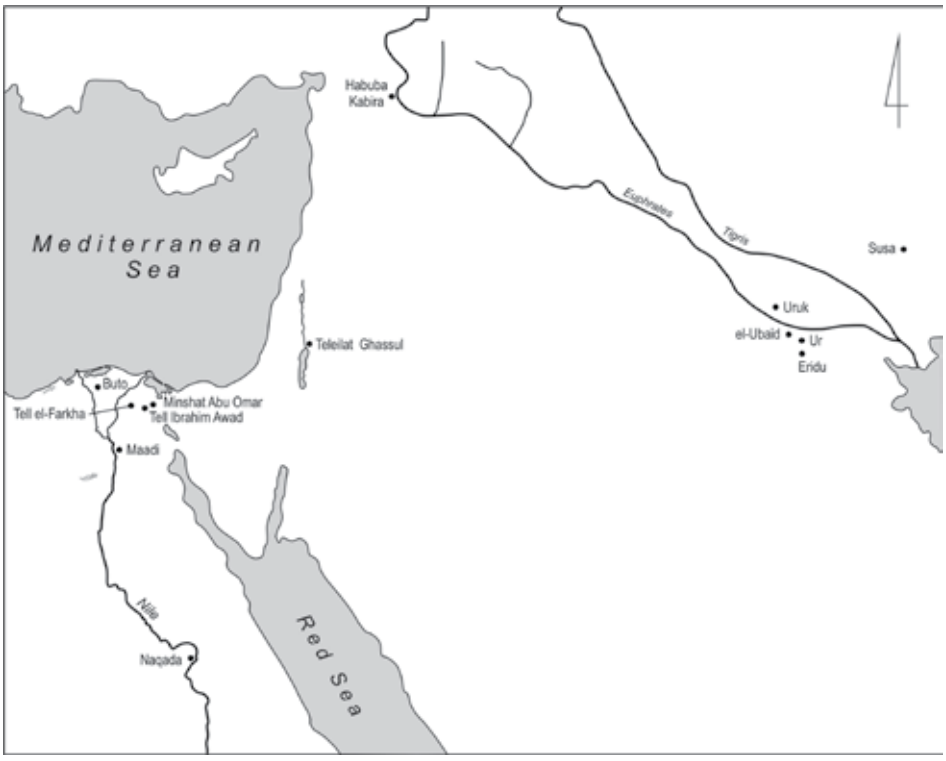

Figure 5. Mesopotamia and Egypt in the Predynastic period.

Bowls of this kind were supposed to be related to Amuq F horizon pottery from the north of Syria. The later finding of several complete vessels with a white pattern made it possible to explain their origin. A detailed analysis of the decoration pattern revealed that the vessels were in fact not made using a technique characteristic for Amuq F. Instead, the spiral pattern was painted using white paint. Furthermore, similarities between these vessels and Chalcolithic pottery from Southern Levant (known *inter alia* from Beersheba region and from the north of Sinai) were identified (Faltings 1998b: 367-371).

Due to the lack of conclusive evidence, it is generally accepted in the literature that in the period of Naqada I and II direct contacts between Egypt and Mesopotamia did not exist (Moorey 1990; Ciałowicz 1999: 126; Hendrickx & Bavay 2002: 69-70). Some researchers accept the possibility that such contacts took place via Cannan (Hendrickx & Bavay 2002: 73). However, it goes beyond any doubt that the trade route between Egypt and Mesopotamia was used in the following period, *i.e.* Naqada III (Mark 1999).

3. Summary

An analysis of the above data clearly shows the relationships between the Delta and Southern Levant. However, the underlying evidence is not easy to interpret. As a result, researchers vary in their understanding of the character of those relationships. As more and more source materials became available, new hypotheses were presented, originally assuming military conquest of Canaan by Egyptians, then shifting towards trade exchange between both regions, eventually evolving to the existence of an Egyptian colony in Southern Levant. There also exist theories interpreting the Egyptian presence in Southern Levant as an attempt at developing and administering a centralized society. A certain drawback of these interpretations was the fact that they focused primarily on the late Predynastic period, after the Lower Egyptian-Naqadian transition. When interpreting the origins of Egyptian-Southern Levantine contacts at the end of the Chalcolithic and the beginning of EB IA (*i.e.* Naqada NIIB) most researchers did little more than briefly mention the sporadic nature of those contacts.

A certain turning point in investigating the earliest Egyptian-Southern Levantine relationships took place in the 1980s, when the Delta ceased to be an "uncharted territory". Excavations provided additional materials, thus shedding a new light on contacts and presenting them from a new perspective.

This publication is an attempt at interpreting the contacts in the early and middle Predynastic period, taking into account materials sourced from both regions. All previous publications concentrated on earlier stages of those contacts, which was largely determined by the availability of source materials. The authors of those publications merely mentioned the "sporadic" nature of the relationships in Naqada I and II and sometimes listed imports known from that period. This monograph takes a different approach, because the author rejects the "sporadic" nature of early Egyptian-Southern Levantine contacts. The renewed and precise analysis of older sources and the inclusion of new discoveries require one to revise the earlier views. Doubtlessly, the contacts in the early and middle Predynastic period on the one hand and the late Predynastic period on the other differ not only in terms of quantity, but also in terms of quality. Therefore, an important aspect of this publication will be an attempt at defining the underlying reasons for and the functional mechanisms of the contacts in question. Attention should also be drawn to the fact that understanding the nature of the early stage of Egyptian-Southern Levantine relationships is of key importance for understanding the dynamics of the cultural development of the Delta in the 4th millennium BC, as well as for full understanding of the mutual relationships between Egypt and Southern Levant at the stage of the centralized state in Naqada III period.

Chapter 2

The Nile Delta in the Predynastic period

1. Background

The Nile Delta occupies an area of approximately 17,000 square kilometers. Today it is formed by the two main branches of the Nile (Damietta and Rosetta) with a great number of both natural and artificial small canals, coastal lakes and inundations. The Mediterranean Sea forms the Delta's natural borderline in the north. In the south, the Delta reaches Cairo, where the Nile bifurcates. In the literature on ancient Egypt, the Delta is often referred to as Lower Egypt. However, it must be remembered that in geographic terms, the southern border of Lower Egypt is located at the latitude of the Faiyum Oasis (Fig. 1). Today's Delta is a densely populated and intensively developed area, accounting for some 58% of Egypt's ecumene (Krzyżaniak 1977: 26; Ciałowicz 1999: 17; Butzer 2002: 84).

Currently, the Delta finds itself in the dry tropical climate, with only a narrow coastal strip in the north enjoying subtropical Mediterranean climate. The lowest average annual temperature occurs in January and is approximately 10ºC. The warmest summer month in the Delta is July, with average temperatures in excess of 25ºC. Precipitation in the Delta is rather scarce and is observed from the middle of October to the end of March. Only at the western coast the annual precipitation is 140 to 190 millimeters. In the eastern Delta, the rain season yields an average of 80 millimeters of rain, as compared to 30 millimeters in Cairo area. In the Predynastic period, the climate of Lower Egypt was more humid than today. Major rainfalls from July to September made farming easier during the hottest period. Towards the end of Naqada I and in Naqada II the climate became gradually drier, and the Nile level dropped (de Wit & Pawlikowski 1992: 290; de Wit 1993; Péréz-Largacha 1995: 80). This climate change had considerable effect on the contemporary settlement activity and caused migrations to areas located in the direct vicinity of the Nile (Hoffman 1984).

A characteristic element of the Delta's geological substance are geziras, large sandy hillocks rising above the surrounding ground. Most Predynastic settlements and cemeteries were located on the slope of a gezira (*i.e.* Tell el-Farkha, Kom el-Khilgan, Tell el--Iswid). Geological drillings carried out all over the Tell el-Farkha site made it possible to reconstruct its geological profile. Two general sets of sediments were distinguished: the gezira sand and the Nile silt. There is also a thin transitional silty-sandy layer between them (Pawlikowski & Wasilewski 2012: 376-378).

Currently, the Delta area is covered by a layer of fertile, alluvial soil, formed by sedimentation of silt brought by the annual Nile inundation. The layer's thickness sometimes exceeds 10 meters. The soil is very good for farming, but on the other hand it obscures the image of Predynastic settlement situation in the Delta, as it covers the remains of settlements and cemeteries, rendering their identification difficult (Butzer 1976: 22-25; 2002: 83; Trigger 1983: 10; Ciałowicz 1999: 19). Over a long period the Delta was considered to have been an uninhabited and non-farmable area. In the Predynastic period the Delta was claimed to be a swampy, waterlogged place (Baumgartel 1955: 3; Butzer 1976: 26). This view resulted from scarce archeological sources and misinterpretation of geological and environmental data. More intensive research in the Delta carried out in the 1980s made it possible to develop a map of Predynastic and Early Dynastic settlements. Despite certain difficulties in identifying sites located under the thick silt layer, one cannot consider the Delta as an area with no settlements at all. Its natural conditions in the Predynastic period were conducive to settlement and farming activity. Natural canals, inundations and rainfall provided adequate amounts of water for agriculture and animals breeding. Geziras offered favorable settlement conditions, providing protection against flood. Only the northern part of the Delta, dominated by waterlogged and swampy areas, was probably not conducive to human settlement (Butzer 1976: 25; 2002: 88-89).

2. Neolithisation process in Egypt

The first farming communities appeared in northern Egypt in the middle of the 5th millennium BC. Some 1000 years later this new subsistence system had spread all over the Nile Delta (Hassan 1985: 104-105). However, in spite of continued research and new discoveries, the adaptation process of this new economic system has not been fully explained. We are not certain about the direction from which agriculture and animal breeding reached the Nile Delta. Similarly, we have not found the final answer to the question why the Delta communities adopted the new subsistence system so late. The process of adaptation and dissemination of agriculture and animal breeding along the Nile Valley is mysterious as well.

Our understanding of Epipaleolithic communities inhabiting the Nile Valley before the arrival of the first farmers continues to be fragmentary. Thus far, only two cultural units have been identified to a reasonable extent: the Elkabian in Upper Egypt, dated to 7000-6700 BC (Vermeersch 1978; 1988; 1992; Hendrickx & Vermeersch 2000: 35-36) and the Quarunian, its near contemporary in the Faiyum Oasis (Wendorf & Schild 1976; Wenke *et al.* 1988: 29-51; Ginter & Kozłowski 1989; Hendrickx & Vermeersch 2000: 35-36 ; Shirai 2010).

The unclear cultural situation in the Nile Valley in the Epipaleolithic does not make the understanding of the new system adaptation processes any easier. Isolated stylistic elements associated with the Neolithic tradition first appeared on a small site at el-Tarif in the middle of the 5th millennium BC (bifacial pieces in the flint industry and pottery production). No other traces of new forms of subsistence (agriculture or animals breeding) have been found (Ginter & Kozłowski 1984; 1994: 134-135; Hendrickx & Vermeersch 2000: 36). So far it has

not been fully explained how the new tradition elements reached and were adapted by Epipaleolithic people. It should be remembered that the solution of the said problem could facilitate the explanation of the neolithisation process in the whole Nile Valley (Kobusiewicz 1992: 215).

The prevailing view in the literature is that agriculture and animal breeding in Egypt were adapted from Levant and southwest Asia (Arkell & Ucko 1965: 147; Hays 1965: 91-92; Stemler 1980: 505; Trigger 1983: 20; Wengrow 2006: 44-45). The proximity of the Delta Nile and Southern Levant is believed to have facilitated contacts between the two regions and made the exchange of information possible. The above hypothesis is claimed to be confirmed by the fact that domesticated plant and animal species from the east also appeared in the Delta. The research made by N. Shirai (2010) also sows some other links between these two regions in the lithic assemblages.

The introduction of the new subsistence system to southwest Asia is dated to the 8th millennium BC. The first farmers belonged to the so-called Pre-Pottery Neolithic A community. Systematic cultivation of cereals and legumes began, alongside continued gathering of wild plants. Hunting and fishing were pursued to a lesser extent (Ben-Tor 1992: 19). Animal breeding began later, in the Pre-Pottery Neolithic B. Sites from that period have revealed goat and sheep bones, as well as traces of wheat, barley, lentils, peas, fava beans and flax cultivation (Miller 1991: 141; Bar-Yosef & Khazanov 1992: 1-9). Roughly in the 6th millennium BC, southwest Asia saw considerable changes caused by the climate becoming dryer. As a result, its early farmers were forced to leave the steppes and forests of Sinai and Transjordan and moved north and westwards, to the Mediterranean Sea and the northern plains (Ben-Tor 1992: 32; Clark 1998: 163; Hassan 1998: 49).

In parallel to the hypothesis of the Levantine genesis of the Egyptian agriculture and animal breeding, there is also a theory pointing to the Western Desert as a potential origin of the new subsistence system (Butzer 1976: 11; Hassan 1986; 1988: 144-145; Krzyżaniak 1991; 1992b). The discoveries of F. Wendorf and R. Schild (1980: 277-278; 2001: 653-658) in Nabta Playa provided a basis for presenting a hypothesis on the independent domestication of cattle during the Early Holocene in semi-arid margins of Egypt's Western Desert in the 9th millennium BC. According to F. Wendorf and R. Schild (1984d: 376-377), approximately in 9300 BC, the first human groups reached this area, as a result of the northward shift of the monsoon zone. Another favorable climate change in the south of the Western Desert made it possible to use the so-called playa areas for permanent settlements. The inhabitants of Nabta Playa and nearby Bir Kiseiba used pottery and kept domesticated cattle. After 4900 BC and especially from 4400 BC onwards, as the climate became drier, groups of farmers from the Egyptian part of the Western Desert were forced to move northwards, to more humid areas (Hassan 1998: 49).

The theory of independent domestication of cattle in eastern Sahara continues to be unclear in many aspects. There is also a mysterious break between the 8th and the 6th millennium BC, as no traces of animal breeding from that period have ever been found. The fate of the early cattle-keepers from Nabta Playa (Wengrow 2006: 48-49; Hendrickx *et al.* 2010: 20)

is puzzling as well. Nonetheless, one cannot question the existence of cultural links between the Western Desert and Upper Egypt, visible both among flint, stone and pottery inventories, and in skeletal features of the communities from both regions (Kobusiewicz 1992: 214).

The prevailing view among archeologists is the hypothesis identifying southern Levant as the origin of Egyptian agriculture and animal breeding (Hendrickx & Vermeersch 2000: 37; Wengrow 2006: 44; Hendrickx *et al.* 2010: 19). The new subsistence system could have reached Lower Egypt via Sinai, together with materials imported from the east, *e.g.* shells from the Red Sea and turquoise (acculturation model). Alternatively, it might have come together with Levantine farmers migrating as a result of climate changes (demic diffusion model) (Borgoginini Tarli & Manzi 1998: 36).

According to F. Hassan (1984b: 222), farming was introduced to the Delta by migrants from the east. However, their movement was not linked to the mass migrations from southwest Asia. Lower Egypt is claimed to have been gradually infiltrated by drifters and refugees over a relatively long period of time (some 500 years or more). In his opinion, the change in subsistence was almost imperceptible, and thus peaceful and gradual. Levantine farmers easily adapted to local hunter-gatherers, which was facilitated by the flexible social organization and the probably exogamous marriage pattern followed by autochthonous communities (Hassan 1984b: 222).

The above theory could be proven true by the examination of skeletons from Predynastic cemeteries in the Nile Delta (Merimde Beni-Salame, Maadi, Wadi Digla), where no major anthropological changes denoting significant migrations from the east were identified (Smith 2002: 118-128). Egypt's first farmers were the communities inhabiting the shores of the Qarun lake at the Faiyum Oasis (Caton-Thompson & Gardner 1934) and the inhabitants of Merimde Beni-Salame settlement in the Nile Delta (Eiwanger 1984; 1988; 1992). According to F. Hassan (1985: 104-106; 1988: 141), they first appeared between 5200 and 4500 BC. W. Wetterström (1993: 201) is of the opinion that the adaptation of the new subsistence system took place right before the beginning of the 5th millennium BC, and definitely not earlier than in the 6th millennium BC. Originally, the hunter-gatherers from the Qarun Lake and Merimde Beni-Salame settlement did not give up the earlier means of subsistence, and agriculture and animal breeding did not play a major role in their life. Both communities used naturally available sources of food. Their settlements were located in abundant ecological niches, providing plenty of water fowl, fish, as well as semi-aquatic animals, such as hippopotamuses, turtles and crocodiles. According to F. Hassan (1984b: 222; 1998: 49), the abundance of naturally available food was the reason why the Delta communities introduced the new subsistence system relatively late, as compared to southwest Asia. In the beginning, agriculture and animal breeding were an addition to hunting and gathering, being a kind of a backup solution making the communities less dependent on nature (Wetterström 1993: 197-199). At the Faiyumian culture sites of Kom W and Kom K, domesticated cattle, sheep and goat bones were found (Gautier 1984b: 47; Brewer 1989a: 112). Additionally, in numerous storage pits researchers found grains of wheat, two and

six-row barley and flax, as well as some Polygonium seeds (Caton-Thompson & Gardner 1934: 43-56; Percival 1936; Tackholm & Drar 1941: 32, 88). The adaptation of agriculture and animal breeding economy was slow-paced. The entire process is well visible in the case of the Merimde Beni-Salame community. In the oldest phase of the settlement, dated to the 5th millennium BC, not only agriculture and animal breeding, but also hunting and gathering played a key role. In phases II and III of the settlement, farming was already well established, and the number of wild animal bones had dropped significantly as compared to phase I. Among the remains of cultivated plants found in Merimde, wheat, six-row barley, lentils, peas and flax were identified (Zohary & Hopf 1988: 189). Cattle, sheep, goats and pigs were bred. Dogs were probably domesticated as well (von den Driesch & Boessneck 1985; von den Driesch 1986: 6; Gautier 1987: 175).

The adaptation of the new means of subsistence affected the nature of the settlement activity in the Nile Delta. The communities of the Faiyumian culture continued to be semi-sedentary. As the availability of food was more and more closely dependent on agriculture and animal breeding, they gradually became more stable, and hunting/gathering was increasingly marginalized as a means of subsistence (*e.g.* the settlements in Merimde Beni-Salame, Wadi Hof, Maadi) (Wetterström 1993: 223-224). Over time, agriculture and animal breeding became the basic method of providing food.

Southward expansion of agriculture and animal breeding was an important part of its adaptation process in Egypt. The first farming communities in Upper Egypt appeared in the Badari area. However, the mechanisms of the above process have not been fully explained yet. Certain hints can be provided by flint tools analysis. D. Holmes (1988) points out to certain common features discernible in the flint inventory from Upper Egyptian sites for the entire Predynastic period, which co-exist with regional differences. According to her, those similarities indicate that the ancestors of Upper Egyptian communities once belonged to the same group of early farmers coming from the north. Having settled in new territories in the south, the said group allegedly split up and became diversified as a result of cultural development.

The organization of early forms of agriculture and animal breeding continues to be unclear. According to L. Krzyżaniak (1977: 33-34, 52-57), for the entire Predynastic period Egypt was characterized by the use of natural irrigation. Fertile silt layers covering the entire Nile Valley and Delta required only the basic farming operations, such as plowing or weeding. The annual inundation of the Nile would start towards the end of June and continued until October, when the waters began to recede rapidly. Rainfall in the same period was limited, and vegetation in areas above the Nile water level was scarce. To ensure access to water and food, people and animals stayed close to the inundated areas. As the river level dropped, lakes and streams were formed on the previously flooded areas, thus making fishing easier. In the same period, plants grew quickly providing food for people and animal. Swamplands offered home to water fowl. The winter rain season continued from October to March. Previously dry areas would become covered with vegetation, thus making

perfect habitats for wildlife (gazelles and onagers). In the opinion of F. Hassan (1984a: 60-61), the winter rain season was characteristic for abundance of natural resources, offering people some extra time for occupations other than the provision of food. From October to March, various symbolic ceremonies and celebrations allegedly took place. In March the Nile would reach its lowest level. Rainfall would gradually stop and the dry period would begin. Lower water level stalled vegetation. Herds of animals would either move southwards or scatter. The availability of seasonal lakes and ponds with abundance of fish would be limited. Thus, people would start to explore the Nile and other permanent reservoirs. Hippopotamuses, turtles and rodents would become staple commodities. In May, the Nile inundation would close the cycle and begin the next one.

The origins of food production in Egypt were closely related to the forces of nature. Sowing of cereals most probably took place right after the end of inundation. Growing cereals did not require any additional operations. Wheat and barley were sowed between the middle of October and the end of November. However, barley was the dominant crop due to its high resistance to draughts and soil salinity (*e.g.* 72.3% in Faiyum, 70.7% in Naqada of all registered cereals) (Hassan 1984b: 223). In the period from October to March also inundated areas were used as pastures for animals. F. Hassan (1984a: 62) noticed a relationship between the area occupied by plantations and the size of herds. As plantations became larger, herd sizes decreased, because the availability of pastures was reduced. Harvests took place prior to inundations. Surplus crop was stored in special pits/silos serving as granaries (*e.g.* the sites of the Faiyumian, Merimde and el-Omari cultures) or in special-purpose storage buildings (Badarian settlement in Hemamija).

3. Predynastic period

3.1. Terminology

In most of the recent publications on the Egyptian prehistory, the Predynastic period follows the Neolithic. However, there is a certain difference in identifying the boundary between the Neolithic and the Predynastic period. Some researchers include all early farming cultures (Faiyumian, Merimde and el-Omari cultures) in the Predynastic period (*i.e.* Butzer 1976; Hoffman 1979; Ciałowicz 1999: 25; Hays 1984: 211; Levy & van den Brink 2002: 7). Others consider those cultures to be Neolithic and exclude them from the Predynastic period (*i.e.* Midant-Reynes 2003: tab.1; Wengrow 2006: 274, tab. 3). In the most recent attempts at determining the chronology for the Nile Valley, the term "Neolithic" is accompanied by other general terms: „Chalcolithic" and "Early Bronze Age" (Tab. 9; Köhler 2010: 38, tab. 3.1; Hendrickx *et al.* 2010: tab. 2.1).

In this monograph the farming cultures of Lower Egypt are considered to be part of the Predynastic period, in accordance with the comprehensive concept of K.M. Ciałowicz (1999: tab.1).

3.2. Periodization of the Predynastic period

The first dating system for the Predynastic period focused on Upper Egypt in general, and on the Naqada culture in particular, because the interests of archeologists concentrated in the south and because of the dominant number of Naqadian sites and artefacts (see Introduction). The other cultural units, also those from Lower Egypt, were dated by reference to the Upper Egyptian chronology, on the basis of similarities in artefacts, presence of Naqadian imports and C^{14} dating.

Table 9. Chronology of the Egyptian Nile Valley according to E.Ch. Köhler (2010: tab. 3.1).

Absolute date in years BCE	General culture – historical phase		Relative chronology
2650-1200	Early Bronze Age	Old Kingdome (3-8 Dynasties)	
2700 3100		Early Dynastic (1-2 Dynasties)	Naqada IIIC-D
3300		Proto-Dynastic	Naqada IIIA-B
3600	Late Chalcolithic		Naqada IIC/D-IIIA
3900	Early Chalcolithic		Naqada IB/C-IIB
4500	Late Neolithic		Naqada IA/B Badarian
5100	Early Neolithic		El-Omari Merimde Beni-Salame Fayiumian

3.2.1. Naqada culture

Relative chronology

The first attempt at the periodization of the Predynastic period was taken by W.M.F. Petrie (1901; 1921). On the basis of materials from cemeteries investigated by him in Naqada, Ballas and Diospolis Parva, he developed a corpus of Predynastic pottery, consisting of 700 types of vessels and 9 classes of pottery (Tab. 10). Additionally, on the basis of the succession and similarity of pottery vessel types, W.M.F. Petrie identified 51 sections called Sequence Dates (or SDs), numbered 30 to 80. He put aside the numbers from 1 to 29, assuming that materials from earlier, not-yet-known cultures would be found in the future. W.M.F. Petrie divided the 51 SDs into 3 cultural units, naming them after eponymic sites. The first one was the Amratian culture, named after the site at el-Amra to the south of Abydos. It continued from SD30 to SD37. Another one, the Gerzean culture (named after the site of Gerzeh, at the latitude of the Faiyum Oasis), was represented by materials characteristic for SD38 to SD60. The SDs 61 to 75 were called the Semainian culture (after the Semaina site in the Hu area). Some years later W.M.F. Petrie (1953)

Table 10. Pottery classes according to W.M.F. Petrie (1921).

B-ware	*black-topped pottery*
P-ware	*polished red pottery*
F-ware	*fancy forms*
N-ware	*incised black pottery*
W-ware	*wavy-handled potttery*
R-ware	*rough-faced pottery*
L-ware	*late pottery*
C-ware	*white cross-lined pottery*
D-ware	*decorated pottery*

further developed his relative dating system by adding a Protodynastic pottery corpus, coinciding with the period until the reign of the 3rd Dynasty (Tab. 11). Despite numerous mistakes and inaccuracies (*e.g.* lack of differentiation between typology and chronology, non-uniform definitions of ceramic classes), Petrie's system has never been abandoned and is still in use.

In 1957 a new relative dating method was proposed by W. Kaiser (1957). Based on the analysis of pottery from the cemetery 1400-1500 in Armant he differentiated three zones within that cemetery, characterized by the prevalence of one ceramic class. The zones corresponded to consecutive phases (Stufen) in the Naqada culture development. The oldest (southern) part of the cemetery was dominated by black-topped ware; in the central part rough ware was the most common; and finally late ware prevailed in the newest (northern) part. W. Kaiser abandoned Petrie's terminology, replacing it with Naqada I, II and III respectively, thus denoting the continuity of the cultural tradition and the evolutionary character of its development. In addition, he further divided each of the three phases into shorter sections, based on the respective shares of other types of pottery (P-ware, D-ware, W-ware), palettes and other artefacts, as well as grave types. As a result, W. Kaiser came up with 11 stages of Naqada culture development, denoted with a Roman numeral (from I to III) and a lowercase Latin letter (Tab. 11). W. Kaiser's dating system differed from Petrie's system in that it put emphasis not only on typology, but also on the spatial position (horizontal stratigraphy) and content of the graves, as compared to other graves from the Armant cemetery. W. Kaiser also proposed different chronological boundaries for each phase: Naqada II period, corresponding to the Gerzean culture, continued from SD 38 to 63, and Naqada III period, corresponding to the Semainian culture was shifted to the period from SD 63 to 80.

Even though W. Kaiser's relative dating system was formed as a critical development of the chronology proposed by W.M.F. Petrie, its author did make certain mistakes as well. All the phases in the Armant cemetery were not represented in the same way. The early phases of Naqada I were non-existent, and Naqada III period was poorly represented. W. Kaiser realized this imperfection and supplemented phase IIIb data with materials from other sites. Research at Tura and Abydos allowed him to additionally provide more data for Naqada III and for the transition between the Protodynastic and Early Dynastic period. W. Kaiser introduced new Stufen to his system: IIIb1 and IIIb2, IIIc1, IIIc2 and IIIc3. The transition between the Protodynastic and Early Dynastic period was additionally divided into 3 stages, the so-called horizons, marked A to C (Kaiser 1964; 1990; Kaiser & Dreyer 1982). Not unlike Petrie's system, Kaiser's relative dating is still frequently used by authors investigating Predynastic Egypt.

Table 11. Relative chronology of Predynastic Egypt (Ciałowicz 1999: 51, tab. 1).

Phase		Relative Chronology		
		Petrie's system	Kaiser's system	Hendrickx's system
Naqada I		SD 30-37	Ia-c, IIa	IA-C
Naqada II		SD 38-62	IIb	IIA-B
			IIc	IIC
			IId1	IID1
			IId2/IIIa1	IID2
Naqada III	to the end of Dynasty 0	SD 63-78	III	IIIA1
			III	IIIA2
			III	IIIB
				IIIB/IIIC1
	1st Dynasty	SD 79-82	IIIc2	IIIC1-C2
				IIID (beg.)
	2nd Dynasty	SD 84-85		IIID

From the perspective of Predynastic periodization, an important study was held by S. Hendrickx (1996) who analyzed artefacts from major Upper Egyptian cemeteries. By investigating the spatial arrangements and content of graves, he developed plans containing horizontal stratigraphy of the cemeteries. This allowed him to modify Kaiser's system. The new proposal sustained the division of the Naqada culture into three phases, but the sub-divisions of each phase were changed. S. Hendrickx concluded that Stufen Ia and Ib both corresponded to the same unit and there was no need to distinguish between them. He also shifted the boundaries between Naqada I and II to Naqada IIb. In Kaiser's system, Naqada I

was characteristic for the prevalence of B-ware, while Naqada II was dominated by R-ware. Meanwhile, S. Hendrickx concluded that black-topped pottery was still present in site inventories dated to Naqada IIa. Furthermore, the differences between phases Naqada IIa and IIb where far greater than those between Naqada Ic and N II a. A similar shift was proposed for the boundary between Naqada II and N III (to NIIIa2). This particular change resulted from unclear definition of R-ware and L-ware vessels. S. Hendrickx also proposed new chronological boundaries for Naqada III, dividing it into 6 new subphases. For contrast against Kaiser's system, he chose uppercase Latin letters to denote the phases in his system (Tab. 11).

The relative dating of Naqada III was also investigated by T.A.H. Wilkinson (1996) who seriated pottery from 7 Upper and Lower Egyptian cemeteries. His findings confirmed the changes introduced by S. Hendrickx.

This monograph will follow the system proposed by S. Hendrickx, due to its correctness and ever-growing presence in the newest literature. Some references to W.M.F. Petrie's and W. Kaiser's dating systems will be made as well. Whenever a work based on those two systems is mentioned, the chronology proposed by the authors remains unchanged.

Absolute chronology

The absolute chronology of the Predynastic period is based on radiocarbon dates. Table 9 shows the dating of the Egyptian Nile Valley (Köhler 2010: tab. 3.1). In 2013 a new absolute chronology for the Naqada period was proposed on a basis of old and new C^{14} dates and Bayesian statistical modelling (Dee *et al.* 2013: tab. 1, fig. 4).

3.2.2. Early Predynastic cultures of Lower Egypt

For a long time until the 1980s, archeologists researching the Predynastic period concentrated primarily on Upper Egypt. Isolated research projects held in Lower Egypt in the early 20th century brought little information. It has only been in the last 30 years that the amount of information has grown, as a result of more intensive excavations in the Nile Delta.

Because of the dominant position of Upper Egyptian research, the chronology of studies in Lower Egyptian sites continues to be determined in relation to dating systems developed for southern cultures. However, it is increasingly common to relate Lower Egyptian sites to one another (Tab. 12).

Taking into account relative chronologies and C14 dates, this monograph relies on the absolute dating of Predynastic Lower Egyptian cultures proposed by E.Ch. Köhler (2010: tab. 3.1). In the Table 13 available C^{14} dates for the Lower Egyptian sites are presented. The recent years have brought some new C^{14} datings for Lower Egyptian sites. The project called "A new chronology for a formative process in Egypt" is particularly remarkable. Its aim is to use both new and existing radiocarbon dates to establish a reliable chronology for early Egypt[1].

1 http://c14.arch.ox.ac.uk/embed.php?File=egypt2.html#FES. Access on 21.03.2013.

Table 12. Chronological correlation between Lower and Upper Egypt.

Lower Egypt		Upper Egypt
Fayiumian Merimde culture el-Omari culture		Epipaleolithic Tarifian
		Tasian Badarian
Lower Egyptian culture	early	Naqada IA-IIB
	middle	Naqada IIC-D1
	late	Naqada IID2- beg. IIIA1
Naqada III		

4. Lower Egyptian Cultures

Considering the current state of research in early Predynastic cultures in Lower Egypt, they seem to be independent from each other. In this particular region no cultural continuity or evolution of the same community can be assumed on the basis of archaeological aseemblages. Although the groups inhabiting the oases in Faiyum and Merimde Beni-Salame were contemporaries, they seem to have been independent from each other. The same goes for the communities from Wadi Hof, which appeared while the Merimde settlement was already functioning.

Despite the absence of materials proving the links between the earliest farming communities in the region, we are unable to either preclude or confirm those links. The cultural map of Lower Egypt for the period in question is full of blank spots. It is difficult to judge whether it is attributable to the current state of research, or to the past cultural situation.

4.1. Faiyumian culture

In the late 6th and early 5th millennium BC, the Faiyum Oasis was an abundant ecological niche. The Moeris Lake, larger than today's Quarun Lake, was fed by the Nile. The abundance of food attracted people as early as in the Paleoloithic and Epipaleolithic (the Qarunian). In the beginning of the 5th millennium BC, groups of first farmers appeared at the shore of today's Quarun Lake. Most researchers (Ginter & Kozłowski 1989; Ciałowicz 1999: 93-95; Shirai 2010) assume the local genesis of this cultural unit, pointing out to the similarities between the Qarunian and the Faiyumian. On Epipaleolithic sites such items as numerous bifacial microliths and concave-based arrowheads were found, both being important elements in flint inventories from early Predynastic cultures. The two biggest sites of the Faiyumian are Kom W and Kom K, first investigated in the 1920s by G. Caton-Thompson and E. Gardner (1934). They were situated at the shore of the ancient Moeris

Table 13. Absolute chronology of early Predynastic cultures in Lower Egypt.

Cultural Unit		C^{14} dates (calBC by OxCal 4.2)	Range Dates
Faiyumian (Wendorf et al. 1970; Ginter et al. 1982; Kozlowski 1983; Hassan 1985)		(Gd-1140) 5540±70 BP / 4523-4259 calBC (Gd-695) 5990±70 BP / 5020-4726 calBC (Bln-2333) 5555±60 BP / 4519-4270 calBC (Bln-2334) 5645±55 BP / 4606-4355 calBC (I-1427) 5810±115 BP / 4946-4374 calBC (I-1431) 5860±115 BP / 5006-4458 calBC	5200-4500 BC
Moerian (Kozlowski 1983; Dagan-Ginter et al. 1984)		(Gd-1495) 5650±70 BP / 4679-4352 calBC (Gd-895) 5070±110 BP / 4224-3642 calBC (Gd-903) 5410±110 BP / 4455-3991 calBC (Gd-915) 5160±110 BP / 4242-3708 calBC (Gd-916) 5080±110 BP / 4225-3646 calBC (Gd-977) 5480±100 BP / 4515-4051 calBC (Gd-978) 5330±100 BP / 4349-3966 calBC	4500-3800 BC
Merimde (Hassan 1985)		(KN-3275) 5830±60 BP / 4834-4541 calBC (KN-3276) 5790±60 BP / 4782-4502 calBC (KN-3277) 5890±60 BP / 4932-4608 calBC (KN-3278) 5590±60 BP / 4541-4338 calBC (KN-3279) 5760±60 BP / 4728-4461 calBC (W-4355) 5750±130 BP / 4904-4345 calBC (WSU-1846) 5260±90 BP / 4331-3821 calBC	5000/4900- 4500/4400 BC
el-Omari (Debono & Mortensen 1990)		(KN-3933) 5690±70 BP / 4691-4369 calBC (KN-3934) 5500±65 BP / 4487-4234 calBC (KN-3994) 4790±60 BP / 3694-3377 calBC (KN-4177) 5740±80 BP / 4784-4376 calBC (KN-4178) 5580±70 BP / 4578-4268 calBC	4700/4600-4400 BC
Lower Egyptian Culture	Maadi settlement and cemetery (Rizkana & Seeher 1989; 1990)	(Beta-2804) 4730±60 BP / 3639-3372 calBC (Beta-2805) 5010±50 BP / 3951-3696 calBC (KN-3573) 5050±55 BP / 3961-3712 calBC (KN-3574) 4940±60 BP / 3939-3637 calBC (KN-3745) 4830±90 BP / 3797-3372 calBC (KN-3862) 4540±140 BP / 3631-2909 calBC (KN-3863) 4380±120 BP / 3485-2678 calBC (KN-3899) 5050±65 BP / 3972-3702 calBC (KN-3910) 4830±130 BP / 3946-3360 calBC	3800-3300/3200 BC
	Wadi Digla (Rizkana & Seeher 1990)	(KN-3865) 4800±140 BP / 3955- 3122 calBC (KN-3866) 4830±120 BP / 3942-3362 calBC	
	Buto (von der Way 1997)	(KN-4009) 3100±300 BP / 2190-558 calBC (KN-4010) 3620±300 BP / 2881-1301 calBC (KN-4011) 2990±130 BP / 1510-859 calBC (KN-4012) 2900±400 BP / 2200-166 calBC (KN-4013) 2810±140 BP / 1413-673 calBC (KN-4014) 2250±130 BP / 754-1 calBC (KN-4015) 5230 ±200 BP / 4457-3645 calBC (KN-4016) 3800±600 BP / 3907-844 calBC (KN-4220) 4380±150 BP / 3501-2620 calBC (KN-4249) 5720±70 BP / 4723-4374 calBC (KN-4446) 4980±400 BP / 4727-2762 calBC	
	Minshat Abu Omar I (Kroeper 2003b)	(KN-3061) 4440±55 BP / 3338-2923 calBC (KN-3062) 3970±120 BP / 2874-2147 calBC (KN-3068) 4480±200 BP / 3634-2794 calBC (KN-3069) 3960±55 BP / 2617-2286 calBC (KN3168) 4250±130 BP / 3331-249 calBC	

Lake. The traces left by its inhabitants include hearths and pits used for drying grains and/or as granaries. No traces of permanent residential buildings or burials were found, which could be related to the mobile lifestyle of the early farmers. Koms W and K were probably permanent settlements, where human groups settled on multiple occasions. A number of smaller camp sites were found in their vicinity, probably related to seasonal occupations, *i.e.* hunting, fishing and gathering (Wetterström 1993: 204-207).

Cultivation of wheat, three varieties of barley and flax constituted the fundamental occupation of Faiyumian farmers, while animal breeding played a minor role only. However, cattle, sheep, goat and dog bones were found in the sites. Agriculture was an addition to earlier means of subsistence, such as hunting for hippopotamuses and elephants, fishing, gathering snails. The small scale of agriculture and animal breeding probably reflected the specific local condition and the mobile lifestyle. The areas surrounding the Moeris Lake were an abundant ecological zone. When the lake's water level grew as a result of the Nile inundation, fish and semi-aquatic animals became easily available for linhabitants (Brewer 1989a; 1989b).

The pottery found at Koms W and K was made of the Nile clay tempered with sand and straw. Vessel surface was usually smoothed or burnished, becoming red (or rarely black) after burning. Among pottery forms one can distinguish simple globular vessels and cups with flat or rounded bases, pedestalled cups and large rectangular dishes with distinctive rims, connected to form four corners, possibly constituting an early type of handles. Cooking bowls and pots were also common – their fragments were found mostly in hearths. Faiyumian pottery was not ornamented, although a certain decorative effect was obtained by surface burnishing or by slip (Krzyżaniak 1977: 62-64; Hoffman 1979: 185; Ciałowicz 1999: 94; Midant-Reynes 1992: 103; Vercoutter 1992: 119-120).

An important part of the flint inventory of the Faiyumian culture were concave-base or tanged arrowheads, sickle blades with denticulated edges and leaf-shaped points. Flint tools are characteristic for high quality bifacial retouch. Rectangular or triangular diorite, limestone, volcanic ash and flint axes represent forty percent of the inventory from the excavations of G. Caton-Thompson and E. Gardner (1934). Only three of them were polished. The remaining axes were made by means of two techniques: traditional flint processing and burnishing. After the publication of the results of the studies held in the 1920s it was assumed that the flint industry of the Faiyumian culture was predominantly bifacial. However, this view was changed after Polish research held at the shore of the Quarun Lake by J.K. Kozłowski and B. Ginter (Ginter *et al.* 1980; Ginter & Kozłowski 1989). During their excavations, they probed into the previously excavated areas. 90% of the flint material found by them were flakes, while bifacial elements were found only occasionally. The flakes were knapped off from an unprepared striking platform of pebble cores. They were used to manufacture notches, denticulates, side scrapers and retouched flakes.

The only examples of stone tools known from the Faiyumian culture include a limestone chip, approximately boat-shaped, and a diorite fragment, most probably from a bowl. Also a diorite macehead (Ciałowicz 1987: 17), limestone and diorite discs, interpreted as

disc-shaped spindle whorls (Hayes 1965: 95) and limestone and diorite palettes of approximately oval shape are known from Faiyum. Limestone, amazonite and turquoise were also used for manufacturing disc, barrel and teardrop shaped beads (Hayes 1965: 95). Bones were used to make pins, awls, points, harpoons. Shells may have been used as spoons, and animal hides – as clothing, bags, vessels, *etc.* Another occupation of the farming communities from the Moeris Lake was weaving baskets, whose remains were found in storage pits.

On the basis of their own studies at the Qasr el-Sagha site, B. Ginter and J.K. Kozłowski (1989: 166-179) identified the Moerian, the youngest Neolithic culture in the Faiyum Oasis. Although originally treated as another developmental phase of the Faiyumian, eventually according to J.K. Kozłowski (1983: 38): "the differences are marked to such a degree that it may be said that the later part of the Neolithic sequence represents a distinct culture, most probably of a different origin". The differences between the two units were observed both in stone and pottery inventories and in habitation structures. J.K. Kozłowski and B. Ginter (1989) are of the opinion that the Moerian may have originated in the eastern Sahara, and its appearance was triggered by migrations from the Western Desert as a result of the land becoming dryer.

4.2. Merimde culture

The Merimde culture was identified on the basis of studies on a single site, *i.e.* the Merimde Beni-Salame settlement located on the south-western edge of the Nile Delta, some 60 kilometers north-west of Cairo. Throughout its entire history (at least 400 years), the settlement occupied a total area of approximately 20 hectares, but not necessarily at all times. Because of the meandering and withdrawals of the Nile the size of the settlement changed periodically. Every now and then its inhabitants would be forced to leave their homes and move elsewhere. The Merimde Beni-Salame settlement grew both horizontally and vertically. K.W. Butzer (1976) is of the opinion that if the entire site was ever inhabited at the same time, the number of inhabitants would have exceeded 16 thousand. According to M. Hoffman (1979: 169), who made comparisons with contemporary Egyptian villages, the number of Merimde inhabitants did not exceed 5 thousand. It should be remembered however that determining the population of a settlement is a challenging process and depends on the method followed. In the case of Merimde, both figures do not seem convincing. If one assumes that the settlement was settled on a rotational basis, then identifying the number of inhabitants at one time is either dramatically difficult or downright impossible for the lack of certain data (what part of the settlement was in fact inhabited during that time and for how long?).

The research at Merimde Beni-Salame was carried out by H. Junker from 1927/28 to the outbreak of the 2nd World War. In 1976 it was continued by Z. Hawass (Hawass *et al.* 1988: 32) and then from 1977 to 1980 by J. Eiwanger (1984; 1988; 1992).

H. Junker (1929-1940) identified 2 settlement phases in Merimde, separated by a transition phase. However, through more meticulous and methodologically correct studies, J. Eiwanger fine-tuned Junker's division and identified 3 functional phases of the settlement in a total of 5 layers. The first phase (*Urschicht*) was linked to the presence of an unknown culture with strong links with Levant. In phase II the settlement was inhabited by communities with strong African influences. In the opinion of J. Eiwanger the third phase (layers III/IV/V), was represented by local farmers. Each developmental phase of the Merimde settlement was claimed to correspond to the development of the community itself. While between phases I and II there was a clear, unexplained interruption in the settlement activity, phases II and III constitute two stages in the development of the same community. J. Eiwanger (1984: 61-62) linked the genesis of the Merimde culture to groups arriving from the east. According to him, somewhere near the year 7000 BC, southwest Asia suffered climate changes causing draughts. The inhabitants of affected areas were forced to migrate to the south and east, to more humid regions. The first of them to reach Merimde were kinds of reconnaissance groups who came to the Delta in search for new inhabitable areas. Because of the favorable location of the areas surrounding Merimde (fertile valleys and desert pastures) they decided to establish a permanent settlement, in particular along the main bifurcation of the Nile, where the river's abundant resources, transportation and fertile silt-rich soils were easily available. To avoid flooding during the annual inundation of the Nile, people settled on natural sandy hills (geziras). The theory on the Levantine origin of the Merimde community has not been fully confirmed so far. The relationships with the east are visible indirectly, *e.g.* in an incised herringbone decoration pattern on the local pottery, a bifacial surface retouch and early forms of polishing. Also, there are similarities between terracotta figures made locally and those made in the Natufian in Southern Levant. Also the presence of animals originally domesticated in the east (cattle, pigs, goats and sheep) could support the theory.

Settlement traces from the oldest phase in Merimde include remains of innumerous hearths, shallow storage pits, postholes and 15 graves. None of them formed any regular systems that could denote households or shelters. The underlying reason could be climate changes involving more precipitation, elevated water level and consequently flooding of the area. Organized, compact development was recorded in Merimde only in phase II, where postholes, storage pits and hearths were found. Most probably, dwellings took the form of rush and reed shelters, supported by little understood post structures. Settlement layout in phase III is the most discernible. In that phase, oval or horse-shoe shaped shelters were erected. They were fitted with wind shields with an entrance from the south-west, partially embedded in the ground. Walls were built of irregular lumps of mud mixed with chaff, and then their height was increased by organic materials (tree branches, reed or straw). Roofs were supported by a centrally located pole. As no entrance was provided in the wall, entering the shelter involved the use of special stairs propped against the internal wall. Shelters were 1.6 to 3m in diameter and were embedded to a depth of approx. 40cm. Inside shelters,

researchers found remains of hearths, embedded water vessels, mortars, hollows left by other vessels, as well as large, oval or round baskets embedded in the ground, most probably used for grain storage. In some shelters rows of small pits were found, most probably indicating the presence of partitions separating various functional areas inside the household. Mud-lined storage pits were located outside shelters, accompanied by large storage vessels. Another characteristic of the third phase are light-weight shields offering protection against wind and sun during various activities, such as cooking. Animal yards were enclosed by means of thorny branches (Eiwanger 1984: 9-14; 1988: 9-14; 1992: 8-13).

Graves too were discovered at the Merimde settlement. Numerous human burials were recorded. While pre-war research brought materials from 180 graves, J. Eiwanger discovered only another 40. The dead were buried in oval, shallow pits in contracted position on the right side (85%). Some bodies were placed on the left side or on the back. In most cases head orientation was to the north, north-east or east. Grave pits were lined with matting, and bodies were wrapped in mats or animal skins. Innumerous grave goods included animal bones (sometimes with traces of processing) and an average of two flint tools and a shell. In some cases, grains were scattered near the deceased's head, and the head itself and the forearms were powdered or painted with ochre.

Agriculture and animal breeding were known to the inhabitants of all the phases at Merimde. The basic forms of farming included cattle, sheep, pig and goat breeding. In phase II the role of cattle breeding increased. Agriculture was based on wheat, barley, sorghum and vetch cultivation. Due to the favorable geographical location, hunting was also an important occupation (semi-aquatic species: hippopotamuses, turtles, crocodiles, water fowl and terrestrial animals – antelopes), not unlike gathering (clams) and fishing (Wetterström 1993: 213-214).

The analysis of pottery from each consecutive phase shows only minor differences in fabric, vessel forms and decoration patterns. Phase I vessels were made of non-tempered silt. Vessel walls were thick and well burnt. The surface was either burnished, which gave it a dark pink color after burning, or smoothed which rendered brighter, orange-to-pink color. There was little diversity in vessel forms. Most of them were simple bowls with flat or rounded bottoms. The only form of pottery ornamentation was the incised herringbone pattern. In the same period ladles were manufactured as well (Eiwanger 1984: 18-39). Phase II saw the addition of chaff to the pottery paste used for manufacturing large kitchen vessels. Burnished and smoothed pottery was still made. The forms included cups, bowls (conical and hemispherical), usually with rounded rather than flat bottoms. One characteristic feature of this phase is the lack of decoration (Eiwanger 1988: 15-33). Phase III brought gradual transition from open to closed forms, such as bottles with an unusual horizontal polishing on the neck and vertical polishing on the body, footed vessels sometimes with anthropomorphic forms, and finally miniature vessels. The inventory was dominated by pottery with a significant amount of coarse admixture. Vessels were decorated with knob-like relief and with vertical and horizontal bars or incisions consisting of several straight lines (Eiwanger 1992: 14-42).

The flint industry of Merimde Beni-Salame also shows the transition from the blade technique to the bifacial technique. Blade and flake tools, one or double sides retouched (endscrapers, borers, axes and arrowheads) were characteristic for phase I. Bifacial retouch was used only for making the cutting edge (*e.g.* axes). Considerable quantities of sickle blades have been found (Eiwanger 1984: 40-52). Phase II was characteristic for the core industry with strong African influences. The development of the bifacial technique was still visible. Pressure retouch was commonly used. The basic tools known from Merimde include endscrapers, perforators, sickles and axes. Most axes had polished edges (Eiwanger 1988: 34-39). In phase III (layers III/IV/V) the bifacial technique was further developed. New tools appeared, such as multiple perforators, flake scrapers, endscrapers and arrowheads with polished wings and a special form of polishing making pressure retouch easier. In this phase, specialized flint processing workshops first appeared. Triangular concave-base arrowheads and leaf-shaped tanged arrowheads of an oval or nearly triangular outline are characteristic for all settlement phases (Eiwanger 1992: 43-58).

As far as stone goods from Merimde are concerned, one should mention those found in all the phases, *i.e.* hand-mills, grinding stones, basalt vessels, spindle whorls and limestone weights, as well as turquoise, agate and bloodstone beads, shield-shaped palettes and two fragments of pear-shaped maceheads made of alabaster and another hard stone. Among goods made of organic materials, particular attention is drawn to harpoons with three barbs, simple pins and awls made of bone with grooves for fastening thread, a bone fragment interpreted as a hair pin, pendants made of dog fangs, shell hooks, beads of cut ostrich eggs and ivory, an ivory bracelet and a small axe with a transverse blade, made of a hippopotamus rib (Eiwanger 1984: 53-58; 1988: 40-50; 1992: 59-71).

Clay figurines were discovered in Merimde as well. Materials from phase I include an anthropomorphic figurine and a fragment of a bull figurine (Eiwanger 1984: 53, pl. 63:I.1172, I.1174). In its turn, phase III brought the first human depictions known from Egypt: an anthropomorphic figurine with visible hair, eyes and breasts (Eiwanger 1992: 59, pl. 89:IV.952) and an oval, 12-centimeter head with two eye sockets, a flat nose and a small open mouth (Eiwanger 1992: 59, pl. 88: V.196).

4.3. El-Omari culture

The site which gave rise to identifying the el-Omari culture is located at the mouth of Wadi Hof, 3 km north of Helwan. It occupies the side of a gravel terrace at the outlet of a limestone massif of Rashof, stretching over an area of approximately 700 x 500m. The site was excavated in the beginning of 20th century by Amin Omari. After his death, the project was continued by P. Bovier-Lapierre (1926a; 1926b). In 1943 F. Debono started another study that continued until 1952 (Debono & Mortensen 1990).

It was originally assumed that the Wadi Hof site was a compound of three settlements and two cemeteries. Currently it is considered to have been one big settlement within which 9 settlement phases have been identified. The settlement is divided into sectors (Debono & Mortensen 1990).

Initially, determining the relative chronology of the el-Omari culture, named after its discoverer, was quite problematic. Eventually, B. Mortensen and F. Debono placed it between the Merimde culture (contemporary to it to some extent) and the Lower Egyptian culture. However, it is generally accepted there was no cultural continuity between both units. According to F. Debono and B. Mortensen (1990: 82), the genesis of the el-Omari culture was local, although its pottery, stone inventory, constructions and burial customs show strong links to Southern Levant. It seems likely that just like in the case of the Merimde settlement, a group of migrants forced out of the east by drying climate settled in Wadi Hof.

The economy of the inhabitants of Wadi Hof did not differ from the economy of the farming communities in Faiyum and Merimde. Cultivated crops included wheat, barley, peas, horse beans and flax. Cattle, pigs, sheep and goats were bred, and dogs were kept. Hunting aquatic and terrestrial animals (fowl, crocodiles, hippopotamuses, turtles, antelopes, ostriches) continued to be important, and so was gathering (clams, wild figs, dates, wild sugar cane – *Saccharum spontaneum*) and fishing (Hoffman 1979: 196-197; Wetterström 1993: 214) .

The remains of the settlement include large round, oval or irregular pits, 50 to 250cm in diameter and 50 to 110cm deep, both being remains of habitation structures. There also are storage pits (sometimes lined with wicker mats) and innumerous hearths. Attention is also drawn to large pits with hearths, embedded vessels and postholes, surrounded by smaller recesses, probably forming residential units. The walls and floors of the biggest pits were lined with mats, clay or wicker (in this particular case they were closed with a lid). In some pits, remains of small poles supported with stones were found – they could have constituted structural elements of light-weight superstructures. Marks left by bigger poles (20 x 15cm) were also found – these could have been used as roof supports. In some cases there were smaller recesses between the poles, probably remains of internal wall structures (Debono & Mortensen 1990: 17-23).

Like in Merimde, the el-Omari culture buried its dead in uninhabited parts of the settlement, in pits that may have been previously used for storage or habitation purposes. A total of 43 graves were recorded. According to F. Debono and B. Mortensen (1990: 67-77), the settlement operated a premeditated burial system. Men's graves were located in the western part of the settlement, while women and children were buried in the east. Oval burial pits were sized 90-120 x 70-110cm and were up to 40cm deep. Postholes were found in the vicinity of two pits, possibly remains of an unidentified superstructure. Sometimes pit edges were lined with stones. Bodies were placed in a contracted position on the left side, with the head to the south and the face to the west. A stone or a "cushion" made of organic materials would be placed under the head. Pit bottoms were lined with mats made of organic

materials. In some cases such mats were also used to cover the body. In one case only the body was wrapped in a mat. Grave goods were very scarce, consisting of vessels placed near the face, arms or knees of the body, as well as drilled-through shells, and beads made of ostrich egg shells, bones and stones. Attention is drawn to a 35 centimeter stick, found in one of the graves. Since it resembles a phallus, it is interpreted to be a symbol of power or magic. In two children's graves, antelope skeletons were found as well. Traces of flowers were found on one of the skeletons, possibly related to some unknown rituals. Hearths and stone rings (probably remains of funeral parties) were also found near graves.

The prevailing type of clay vessels found at the el-Omari culture settlement is monochromatic pottery covered with red slip, of burnished or smoothed surfaces. Two types of raw materials were used to manufacture vessels: desert clay and marls from wadi. Organic (and sometimes mineral) temper was added to the clay. Most of the el-Omari vessel forms include simple bowls, plates, basins and beakers. El-Omari pottery is not decorated. In terms of technology and forms, el-Omari pottery differs from Faiyumian and Merimde pottery. More similarities can be found between el-Omari pottery and the Southern Levantine Chalcolithic tradition (Debono1992: 1-6; Debono & Mortensen 1990: 24-40).

Flint inventory was local in character. Developmental trends in the flint-making tradition were similar to those known from Merimde and Faiyum. The older phases were dominated by flake and blade tools, whereas in the younger layers bifacial elements were commonly found. The raw material came from a local source. Cores were made of pebbles and nodules of flints from the area of Abu Rawash, some 20km from Wadi Hof. Semi-finished products (large blades of grey flint) were also imported. Flakes were knapped off pebble cores and then used to make small bifacial axes with polished edges, concave-based arrowheads and sickle blades. Bigger flakes were used to make scrapers, backed blades, perforators, endscrapers, burins and denticulates. In the last phase of the el-Omari culture, large grey flint blades were used to make distinctive knives with straight cutting edges bearing traces of rough, coarse retouch. The other, retouched edge was bent in the distal part (Debono & Mortensen 1990: 40-53).

The remaining artefacts found in the el-Omari culture settlement are scarce and rather unimpressive. One could mention fragments of stone vessels of basalt and calcite, two quartzite palettes (rectangular and oval) and several bone needles and pins (Debono & Mortensen 1990: 53-61).

Chapter 3

Southern Levant in the Chalcolithic and the Early Bronze Age I

1. Chalcolithic period (4500-3650 BC)

In the Chalcolithic, Southern Levant saw a number of important changes over the preceding Neolithic, such as rapid population growth, emergence of specialized craftsmen, introduction of metallurgy, advent of public sanctuaries and burial grounds, and appearance of settlement centers where social, economic and religious activities were coordinated (Levy 1992b: 65-82; 1995: 226).

In the area of Canaan archeologists identified several regional cultures or cultural complexes, typical for the Chalcolithic (Fig. 2). The best known (and best investigated) ones include: the Ghassulian culture in the Dead Sea area, the northern Negev and territories located west of the Mediterranean; and the Beersheba culture in the northern Negev. Due to major similarities, both cultures are commonly seen as a single cultural complex. Although their origins have not been fully explained yet, it is generally accepted that Chalcolithic cultures were founded on late Neolithic cultures, including *inter alia* the poorly defined Qatafian and Besorian cultures (the latter was identified in the northern Negev) (Goren 1990; Levy 1995: 229). However, in the opinion of I. Gilead (2007: 45-46, tab. 3) the Qatafian should be regarded as a Late Neolithic culture, since both culturally and chronologically it is too distant from the Ghassulian. Moreover, according to the same researcher the Besorian can be treated as a transitional late Neolithic to Chalcolithic entity, and a precursor of the Ghassulian. An alternative view is presented by S.J. Bourke (2007: 29), who is of the opinion that both the Ghassulian and the Besorian culture most probably originated from the still little understood Late Neolithic cultures of the North Jordan Valley. This view is based on the similarities in economic strategies as well as in pottery and flint inventories. Apart from Ghassulian and Beersheba cultures other, less explored Chalcolithic cultural complexes were identified in the area of the Jezreel (Megiddo, Hazor, Tell Shimron), in the highlands of Samaria (Tell el-Fara North), the Jordan Valley (Beth Shan) and on the Golan Heights (Joffe 1993: 33-35). Towards the end of the Chalcolithic the youngest Chalcolithic group appeared in the Judean Desert in Southern Levant.

Chalcolithic populations subsisted on agriculture and animals breeding. One of the novelties of the period is the domestication of fruit trees: olive, pomegranate, date palm and fig. Most probably, also flax was an important crop of this period (Gonen 1992: 61;

Grigson 1995: 250). T. Levy (1992b: 65-82; 1995: 232) also attributes pastoralism to Chalcolithic communities, particularly those inhabiting the Beersheba Valley, where sheep and goat bones prevail in most sites (*e.g.* in Shiqmim – 90%). According to T. Levy (1995: 232) „this developed form of pastoralism involved the use of specialised population, namely herders, who took village animals on an annual cycle in search of seasonally available pasture". Apart from animal breeding, Chalcolithic communities in the Beersheba Valley busied themselves with plant cultivation. According to O. Bar-Yosef and A. Khazanov (1992: 1-9), the presence of agriculture in the Chalcolithic pastoralism offered greater stability to the population, making it less dependent on external sources of supply. C. Grigson (1995: 264) coined the term "agro-pastoralism" to describe this subsistence system, consisting of less integrated plant cultivation, animal keeping and partial seasonal transhumance. According to her, the compound term more adequately reflects the system's complexity.

Chalcolithic economy triggered the formation of a settlement system featuring large principal settlements with satellite campsites. Such centralized settlements were established mostly in valleys, alongside water reservoirs in semi-arid and steppe areas (Elliott 1978: 38; Levy 1992b: 65-82).

One of the most important sites from the period is Teleilat el-Ghassul, an unfortified settlement situated on twelve small mounds. The settlement's arrangement was irregular, with rectangular or trapezoid buildings and foundations of unworked fieldstones and mudbrick walls, separated by narrow walkways. Almost all excavated houses were similar to one another in terms of structure and layout. Some of them, however, were larger than others, which implies that they may have had a public function (Gonen 1992: 49-59). In several houses, remains of colorful murals were discovered on the walls, showing geometric, anthropomorphic and zoomorphic (avian) motives. Currently, the murals are interpreted in the context of cult activities (Gonen 1992: 71-72; Bourke 2002: 160).

Other items discovered in the settlement include numerous granaries and storage pits, confirming the importance of agriculture for the settlement's economy (Aharoni 1982: 36; Maisels 1999: 120; Bourke 2002: 159). Sites with similar structures are also known from the Golan Heights, the Jordan Valley and the Beersheba region, *e.g.* at Rasm Harbush or Faza'el (Gonen 1992: 50).

Apart from major, permanent settlements, smaller seasonal settlements used by pastoralists were also common in the Chalcolithic (*e.g.* En Yahav). At the end of the annual migration season they would be abandoned and never resettled. They are characteristic for the presence of diverse traces of human activities (pottery, flint tools, hearths) and the lack of permanent structures (Gonen 1992: 49).

In the Chalcolithic people also used caves as dwellings. Some of them were used for burial purposes as well. The most famous one, known as the Cave of the Treasure, is located in Nahal Mishmar. Inside the cave, a hoard was found containing 442 different objects: 429 of copper, six of hematite, one of stone, five of hippopotamus ivory, and one of elephant

ivory. The objects in the Nahal Mishmar hoard appear to have been hurriedly collected. Therefore it has been suggested that the hoard was the sacred treasure belonging to a shrine at En Gedi, some twelve kilometers away.

The settlements in the Beersheba Valley are characteristic for pit houses dug into loess and consisting of several small oval rooms connected with one another by means of corridors (*e.g.* Shiqmim). According to T. Perrot (1984) these structures were a form of adaptation to dry climate. I. Gilead (1988) regards them as storage facilities accompanying open-air settlements. In the opinion of T. Levy (Levy *et al.* 1991) they were used not only for storage, but also for defense purposes. In the younger stages of the Beersheba culture the tradition of digging pit houses was discontinued and replaced with rectangular above--ground structures with foundations of unworked fieldstones and mudbrick walls (Levy 1995: 229).

The burial customs of the Chalcolithic have not been well understood yet, due to the scarcity of findings. While the dead were still buried inside settlements, formal cemeteries separated from permanent settlement sites were introduced. At the settlement in Teleilat Ghassul several inhumation graves were discovered, such as children's graves in ceramic pithoi jars (Bourke 2002: 159). In the recent years, in the vicinity of the settlement in Adeimeh a Chalcolithic necropolis with circular tumuli and rectangular cist graves was discovered (Mazar 1990: 79; Levy 1995: 235). A similarly diverse grave structure was recorded in Shiqmim, another well-known necropolis, where circular graves filled with burial offerings, cist graves and small tumuli clustered in groups were found. In the Beersheba Valley, attention is drawn by mass pit graves with remarkable stone foundations and possibly brick superstructures (Mazar 1990: 82).

Numerous chalcolithic cemeteries have been discovered along the Israeli littoral, *i.e.* in Azor, Hedera, Benei Braq, or Ben-Shemen. They feature natural or artificial caves dug into the Kurkar ridges, into which ossuaries were placed. Ossuaries were animal or house-shaped clay urns holding burnt human remains (Gonen 1992: 74, fig. 3.24-26; Levy 1995: 235). The question of the community that followed this particular burial custom is still disputed among researchers. Formerly, in the absence of settlements contemporary to those necropolises, some scholars claimed that the caves were used by the communities inhabiting the Teiliat Ghassul area and the Beersheba Valley (Aharoni 1982: 45-46; Gonen 1992: 75). However, new cemeteries discovered in the area in the recent years pose a challenge to those claims. Thus one cannot preclude that this particular burial custom was characteristic for the inhabitants of the area where it was recorded (Joffe 1993: 33).

Many scholarly debates concentrate on the question of organization of Chalcolithic societies. On the basis of field research in Shiqmim, T. Levy and D. Alon (1982; 1989) assume that already in the Chalcolithic there could have existed chiefdoms centered around conical clans with lineages controlling the territory. According to T. Levy (1995: 235) the grave from the cave at Nahal Qananh, where a large number of golden objects were found, may denote

a special social status of the deceased. Thus, it may be the evidence of a hierarchical social organization in the Chalcolithic society. However, there also exist theories stressing the low degree of social complexity of Chalcolithic societies (Gilead 1988: 429, 434-435).

One of the key features of the Chalcolithic period is the production of metal objects – both copper and gold. Apart from those objects, sites from the period revealed also slags, crucibles and metal working installations. Furthermore, metal ware was manufactured using the sophisticated 'lost wax' method, which indicates a solid understanding of metal working techniques.

The material used for manufacturing metal goods was copper sourced from the Feinan mining district, situated approx. 50 km south of the Dead Sea. The most recent study at Tall al-Magass, Aqaba showed that also the Timna ore district at the southern Wadi Araba was a source of copper used for manufacturing purposes in the period in question (Hauptmann *et al.* 2009).

Thus far, there have been discovered 17 sites in Southern Levant where metallurgy was carried out (Pfeiffer 2009). However, in only 5 of them (Tall Hujayrat al-Ghuzlan, Tall al--Magass, Tall Ash-Shuna, Abu Matar and Wadi Fidan 4) the complete metallurgical chain could be detected. In most sites, only traces of ore processing and smelting activities are visible. Therefore it is assumed that casting activities could be carried out in few sites only. According to K. Pfeiffer (2009: 337) this could be linked to the availability of specialized metalworkers or special orders originating in the social group.

The first reconstruction of the copper ware manufacturing process became possible thanks to the study carried out in at Abu Matar the 1990s, where a metallurgy workshop had been discovered (Perrot 1955; 1984; Shugar 2001). Another important site that provided ample information on Chalcolithic metallurgy is Shiqmim (Golden *et al.* 2001).

According to A. Shugar (2001: 79-80), high grade carbonate copper ores were mined and minimally beneficiated. The concentrated ore was transported to sites in the Beersheba Valley, where after selection the highest grade copper ore was smelted in crucibles placed in a hearth-type ground furnace. After the first smelting, copper was then resmelted for casting. Additional information on Chalcolithic metallurgy comes from the study held in Shiqmim. All of the evidence for metal production on this site, including ore, slag, refractory ceramics and metal registered in Shiqmim indicates that there were two separate industries: one focused on complex metals and the other on 'pure' copper (Golden *et al.* 2001: 961). Each of the industries produced different types of objects. Complex metals were used to manufacture prestige items, while utility appliances, such as axes or awls, were made of the relatively pure copper. The research on the origin of copper used for manufacturing both product groups caused a great deal of controversy due to the high arsenic content in items made of complex metals. Probably, arsenic was intentionally added to copper to change its properties (improved casting, altered color, lower melting temperature) (Shugar 2001: 90). As copper sourced from the Sinai does not contain arsenic and no arsenic ore deposits have been discovered in the vicinity of the Feinan mining district, it has been assumed that arsenic

ores were brought in from Anatolia (Shugar 2001: 83). In addition, on the basis of available data it has been determined that while pure copper artefacts were probably manufactured in such sites as Abu Matar, Bir es-Safadi and Shiqmim, there are no traces of complex metal castings in Southern Levant. Therefore, it is assumed that such artefacts were supplied to the sites either as finished goods or in the form of metal for local casting (Golden *et al.* 2001: 952). However, the theory of the local manufacturing of items made of arsenic containing copper is also supported – according to T. Levy (1995: 234) – by the finding of a copper macehead in Shiqmim, whose core was made of local Arava glaucaunitic chalk.

The presence of arsenic in the metallurgy of the period allowed researchers to investigate the organization and social status of Chalcolithic metallurgy from yet another angle. Arsenic is an element which can deposit in bone from respiratory exposure. Studies held at the Shiqmim settlement showed that metal tools manufactured at that site contained small amounts of arsenic (0.08%). Therefore, researchers assume that the bones of people who were involved in manufacturing those tools should contain trace amounts of arsenic. Thanks to the fact that a necropolis was discovered at Shiqmim as well, it became possible to identify the graves of metallurgists by means of specialist bone analyses. Consequently, their social status and role can be determined by reference to burial customs. Although the analyses are still under way, the results achieved thus far are promising. They can be helpful in understanding the processes of forming a complex society in the end of the 5th and in the 4th millennium BC (Oakberg *et al.* 2000: 895-901).

The high social status of metallurgists can also be inferred from the fact that metallurgic operations in the Chalcolithic were not carried out on an "industrial" scale, because the process was enormously labor-intensive. Experimental studies at Shiqmim showed that in Chalcolithic conditions, the smelting time necessary to obtain approx. 3 grams of metal was 45 to 60 minutes. Given that a small Chalcolithic copper axe weighs approx. 100 grams, it took 30 hours of a metallurgist's work to obtain the necessary amount of raw material. The workload, and thus the value of the item and the expertise possessed by metallurgists, could have determined their social status. However, due to the small number of research projects the currently available data remain inconclusive.

Pottery is another important element of the Chalcolithic cultures of Southern Levant. Chalcolithic pottery was hand made and usually only the top parts were turned. The repertoire of pottery types is fairly well developed. The most characteristic are V-shaped bowls with a red painted ribbon under the rim, small-size vessels on a high, fenestrated pedestal, large storage vessels (*pithoi*) and various kinds of jars. Pottery could have been decorated with painted geometrical motives (triangles, crescents, zigzag lines), engraved patterns and rope or finger impressions (Amiran 1969; Aharoni 1982: 36-39; Gonen 1992). The pottery from the Beersheba Valley is slightly different: cornets and vessels with rope impressions are very rare here. On the other hand, there are a number of new items, such as churns or pottery made of kaolin clay, with notably cream-colored surface (*Cream ware*) (Kellner & Amiran 1953: 11-14; Amiran 1969; Amiran *et al.* 1978: 6; Levy & Menahem 1987: 313-331; Gonen 1992).

Flint inventory is represented by a wide array of tool types, such as tabular scrapers, fan scrapers, sickle blades with denticulated working edges and axes with retouched longer edges and polished working edges (Elliott 1978: 38; 44-45; Gonen 1992).

Other remarkable artefacts found at Chalcolithic sites include bone ware – handles, pendants, awls and figurines of bearded males and naked females. The last of those groups draws one's attention with precise workmanship (Aharoni 1982: 42-43; Gonen 1992: 72, fig. 3.22). Particularly noteworthy are ivory figurines of Bir Safadim, where an ivory workshop was unearthed (Gonen 1992: 71).

The establishment of public sanctuaries – in Teleilat Ghassul, En Gedi and Gilat is one of the more important features of the Chalcolithic. All of them are different in terms of form, location and assemblages (Gonen 1992: 63-66; Levy 1995: 236). En Gedi is particularly noteworthy. While the assemblage found in the temple itself was rather poor, it is believed that from this very temple had come the cache from the Nahal Mishmar cave (some 12km south-west of En Gedi) (Aharoni 1982: 43-45; Gonen 1992: 64). The cache consisted of 442 items, probably of prestigious character, *e.g.* crowns or scepters (Gonen 1992: fig. 3.15-19).

Taking into perspective all aspects of material and symbolic culture of the communities inhabiting southern Levant in the Chalcolithic one can easily see a sophisticated social structure. Specialized metallurgic, flint processing and stone processing activities had clearly formed (Levy 1995: 232). Workshops manufacturing products on a mass scale coexisted with those specializing in cult or prestigious items. According to T. Levy (1995: 238), a new social organization – the first chiefdom – emerged in the Chalcolithic. The establishment followed by strengthening of elites in the Chalcolithic is related *inter alia* to craft specialization and metal working. Control over metal production created a basis for social inequality in the Chalcolithic society.

In the Chalcolithic period also the Sinai was under the cultural influence of the Canaan. Pastoral campsites of the period concentrated in the eastern part of the southern Sinai. As a result, the material culture of those communities was technologically and stylistically convergent with Southern Levantine materials (Yekutieli 2002: 429-432). However, the Sinai had its own, distinct burial custom. Pastoral communities buried their dead in *nawamis* graves – round chambers built of stones (Mazar 1990: 82; Finkelstein & Perevolotsky 1999: 67-80).

Towards the end of the 4th millennium BC, Chalcolithic settlements in Southern Levant were deserted. Only in the Beersheba area cultural continuity between the Chalcolithic and the Early Bronze Age was preserved. The reasons for those changes have not been fully explained and disputes concerning the genesis of Early Bronze cultures still continue. Various arguments have been presented, including natural disasters (draughts, epidemics, earthquakes), weakening of social and political structures (and thus economic structures related to them), as well as an external interference caused by a wave of immigrants (Elliott 1978: 48-50; Aharoni 1982: 47, 51; Mazar 1990: 89; Joffe 1991: 8-11; Gonen 1992: 79-80; Levy 1995: 241). The still mysterious period of transition between the Chalcolithic and EB I lasted ca. 300-200 years (Braun *pers. comm.*).

2. Early Bronze Age I (3650-3000 BC)

As for EB I, two main cultural provinces (northern and southern) have been identified. Their borders were not permanent and shifted throughout EB I. The northernmost sites in the northern province include Rosh Hanniqra and Lawieh on the Golan Heights. The southernmost ones were Palmahim Quarry and Jericho (in the late EB I Jericho was already part of the southern province). The eastern border of the northern province was marked by the Jordan Valley. The southern province included: part of southern Samaria, the Judean Valley, Negev, southern part of the Sharon plain, the Mediterranean littoral to the boundary of the Sinai (Fig. 2). By the late EB I the province additionally included the Jordan Valley and the Dead Sea area (Braun 1996).

The prevailing division into northern and southern province was originally based on materials recovered from necropolises. In addition, in the 1960s and 1970s researchers had access to little amount of precise information on EB I chronological sequence. It was only through the new discoveries from sites of precisely determined stratigraphy that a more precise periodization of EB I became possible. On the basis of the most recent data, E. Braun (1996) identified four horizons within the two provinces: north-central (Yiftahel, Palmahim), north-eastern (Tell Umm Hammad), south-western (Nizzanim, Site H, Taur Ikhbeineh) and south-eastern (Bab edh Dhra'). The purpose of the division was to reflect not only on geographical diversity, but also on chronological variations in Early Bronze pottery.

The transition from the Chalcolithic to EB I period is a very complex issue, as numerous scholarly disputes in the literature illustrate (*cf.* Braun 1996: 4; Gophna 1995a; Levy 1995). One of the key issues addressed in those disputes is the lack of continuity between Chalcolithic and Early Bronze communities. Extreme demographic decline of the Chalcolithic population and complete disintegration of the settlement pattern are generally accepted. Likewise, differences in burial customs, architecture and various artefacts are so significant that – according to most researchers – they are indicative of the lack of cultural continuity between the Chalcolithic and EB I. However, in the face of unexplained mechanisms of the Chalcolithic – EBI transition, the question remains open. Some scholars believe that the assumption of discontinuity over the entire Canaan territory is a certain form of simplification. Already in 1996 E. Braun (1996: 12-28) pointed out to possible continuation of some Chalcolithic elements by EB I communities, *e.g.* in pottery production. In his opinion the transition should be reevaluated together with the entire understanding of what constitutes EB I in the Southern Levant. One of the key tools for understanding the transition are studies held at sites where continuity from the Chalcolithic to EB I was preserved, such as Ashqelon (Braun *in press*). They can provide information on an existing link between Chalcolithic and EB I societies.

The disappearance of Chalcolithic and emergence of Early Bronze cultures in southern Levant was linked to profound economic, social and political changes. In the early EB I the settlement system changed. Humans moved to hills, plains and valleys with predominantly

Mediterranean climate, where average annual precipitation exceeded 300mm (Ben-Tor 1992: 83). Unlike in the Chalcolithic, the northern areas of the Canaan became the main settlement zone, with almost 90% of all EB I sites. However, not all Chalcolithic settlements became deserted. According to A.H. Joffe (1993: 47-48) some of them (*e.g.* Tel Telo, Meser, Tel Halif, Palmahim) show traces of settlement continuity. According to R. Gophna (2001: 269), the appearance of EB I communities in Chalcolithic settlements was caused by their favorable location – easy access to water and cultivation areas.

Environmental changes in the beginning of EB I made typical, extensive Mediterranean economy possible. According to A. Ben-Tor (1992: 84) agricultural patterns prevalent before the Chalcolithic period were restored. In addition, ecological conditions in highland areas were conducive to agricultural specialization. Hill slopes were excellent for the cultivation of vines and olive trees. Social and political stability of Early Bronze societies was favorable to the production of those two crops. The importance of stable conditions derives from the fact that both vines and olives become profitable only after a relatively long period of time. Olive trees yield fruit only after two decades; similarly, wine of adequate quality can be made of grapes picked from mature bushes. Consequently, agricultural specialization required many years of work on the one hand and contributed to stability and internal development of EB I society on the other (Finkelstein & Gophna 1993: 13). EB I also saw a growth in vegetable and fruit production (figs, almonds, dates, plums, pomegranates) intended as a supplement to food supplied by pastoral economy (meat and milk products). To some degree, agricultural development was also caused by the use of oxen for land farming (Ben-Tor 1986: 1-27; Levy 1992a: 65-82). Only in semi-arid areas of the Canaan and in the northern Sinai pastoralism continued to be the main economic strategy (Mazar 1990: 97).

Population number and density also grew in EB I. Pastoral communities gradually shifted from nomadic to sedentary lifestyle. New, large settlements emerged (*e.g.* Megiddo, Beth Shan, Beth Yerah, Tell el Fara, Jerusalem, Lachish) and then evolved into the main cities of the Canaan in EB II. New settlements were established in locations offering the presence of three factors: water, arable land and trade routes. Some sites (*e.g.* Tel Erani) may have been surrounded by defense embankments. Larger settlements-towns together with their satellite sites formed autonomous social and spatial units (Ben-Tor 1986: 1-27; Portugali & Gophna 1993: 164-186). In some of them remains of cult structures were discovered (*e.g.* Jericho, Ai, Megiddo). According to A. Ben-Tor (1992: 87) there is a continuity in the design of these temples from Chalcolithic to EB I periods. Certain changes are also observed in settlement architecture, although caves and pit houses were still inhabited (Sebag 2005: 224). Characteristic EB I elements include curvilinear architecture with oval, sausage shaped or round buildings with fieldstone foundations and brick walls. Bigger buildings may have had several rooms with floors paved with flat stones (*e.g.* Yiftahel) (Braun 1989: 20-24; 1996: 13). The younger phase of EB I saw the emergence of rectilinear structures with stone foundations and mudbrick walls, floors slightly embedded in the ground, and stone pillar bases (Andelković 1995: 15).

Concentration of a large number of people in one place triggered the development of a food supply system. In Jaffa, a fortified town of an area of 25 acres, a special water supply system was introduced (Mazar 1990: 97). Inside settlement towns herds of lactating and young animals were held. Herds of males were pastured by specialized shepherds outside settlements (Levy 1992a: 65-82). Specialization was also visible in other professions – for instance, it was in EB I that merchants first emerged as a social group (Ben-Tor 1986: 1-27). The structure of Early Bronze communities was still based on independent clans or lineages. However, the best organized, most wealthy and most productive groups constituted an early form of elites. Stratification was further driven by specialization in agriculture and trade exchange of wine and olive, for instance with Egypt, because it offered the elites access to prestigious goods which denoted their social position (Joffe 1993: 61).

In EB I the dead were typically buried outside settlements. While graves within settlement boundaries are not unheard of, this particular custom was reserved first of all for children and disappeared altogether in late EB I (Braun 1996: 23). Like in the Chalcolithic, caves were used repeatedly by removing old skeletons. Mass graves were common, and the number of individuals buried together varied from several to nearly 200. Although some traces of cremation have been found (*e.g.* at Gezer and Azor), this particular practice was not widespread. Grave goods consisted mostly of pottery and – very rarely – of copper items (Ben-Tor 1992: 88; Andelković 1995: 15). Oval mass grave structures made of mudbrick appeared during EB I (Mazar 1990: 98).

While at the first glance it may seem that there is no continuity in pottery production between the Chalcolithic period and EB I, E. Braun (1996: 18) suggests that in certain cases the early EB I pottery may have drawn inspiration from the previous period. E. Braun notes that EB I pottery is characteristic for certain innovations, such as „thumb impressed/wavy-line ledge handles, small rounded or hemispherical bowls, carinated bowls with or without protrusions or sinus lines on the carination, high loop handles, bag-shaped vessels and *pithoi* jars with wide bases, splayed rims and distinctive fabric and surface treatment known as *Gray Burnished ware*".

When analyzing EB I pottery, one can distinguish two horizons: northern and southern. Red Burnished ware is characteristic for the northern EBI. As far as forms are concerned, the dominating ones include various kinds of bowls and jars, amphoras and mugs of relatively thick walls. Vessels could be decorated with a painted net pattern, colored brown, red and/or yellow (band slip and grain wash). Other typically northern items include *Gray Burnished ware* with specific carinated bowls. In its turn, the southern horizon was characteristic for *Line Painted Group ware*. The surface of vessels belonging to this ware (bowls, plates, jugs, amphoras and mugs) was covered with painted straight or wavy lines forming a net pattern or a zigzag.

A. Ben-Tor (1982: 1-27) noticed a functional change in Early Bronze pottery as compared to Beersheba and Ghassulian cultures pottery, reflecting a change in the economic system used by Early Bronze cultures. In the Chalcolithic, most vessels were wide-mouthed,

which is useful in an economy based on the use and processing of milk. In EB I, narrow--mouthed vessels (jugs, bottles) became the most popular for storing liquids. Changes in the repertoire of vessel forms were followed by changes in technology. In the Chalcolithic vessels were made of clay containing aluminum and lime. Vessels made of this material were used for storing water or milk, but were impractical for highly acidic liquids. In EB I clays containing silicates became a popular material that reduced the permeability of vessel walls.

Changes in the economic system also affected Early Bronze flint production. With a growing importance of plant cultivation the number of flint tools used for pastoral purposes (*e.g.* arrow heads) was reduced. The basic flint tool of the period was the Canaanite blade with a characteristic sickle-gloss of one of the edges, as well as tabular scrapers (Rosen *in press*).

Thus far, only a small number of EB I copper weapons and vessels have been identified. The most famous finding is the cache of Kafr Monash, containing 35 tools and weapons (Tadmor 2002: 239-251). However, a recent study held in Shuna, Ashqelon-Afridar, Nahal Tillah-Halif Terrace and Arad provides evidence confirming a more widespread metallurgic production (*e.g.* Golani *in press*). As compared to the Chalcolithic, the organization of metallurgic production changed as well. Strong specialization and concentration of manufacturing in a single workshop is well visible, *e.g.* in Abu Matar (Golden 2002: 226, 235).

The end of EB I and the beginning of EB II again saw important political, social and economic changes that eventually led to the formation of a fully urbanized and centralized society (Portugali & Gophna 1993: 164-186). However, this transformation is seen as a continuum and another stage in the development of Southern Levantine communities (Joffe 1993: 64).

PART II

LOWER EGYPTIAN CULTURE

Chapter 4

Lower Egyptian settlement system

Lower Egyptian culture communities settled and buried their dead in areas located above the level of annual inundations of the Nile. Settlements were clustered on sandy hills, known as geziras (typical geological formations in the Nile area, *e.g.* at Buto – Tell el-Fara'in, Mendes, Sais – Sa el-Hagar, Tell el-Farkha, Tell el-Iswid, Tell Ibrahim Awad, Tell el-Murra), or at the boundary of a high plateau and inundation terraces (Rizkana & Seeher 1989: 74; van den Brink 1989: 59-61; 1992b: 43-44; Wenke 1991: 298; von der Way 1997: 38; Chłodnicki & Cialowicz 2000: 73; Butzer 2002: 83-97; Chłodnicki 2012). Furthermore, archaeological surveys' in the eastern Delta held from 1984 to 1987 revealed a concentration of archeological sites along water courses: *e.g.* Tell el-Farkha, Tell el-Iswid and Tell Ibrahim Awad, located at the currently non-existent canal running almost perpendicularly to the Tanitic branch of the Nile (van den Brink 1993: 296).

Necropolises were most probably set up near settlements, *e.g.* in Maadi some 180 meters from the southern boundary of the settlement. Cemeteries were located on prominences to prevent flooding by the Nile, *e.g.* in Wadi Digla, Heliopolis (Debono & Mortensen 1988: 9; Rizkana & Seeher 1990: 15, 29).

1. Settlements

The size of a settlement depended on the natural conditions and topography of the local area. In Maadi, the settlement was 1300m long and 100 to 130m wide. In other sites (Buto, Mendes, Sais, Tell el-Farkha, Tell Ibrahim Awad and Tell el-Iswid) determining the exact size has not been possible either because excavation works are still in progress or due to the fact that the site was partially damaged by currently existing buildings.

In construction terms, the settlements of the Lower Egyptian culture differ from one another. For a long time it had been believed that Lower Egypt was characteristic for the use of organic materials and mud. Although a small number of single mudbricks were found in Buto, Tell el-Iswid or Sais, it was only in Tell el-Farkha that – next to wooden structures – mudbrick walls were discovered (Chłodnicki & Geming 2012).

1.1. Buto – Tell el-Fara'in

Among items registered during the exploration of Lower Egyptian culture layers, numerous pits, postholes and hearths were discovered. Round or oval pits had diameters from 0.5 to 1.5m and were 0.2 to 0.3m deep. Some of them, particularly those dug in a sandy surface, had walls reinforced with silt. The pits were most likely used for storage or processing. Silt--reinforced walls were also found in all postholes. Their diameter was approx. 20cm, and the depth was never greater than 30cm. Posthole cross-sections reveal two layers – one of clay and the other of ceramic material (crushed pottery), sometimes containing bigger pottery fragments. The relative position of the two layers differed between various postholes. According to T. von der Way (1997: 65-68), postholes most probably held posts forming regular structures. Between the posts there were woven mats made of reed or papyrus leafs, additionally clad with mud. Some postholes were found near hearths. They were probably used to hold light structures or roofs. Hearths discovered in Buto are approx. 2.5m in diameter. They are in the form of shallow bowls filled with a thick layer of ash, which indicates that they must have been frequently used for preparing food (von der Way 1997: Abb. 18-30).

An interesting find, recorded only in Buto phase II, are D-shaped blocks of burnt clay with coarse organic temper. Their shape is reminiscent of bricks. They are up to 30cm long, 7 to 9cm wide and 6 to 8cm high. According to T. von der Way (1997: 73-74), these bricks should be linked to vaguely defined structures used in beer production. In Buto, remains of a rubbish dumb were discovered as well, containing a large amount of clay sherds (von der Way 1997: 75-76). Inside the settlement in Buto, exploration of layers dated to the Lower Egyptian culture revealed a single burial of a male aged 40 to 60. The body was laid on its left side, in a contracted position, with the hands resting in front of the face. The oval burial pit was 1.3m long, 0.7m wide and 0.4m deep. Right next to the skull a single pottery vessel was found. Furthermore, a small number of isolated children's bones were found in the settlement, such as a skull of a six-year old child and a mandible of a three-year old, both most probably coming from ruined graves (von der Way 1997: 74-75).

1.2. Maadi

Excavations held in Maadi revealed three types of residential structures: oval, rectangular and subterranean. Oval dwellings were characteristic for rows of postholes forming a more or less oval outline. Made of tamarisk wood and measuring 5 to 15cm in diameter, posts were sunk to a depth of 20 to 40cm, at intervals of 1 to 2m. Some postholes were lined with silt. Between the posts, walls made of light organic materials (such as reed) must have been installed. The posts supported a light-weight roof. The total dimensions of such a structure were approx. 4 x 2.5m, with the long edge along the EW axis. The entrance was in the southern wall. Such an arrangement was most probably determined by cold, northern winds blowing in the Delta in winter seasons. Inside each building there was a hearth, mortars, vessel pits, as well as storage jars sunk into the ground. Silt-lined holes could have been part

of a mobile structure, such as a wind guard or an enclosure for animals. The silt reinforcement made it possible to repeatedly put the posts in and out (Rizkana & Seeher 1989: 39-43, figs. 8-21).

As far as the second type of structures is concerned, one can distinguish large, shallow rectangular pits and rectangular structures the outline of which is formed by narrow shallow furrows. According to I. Rizkana and J. Seeher (1989: 45), the rectangular pits must have been remains of light, semi-subterranean dwellings. Inside them, smaller pits and holes serving some internal functions were registered. Rectangular, ditch-shaped structures were usually positioned along the NS axis, with the entrance located in either the southern or the northern wall. The ditches were formed by walls, most probably made of reed or mats. Roofs, made of similar materials, could have been supported by internal posts. However, the lack of any traces of holes, hearths, or vessel fragments indicates that these particular structures could have been used as enclosures for animals.

Subterranean structures are the third type of residential structures registered in Maadi. They were discovered in the northern part of the explored area. Their diameter ranged from 3 to 4.8m and they were 2 to 3m deep. The entrance was from the south, at the end of an inclined corridor, the stairs of which may have been paved with stones. Inside there were numerous pits and posts used to support a roof made of light-weight materials (*e.g.* wood, reed or straw mats). A hearth was positioned in the middle of the dwelling. In some cases, walls were reinforced from the inside with stones and dried Nile silt bricks. Exploration of this type of dwellings revealed vessels partially sunk into the ground, pottery fragments, flint tools and animal bones. Judging by those artefacts, researchers concluded that these semi-subterranean structures were used for residential purposes (Hoffman 1979: 201-202; Rizkana & Seeher 1989: 49-55, fig. 15; Midant-Reynes 1992: 198). It is generally accepted, Maadi dwellings are reminiscent of Late Chalcolithic subterranean structures known from the Beersheba Valley in Southern Levant (see Chapter 3; Perrot 1955; 1984; Watrin 2000: 163-184). However, it has been suggested in the recent years that the structures from Maadi seem far remote from the Beersheba sites (Commenge & Alon 2002: note 14). E. Braun & E.C.M. van den Brink (2008: 649-650) even suggest their later chronology (early EB I).

In 1985 and 1986, excavations in Maadi were carried out by an expedition from the El-Azhar University headed by F.A. Badawi (2003; Watrin 1999; 2000: 163-184). The team concentrated on the eastern, previously unexplored part of the site. Egyptian archeologists discovered a subterranean stone structure sized approx. 8.5 x 4m, embedded to a depth of 2m below surface level. The structure was rectangular, but its corners were rounded. Walls were built of stone and then plastered with light-brown mud. The entrance was situated in the longer, northern wall. Inside the structure there were 3 pits, most probably used to hold posts supporting a roof made of wooden beams covered with mud (Hartung 2004: figs. 1-2). Mortar used to bind stones together contained numerous pottery fragments. According to L. Watrin, the above facts indicate that the local builders explored their immediate surroundings; to some extent those facts also indicate the building's chronology, allowing one to

date it to the late stage of Maadi's habitation. According to him, the structure in question is reminiscent of structures known from the Gaza Strip in Ashkelon-Afridar F and at the Sidon-Dakerman site in southern Lebanon, dated to EB IA (Watrin 1999; 2000: 163-184).

From 1999 to 2002, Maadi was explored by an expedition from the German Archaeological Institute (DAI). German archeologists also identified a subterranean dwelling, but it differed clearly from the one discovered by F.A. Badawi. The dwelling consisted of an oval room sized 5 x 4m, dug into the bedrock without any lining or support, and of a sloping entrance corridor (5.5m long and 1 to 1.5m wide), with walls lined with stones and plastered with mud. Postholes registered inside both parts of the structure denote the presence of a roof. The height was determined to be 2 to 2.5m (Hartung 2004: 343-350, figs. 4-8). The structure was used as a dwelling and/or a storage facility. Attention is drawn by a typically household inventory, and some of its features are particularly remarkable: prevalence of larger flint implements, large percentage of fish bones and fragments of Southern Levantine jars. U. Hartung links this structure to buildings known from earlier explorations in Maadi. He believes that all of them combined illustrate the development of the settlement's architecture, resulting from the increasing experience of builders and the availability of a new building material (stone) used for erecting residential structures. According to U. Hartung, all known subterranean structures are related to buildings existing in Southern Levant. It should be noted that he associates the stone structure discovered by A.F. Badawi with buildings known from the northern sites of EB IA (*e.g.* En Shadud, Yiftahel), while he believes that the other dwellings are related to the structures from the Beersheba Valley (Hartung 2004: 352-353).

Excavations in Maadi have shown numerous remains of fences, storage pits, postholes and hearth accompanying residential structures. Fences were made of posts arranged in rows of approx. 10m, positioned either east-west or north-south. The function of these fences remains unclear. Some of them may have been part of destroyed residential structures, and in the case of larger dwellings they could have served as enclosures for animals.

Storage pits from Maadi have different shapes and dimensions. Small pits are approx. 50cm deep and have diameters of 20 to 50cm. The largest ones have diameters above 100cm and are approx. 150cm deep, and two distinct parts can be identified inside them (deep and shallow). The shallow part was a kind of a step-on platform formed while the pit was dug and used. Pit walls were lined with silt. Storage vessels or their fragments were commonly found in the fill (Rizkana & Seeher 1989: 57, figs. 19-20).

A fair number of hearths were also discovered within the boundaries of Maadi settlement. I. Rizkana and J. Seeher (1989: 61, figs. 22-23) distinguished 3 hearth types. The first type were simple hearths started without any particular preparations, which is why a thin layer of ash is their only remaining trace. Another type were hearths with a stone structure, usually made of 4 to 5 stones. The third type, represented by as few as 22 hearths, was made of stones arranged in a horseshoe-shaped design laid on a special silt slab. Their usual diameter was 100 to 150cm, although some hearths with diameters of 2 to 3 meters were also found. They could have been used for cooking or for pottery firing.

Some of the less usual objects registered in Maadi were human graves. Although Lower Egyptian communities generally buried their dead in separated cemeteries, some individuals were buried within the confines of the settlement. The Maadi necropolis was located to the south, some 180m away. Nonetheless, burials of adults, children and infants, as well as scattered human skeleton fragments were all discovered inside the settlement. In Maadi, two adult burials were fully confirmed. In one of them, a female aged 20 to 40 was buried. Her body laid in a shallow pit, on the left side, with the head directed southeast and the face to the southwest. Grave goods were rather scarce, consisting of two pottery vessels and a grinding stone. The pit's fill additionally included fragments of clay pottery and animal bones, as well as a handful of flint tools. The other adult grave was only partially preserved. The body, of unidentified sex, was laid in a shallow pit on its back, so in a position that is entirely absent from the Lower Egyptian tradition. I. Rizkana and J. Seeher (1989: 66) believe that this particular burial could have come from later stages of settling activity in the region. The researchers put forward that hypothesis on the basis of anthropologic analyses indicating that the bones were very well preserved and showed no traces of extended deposition in the ground. Nonetheless, it is not impossible that some bones belonged to damaged Lower Egyptian burials. One remarkable item in this group is a human skull. It belonged to an adult aged 20 to 80, whose sex is undeterminable. The skull was deposited in a hearth. I. Rizkana and J. Seeher (1989: 67) assume that the skull's presence was connected with some unidentified symbolic rituals.

The last category of burials found within the settlement are graves of children, infants, neonates and fetuses. A total of 54 of such graves were found. Children were buried in pottery vessels, usually in storage jars or in pits. Their bodies were covered with stones or pottery fragments. Most such graves had no grave goods whatsoever. In certain cases the body position was undeterminable. One remarkable finding is a rich grave of an infant, whose body was deposited in a contracted position on the left side, the head to the east. Grave goods included five pottery vessels and a grinding stone. According to I. Rizkana and J. Seeher (1989: 67), the Lower Egyptian culture had a tradition of burying dead infants and children within settlements, because cemeteries were reserved for adults. The problem of inhumation of the youngest community members inside habitation zones (and outside cemeteries) is known from many prehistoric communities all over the world. The underlying reasons vary depending on the site's chronology and location. The two most important ones include maintaining a connection with children after their death and children's incomplete status as community members, resulting in their exclusion from the cemetery area (*cf.* Pawleta 2004; 2009).

1.3. Sais - Sa el-Hagar

Still little is known about the Lower Egyptian settlement in Sais. Thus far, the Egyptian Exploration Society mission headed by P. Wilson managed to reach its levels in 2 test trenches (Excavations 3 and 8). While the results of Excavation 3 have been published, the publication

of the other findings is still pending, except for brief reports available on the mission's website. So far, the presence of a posthole and burnt mudbrick have been found (Excavation 3) (Wilson 2006: 86-88), as well as a mudbrick platform with postholes around it and pottery concentrated at the edges of the floor (Excavation 8) (Wilson 2005). While these elements seem to indicate the presence of larger structures, the lack of any detailed information renders in-depth analysis impossible.

1.4. Tell el-Farkha

The layers linked to Lower Egyptian settlers revealed numerous remains of typical Lower Egyptian dwellings. These include rectangular NE-SW and NW-SE oriented constructions, marked by 10 to 50 cm wide furrows, which could be remains of foundations or walls woven of tree branches, reed, bulrush or straw, supported by poles places in the corners or in the middle of the wall's length (Fig. 6; Pls. 1-2) (Chłodnicki 2012: 19-20, figs. 2-3; Chłodnicki & Geming 2012: 91-93, figs. 2-4, 7; Ciałowicz 2012a).

One of the more interesting objects dated to Tell el-Farkha's phase 1 is the structure discovered on the Western Kom, marked as W96-98, where as many as 5 construction phases have been identified, most probably connected with the Nile inundations and the ensuing

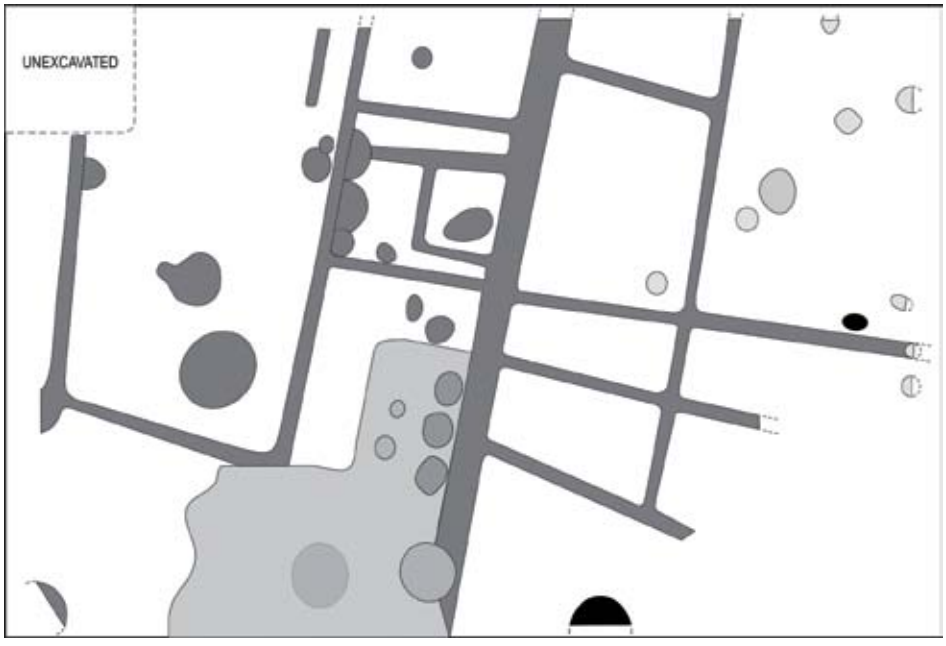

Figure 6. Tell el-Farkha. The Lower Egyptian settlement structures, Eastern Kom (Chłodnicki 2012: fig. 3).

Figure 7. Tell el-Farkha. The settlement structure W96-98, Western Kom (1 - W96-98; 2 - brewery) (Chłodnicki & Ciałowicz 2005: fig. 2).

damage. Particularly remarkable is the younger construction phase (Fig. 7). Oriented NE, its longer axis within the explored area was approximately 11m long. Its width was 4.5m. The structure's outline as marked by 12 to 30cm wide furrows, filled with dark soil or silt, constituting remains of walls made of organic materials. The building had a fairly sophisticated internal layout, featuring a courtyard, a corridor and a number of adjacent rooms. It is likely that a layout like that reflected the division of the building into its northern and southern part. Inside the buildings, both structural and storage pits have been identified, as well as pits with traces of fire which must have been used as hearths. An interesting find from the courtyard were two clusters of thoroughly burnt, concave-convex bricks, most probably brought in from breweries discovered on the site. It seems likely that the older phase of the building was smaller (8 x 3.2m), but in fact one part of it remains outside the explored area (Chłodnicki & Ciałowicz 2003: 69, fig. 4). Structure W96-98 from Tell el-Farkha was the first known Lower Egyptian building of this kind, differing in terms of size and form from other objects discovered in the area. Since the structure was located in the central part of the

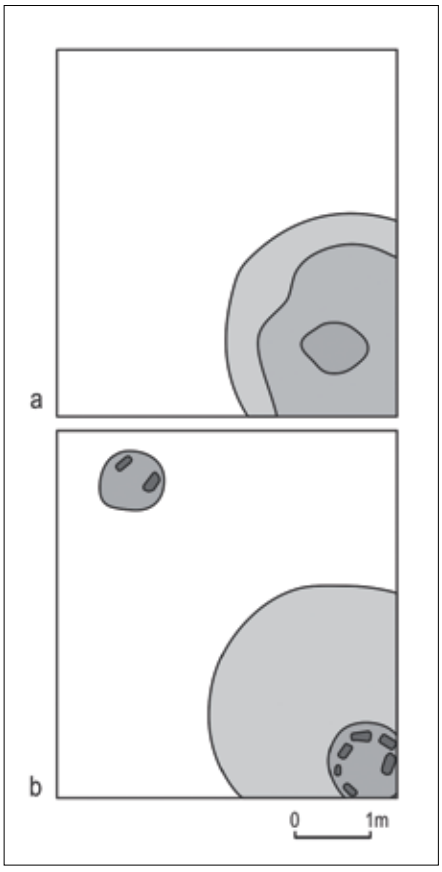

Figure 8. Tell el-Farkha. The Lower Egyptian oval structure, Central Kom.

Western Kom, it may have played a major role in the architectural arrangement of the settlement, and thus also in everyday life of its inhabitants. It is not impossible that the building had a public function. It could have been connected to some unknown internal social organization of the Lower Egyptian culture. The building's location is significant also in the light of the fact that an administrative-cultic center existed in the very same place in the Proto- and Early Dynastic Period (Chłodnicki & Ciałowicz 2001: 91; Ciałowicz 2012b).

Other noteworthy elements of Lower Egyptian architecture from Tell el-Farkha include the remains of an oval hut, 350cm in diameter, sunk to a depth of 40 to 50cm, with a centrally positioned hearth (Fig. 8). Numerous oval storage pits were found nearby. The hut is the only structure of its kind found thus far in Tell el-Farkha. Oval huts were one of the elements of the Delta's architectural traditions. The oldest ones come from the Merimde and el-Omari culture settlements (Chłodnicki & Ciałowicz 2000: 61; 2002: 90, 99; Mączyńska 2003a: figs. 2-4).

Residential structures in Tell el-Farkha were accompanied by numerous oval storage pits, approx. 130cm in diameter and 30cm deep. Excavations on the Western and Central Koms revealed numerous pits with diameters varying from 120 to 220cm and depths from 50 to 80cm. As some of them were lined with silt, they could have been used as granaries (Pls. 1-2). Their fill contained a large number of pottery fragments and complete pottery vessels (Chłodnicki & Geming 2012: 90). Another typical Lower Egyptian element were clusters of small round or oval pits with diameters ranging from 20 to 30cm, lined with silt (burnt in some cases) (Pl. 5). In most pits, the fill did not contain any artefacts. Therefore, the pits are interpreted as postholes, parts of undeterminable installations used for cooking, or as stands for vessels with round or pointed bottoms (von der Way 1997: 35; Chłodnicki & Ciałowicz 2002b: 90; Chłodnicki & Geming 2012: 92-93, figs. 5-6). Hearths have also been

discovered in Tell el-Farkha. They took the form of either campfires used on a one-off basis (their only traces being poorly visible streaks of burnt soil) or purpose-made mud platforms with depressions (Cichowski 2001: 47-48; 2008).

Another unique structure revealed by excavations in Tell el-Farkha are breweries. Until 2013, 7 breweries had been discovered at the site, each preserved to a different degree (Adamski & Rosińska-Balik *in press*: tab. 1). Six of them are located on the Western Kom, and the seventh one on the Central Kom (Chłodnicki & Geming 2012; Ciałowicz 2012a). The best preserved brewery is structure W200 (Pl. 3). According to K.M. Ciałowicz (2012a: 151, figs. 6, 8) the general shape of this structure was designed in detail long before the building process began. The structure measured 9 x 3.4m, strechning along the S, SW-N, NE axis and featured 2 rows of 4 big vats. The smallest brewery from Tell el-Farkha, marked as W47, had the shape of a three-leafed clover (Pl. 4). Its dimensions were 3.60 x 4m. The layout had the form of three connecting circles, surrounded radially by characteristic D-shaped bricks. The central part of each circle was occupied by a sort of a fireplace holding a large vat used for beer brewing. Thanks to structure W201, where 2 partially preserved vats were discovered *in situ*, we know that vats were supported by two rings of diagonally arranged D-shaped bricks. On the outside of the brewery there were postholes which could have been used to support the building's roof made of organic materials and additionally covered with a thin layer of mud (Chłodnicki & Ciałowicz 2003: 69-70; Ciałowicz 2012a).

The breweries from Tell el-Farkha are the only ones known from Lower Egypt. The oldest breweries in Egypt dated to NIB-IIA are known in the south - at Mahasna, Abydos and Hierakonpolis, where they are connected to some of the most important centers of the Naqada culture (Peet & Loat 1913: 3-4; Geller 1992; Takamiya 2008). As the breweries from Tell el-Farkha were erected later and additionally were well developed and fully organized, it seems that the idea of beer production had been borrowed from the south (Adamski & Rosińska-Balik *in press*).

Another important discovery from Tell el-Farkha was a structure named by the excavators as the "Lower Egyptian residence" with a sophisticated interior consisting of multiple rooms, 20m long and 25m wide (Pl. 6). The residence's layout was marked by furrows constituting the remains of structural timber elements. The entire building was surrounded by a double wooden fence, subsequently replaced by a massive mudbrick wall. The wall was 1.6m wide at the base and 1.2-1.3m wide at the top, with slightly oblique sides (Pl. 7). The mudbricks used to construct it were of different sizes, and additionally were arranged in diverse ways in different parts of the walls (Chłodnicki & Geming 2012: 92-97, figs. 8-10). A similar wall surrounding the brewery center was discovered on the Western Kom (Ciałowicz 2012a: 161).

The form and size of the "residence" are unlike those seen in other examples of Lower Egyptian architecture. The emergence of a mudbrick-only wall building technique is also important. Although the use of bricks is known from Maadi, and mudbricks were also found in Buto, Tell el-Iswid and Sais, it was in Tell el-Farkha that a wall made of this material was

discovered for the first time. Over a long period of time the Upper Egyptian origin of the new technique of erecting walls was generally accepted (*cf.* von der Way 1992a: 3; Wilkinson 1996: 95; Wengrow 2006: 82). However, the discoveries in Lower Egypt showed that the earliest known use of mudbrick comes from Lower Egypt (Tristant 2004).

Excavation projects carried out in Tell el-Farkha made it possible to identify – for the first time ever – the functional arrangement of a settlement. Such an arrangement is particularly visible in the case of the Central Kom, where each of the 3 zones was separated by a wooden fence or a mudbrick wall (Chłodnicki & Geming 2012: fig. 7). The Western Kom with breweries and the structure W96-98 also show division into zones serving different purposes (Ciałowicz 2012a).

1.5. Tell el-Iswid

Excavations carried out in Tell el-Iswid brought to light numerous hearths, rubbish dumps and irregular pits of unknown purpose, all found in Lower Egyptian layers (Phase A). The most characteristic Lower Egyptian elements were clusters of small circular silt-lined pits (approx. 30 to 35cm in diameter and 25 to 30cm deep). In some of the pits the silt lining was burnt. Pits lined with both burnt and unburnt silt were identified as well. According to E.C.M. van den Brink (1989: 59, fig. 4), this may indicate that the same pits could have been used repeatedly. Since the horizontal arrangement of the holes was irregular, their function remained unexplained.

Above layer I in Tell el-Iswid a relatively thick layer of silt was registered, which – according to E.C.M. van den Brink (1989: 61) – had not been deposited naturally. Within the silt layer four oval pits (150cm in diameter) were found. Two of them were accompanied by a large number of holes lined with silt. In addition, two perpendicular rows of small holes (5 to 7cm in diameter) arranged at intervals of approx. 15cm encompassed one of the pits featuring a small hearth. The structure could have been part of a hut-like dwelling made of wickerwork of small poles and twigs, embedded in silt and built of light organic materials, mostly reed. Numerous impressions of reed have been preserved on fragments of clay which was probably used as plaster for the entire structure.

Other traces of permanent settlement include pits lined with wicker baskets mud, most probably used for grain storage. The pits formed a kind of a circle and served as a granary. Similar findings are known from the sites in the Faiyum Oasis and in Merimde (Caton-Thompson & Gardner 1934; Eiwanger 1984; 1988; 1992).

In Tell el-Iswid, small temporary hearths were accompanied by large hearths with fairly thick layers of ash, indicating their regular use.

Other items found in the younger layers of the Lower Egyptian culture include numerous furrows interpreted as remains of animal enclosure fences built of light organic materials, as well as fragments of the first irregularly shaped silt bricks (van den Brink 1989: 59-64, fig. 5.3).

Since 2007, on-site excavations have been carried out by an expedition from the French Institute of Oriental Archaeology in Cairo (IFAO) headed by B. Midant-Reynes. The French archeologists have also managed to unearth some remains of the Lower Egyptian culture.

1.6. Tell el-Masha'la

The site in Tell el-Masha'la was explored from 2002 to 2004 by an expedition from the University of Toronto, headed by S.R. Rampersad (2006). The project resulted in a surprisingly small amount of information about residential structures, represented first of all by small and round reinforced pits with diameters ranging from 22.5 to 35cm and depths from 13 to 44cm. Some of them were in clusters, while others were found separately. It was impossible to determine an overall model of their arrangement that could indicate the pits' function as part of a wall or building. Some of them were lined with mud, some only with potsherds, and some with a combination of both. S.R. Rampersad (2006: 792-797, fig. 2) interprets those holes as cooking pits, given the presence of black fills indicating burning and burnt faunal remains discovered inside them. Since some of the pits show traces of repair, they could have been used repeatedly.

Near the western borders of the site 7 graves were identified as well. All bodies were in contracted positions and were laid on the left side. In five cases the head was oriented to the north with the face to the east. In the other two cases the bodies were slightly skewed from this preferred direction. In 5 graves remains of (probably flaxen) fabric were discovered, used to wrap the body. Two graves were oval (1.10m long, 0.62m wide and 30cm deep). The other 5 graves were rectangular with rounded corners (1.96 x 1.92cm). According to S.R. Rampersad, the grave pits were not purpose made in advance, and the body was deposited right after the pit was dug. Due to the poor condition of bones, it was not always possible to determine the deceased's age and/or sex. Grave goods were scant in some cases or non-existent in others. One remarkable exception is a grave with two complete vessels and a half of an oyster shell, on which 3 fingers of the right hand were placed (Rampersad 2006: fig. 3).

S.R. Rampersad (2006: 824) dates the whole site to Naqada II to IIIc1. Thus, its chronology would include the Lower Egyptian culture. The dating is supported by vessel forms: elongated jars with pointed or flat bases similar to those known from Maadi and bowls with impressed dots just below rim (Rampersad 2006: figs. 5, 8). At the current stage, any more accurate dating would be quite challenging.

1.7. Tell Ibrahim Awad

In Tell Ibrahim Awad, levels dated to the Lower Egyptian culture (Phase 7) revealed a large number of storage pits, silt-lined postholes and hearths (van den Brink 1992b: 53). The site is an important point of reference in studying the Delta's settlement network from

the middle Predynastic period until the reign of the 12th Dynasty. However, researchers' attention concentrated first of all on the remains of temples dated to the period of the Old and Middle Kingdom. Therefore, most published papers do not discuss the oldest traces of Lower Egyptian communities found on the site (van Haarlem 1996: 7-34; 1998: 509-513; Belova & Sherkova 2002; Eigner 2003: 162-170).

2. Cemeteries

Thus far, 8 Lower Egyptian necropolises have been discovered in Maadi, Wadi Digla, Heliopolis, Merimde, Sedment J, Kom el-Khilgan, Beni Amir and Minshat Abu Omar. Two isolated graves were additionally found in Haraga. Only in two cases (Maadi / Wadi Digla and Minshat Abu Omar) researchers found links connecting the necropolis with its accompanying settlement (Rizkana & Seeher 1987; 1988; 1989; Krzyżaniak 1992a; 1993). In the case of Maadi, both the necropolis and the settlement have been thoroughly examined. In Minshar Abu Omar excavation works were carried out in the cemetery only. On the other sites (Heliopolis, Sedment J, Merimde and Kom el-Khilgan) the location of the accompanying settlement remains unknown. Due to the fact that reports from Sedment J, Merimde and Beni Amir necropolises (as well as from Haraga graves) concentrated on the description of pottery found in graves, those three sites will be omitted from the description of Lower Egyptian burial customs (Engelbach 1923; Badawi 1980: 70; Williams 1982: 214-219; el-Moneim 1996).

2.1. Heliopolis

One of the key challenges faced by the authors of the publication concerning this site, F. Debono and B. Mortensen (1988: 41), was to determine the original size of the necropolis in Heliopolis. The said issue was caused by the lack of detailed plans and data from excavations carried out in the 1950s. Relying on whatever information was available, the researchers determined that the cemetery originally consisted of approximately 200 graves and was probably operated for a brief period of time (50 to 60 years) by a small Lower Egyptian community. As part of salvage projects carried out in the 1950s, 63 graves were examined, 45 of which contained human skeletons and 11 contained skeletons of animals (goats and dogs). The graves differed in terms of size and depth, which were correlated to the amount of grave offerings. The graves had a form of oval pits, sometimes lined with matting or wood. In some cases, wood was used to cover the body. According to F. Debono and B. Mortensen (1988: 38), the wood could be remains of a roof above the grave. In most cases bodies were deposited in a half contracted position on the right side, with the head to the south and the face to the east. The deceased's hands were placed in front of the face. There are only six exceptions from the above rule. Nearly a half of the bodies were wrapped in matting and/or animal skin. It seems that this particular custom was quite common and it is only due to the poor preservation that no traces of wrapping materials were not found in some cases.

In a number of graves a black or brown substance was found, which could constitute remains of undefined materials. In one grave a Nile shell was found in the deceased's mouth. F. Debono and D. Mortensen (1988: 38) identified 4 groups of graves:

1. Graves of children with no traces of matting or animal skin;
2. Graves of adults with no traces of matting or animal skin and with no (or only a few) grave goods;
3. Graves of adults wrapped in skins and matting, with a few grave goods;
4. Graves of adults wrapped in skins and matting, with numerous grave goods.

The grave goods from Heliopolis consisted mostly of pottery vessels placed near the head. The number of vessels ranged from 1 to 10. In some graves, pottery was accompanied by flint knives (2 graves) and palettes used for pigments (5 graves). In one grave, a fragment of a necklace made of *Ancillaria* shells was preserved (grave I 65). In addition, in grave I 34 remains of copper items were found: piece of a bracelet and an undeterminable tool. Other noteworthy finds include lumps of malachite and two fragments of stone vessels.

Animal graves known from Heliopolis are smaller than human graves. They contained a fairly large amount of grave goods. Goat bodies were laid on the right side, in a contracted position, the head to the south and the face to the east. In some cases bodies were wrapped in matting or skin. The number of vessels in the grave was never greater than 8. Unlike in goat graves, bodies in dog graves were not oriented in any particular direction. Likewise, no offerings were found inside dog graves. The role of both goat and dog graves was probably symbolic (Debono & Mortensen 1988: 47).

The third type of objects from Heliopolis are clay pottery groups (sometimes wrapped in matting) and hearths. Some of them could be remains of funeral feasts or other inhumation rituals.

2.2. Kom el-Khilgan

The necropolis in Kom el-Khilgan was explored by an expedition of the French Insitute of Oriental Archaeology in Cairo (IFAO) headed by B. Midant-Reynes. During 4 years of excavation works researchers found 239 graves with remains of the members of the Lower Egyptian and the Naqada communities. N. Buchez & B. Midant-Reynes (2011: 835) identified 3 phases of the necropolis's operation, the first two of which were connected with the Lower Egyptian culture. Phase 1 (KeK1) was represented by 20 graves, mostly containing vessels with polished surface and oblique rims (Maadi types 4b-c) and necked vessels (Maadi type 5a). Phase 2 is formed by 30 graves, with lemon-shaped jars being the main item among grave goods. In the materials published so far the excavators emphasize that for all Predynastic graves (Phases 1 to 3) there were no rules regarding body orientation. Most bodies were laid on either side, in a contracted position with upper limbs flexed and the hands placed most often in front of the face. According to the researchers, the general body position was

not influenced by the deceased's age or sex. Grave goods were innumerous and mostly consisted of pottery vessels. Usually there was one vessel only, placed near the body, principally beside the head or the feet (Midant-Reynes *et al.* 2004: 475-478, figs. 6-7; Buchez & Midant--Reynes 2011: fig. 3).

Phase 1 of the necropolis in Kom el-Khilgan is related to Wadi Digla II and Buto I, while Phase 2 is correlated to Buto II and – in the relative Upper Egyptian chronology – to Naqada IIC (Buchez & Midant–Reynes 2011: 835).

2.3. Maadi

The cemetery in Maadi was situated 180m from the southern edge of the settlement. Graves were clustered in a 10 to 20m wide strip of land running east-west. A total of 75 human graves (including 18 children graves) and one dog grave were discovered. Bodies were deposited in simple, oval pits. The deepest ones were 140 to 180cm below the contemporary ground level and 50 to 100cm from sterile soil. The pits' length varied from 11 to 75cm, and the width was 60 to 95cm. Bodies were placed in a contracted position, on the side, with legs pulled up and with the hands in front of the face. No rule regarding body orientation in the grave was identified. Bodies in the Maadi necropolis were deposited on either right or left side, the head positioned in various directions (south being the most common one). In the case of bodies lying on the left side, the face was directed to the west, while those lying on the right side had faces directed to the east. In two graves only bodies were laid on the back, and in one grave the body was split in two parts prior to inhumation. No traces of grave--related overhead structures were recorded in Maadi. Likewise, no traces of matting, skins or fabric used to cover the body were found. However, given the fact that in some cases the body was very strongly contracted, it is likely that the deceased was wrapped in skin, matting, *etc.* Grave goods in Maadi were very scarce. In a total of 76 pits researchers found only 27 pottery vessels, one pottery cover, one flint flake and two *Aspatharia* shells. Furthermore, fragments of pottery vessels were found in six graves (Rizkana & Seeher 1990: 22-28).

Apart from human graves, a single dog grave was also discovered in Maadi. The animal's body was placed in a shallow pit, on the right side, with the face to the east. No goods were found in that grave (Rizkana & Seeher 1990: 27).

2.4. Minshat Abu Omar

The necropolis in Minshat Abu Omar is located on the top of a large gezira in the northeastern Delta. Graves in this cemetery fall into 4 main chronological categories. The oldest one, marked with the Roman numeral I, coincides with Naqada IIc-d. Groups III and IV are dated to Naqada III – 0 Dynasty and 1-2 Dynasty, respectively. Group II was identified on the basis of the body position, but its chronology has not been confirmed due to the lack of characteristic pottery (Kroeper 2004: tab. 1). Originally it was believed that the necropolis in Minshat Abu

Omar belonged to a Naqada culture community, just like necropolises in Gerzeh or Harageh (Midant-Reynes 1992: 178; Ciałowicz 2001: 92; Wengrow 2006: 84; Stevenson 2009: 48-49; Brewer 2012: 77). Preliminary reports (Kroeper 1986/87; 1988), using grave division into groups marked with Arabic numerals (1a-b, 2, 3a-c, 4) present W-ware and D-ware pottery as characteristic forms for group 1. Those are accompanied by rather limited R-ware vessels: conical jars with flat bottom and lemon-shaped jars (Kroeper 1988: 13, figs. 23-72). A comprehensive overview of part of the graves from Minshat Abu Omar (Kroeper & Wildung 1994; 2000), using the division into groups marked with Roman numerals, made it possible to take a closer look at the content of group I graves. According to Ch. Köhler (2008: 528) ca. 55% of vessels uncovered in graves dated to MAO I can be classified with Petrie's type R65-69. Assuming that those forms, including in particular R69, referred to in literature as lemon-shaped jars, are cultural markers of the Lower Egyptian culture (Buchez & Midant-Reynes 2007; 2011), the cultural identity of group I graves from Minshat Abu Omar should be reconsidered. In Minshat Abu Omar a total of 255 group I graves were explored. Thus far, reports discussing only 139 graves have been published. 5 of those graves contained D-ware vessels, and another 14 contained wavy-handles vessels. Interestingly, in nearly all cases there was only one such vessel and it was accompanied by a very high number of bag shaped jars, lemon shaped jars and conical jars with pointed or flat bases (Petrie's R76 and R84), *i.e.* typical Lower Egyptian forms (see Chapter 6). The small number of Upper Egyptian vessels is comparable to Southern Leventine imports found in this group of graves (9 items). Local pottery, mostly rough ware, constitutes the prevalent type of goods in the oldest graves, while southern or eastern imports are merely a distinctive addition (Mączyńska *in press* c).

In the oldest group of graves the inhumation method also shows similarities to the Lower Egyptian culture. Since 96% of all graves of MAO I left no traces of any pit, grave pits must have been shallow and the body was deposited without any preparations. The oldest graves also differ significantly in terms of size and shape. Bodies were deposited on the right side, with the face turned west. As far as grave goods are concerned, over 50% of all graves in the oldest group contained from 2 to 5 offerings. Nearly 25% graves had 1 offering only, and another 13% contained 6 to 10 offerings. Less than 4% of all graves had more than 10 offerings (Kroeper 2004: tab. 6, fig. 8.a), and the richest one had 33. The prevalent type of goods deposited in the graves were pottery vessels, although flints, shells, bone implements were also fairly common.

The chronological position of the necropolis in Minshat Abu Omar was analyzed by N. Buchez and B. Midant-Reynes (2007; 2011) and compared to the chronology of the graves from Kom el-Khilgan. In their opinion, Phase II of the graves from Kom el-Khilgan, dated to Naqada IIC, can be correlated to the oldest graves from Minshat Abu Omar (MAO1a). Unfortunately, in Kom el-Khilgan no graves dated to Naqada IID, contemporary to MAO1b (*cf.* Jucha & Mączyńska 2011: tab. 1) were identified. The pottery from Minshat Abu Omar is comparable to the pottery registered in the settlement of

Tell el-Farkha, the first two phases of which are also dated to the 2nd half of Naqada II (see Chapter 6; Chłodnicki 2012). It is thus possible that the necropolis in Minshat Abu Omar was used by a community similar to the one inhabiting the gezira in Tell el-Farkha (Mączyńska *in press* c).

2.5. Wadi Digla

The necropolis in Wadi Digla was located on an open air prominence in the middle of the delta-shaped mouth of the wadi. Excavations held in the 1960s revealed 471 human graves and 14 animal graves. The original size of the entire cemetery is unknown due to considerable damage caused during 2nd World War.

After an analysis of grave goods and body positions I. Rizkana and J. Seeher (1990: 65) chose to divide the burials into two chronological groups. The first one was contemporary to the oldest phase of Maadi settlement (Naqada IC). The chronology of the other group corresponded to the graves from Heliopolis (Naqada IIAB). Despite different chronologies, both groups used narrow oval grave pits. Their average depth measured from the contemporary ground level was 80 to 100cm, and 10 to 40cm from sterile soil. In terms of size, the pits were similar to those registered in Maadi. Bodies were laid in a contracted position, on either side, the knees pulled up in front of the body and the hands placed in front of the face. There were only a few exceptions from this rule and they most probably resulted from various post-depositional processes. In 145 graves the body was laid on the left side and in 229 graves it was laid on the right side. Deposition on the right side with the head oriented to the south dominates in graves from the younger phase of the cemetery. In the older phase it is impossible to identify any principles governing body orientation. Traces of matting were registered in some graves. Due to the characteristic shape of the pits, their walls could not be lined with mats, which implies that mats were either placed under or wrapped around the body.

In 50 graves from the older group unshaped blocks of limestone were found. They were probably used to reinforce pit walls. In four graves from the younger group blocks of silt were found near the body's pelvis. Their function is unclear. Silt could have lined the bottom of the grave pit, but it could also be used to manufacture an unspecified object. Blocks of silt could also imitate food. In four graves from Wadi Digla rocks were placed under the head in the form of a pillow. According to I. Rizkana and J. Seeher (1990: 71), the low number of such rock pillows does not necessarily indicate that this particular custom was marginal. The tradition of placing a pillow under the head of the body could have been fairly common, but in most cases the pillow was made of organic material (*e.g.* reed). A similar custom in the Lower Egyptian tradition was previously observed in the el-Omari culture. On the other hand, the low number of rock pillows could also imply a different function. Flat rocks could have been used as palettes for pigments and therefore were deposited in the grave near the head.

In the cemetery of Wadi Digla, grave goods consisted mostly of pottery vessels. 223 graves contained one or two such vessels. Rich graves containing three vessels are very rare. In over a half of all the graves no offerings were found at all. Technological differences between grave pottery from Wadi Digla's Phase I and Phase II can be observed. Vessels from older graves have red and reddish-brown burnished surface. Phase II graves mostly contain black and dark brown pottery with burnished surface. Younger graves also contain the only Levantine imports registered in the necropolis (see Chapter 8). In terms of morphology, the pottery from Wadi Digla does not differ greatly from the pottery found in Maadi settlement and it is represented mostly by jars. Only a handful of fragments of bowls (used as lids for jars) were found.

In as few as 38 graves bodies were accompanied by items other than pottery. Those items include stone vessels, *Aspatharia* shells, palettes, flints tools, ornaments, combs, bone tools and color pigments. One complete stone jar and two fragments of such a jar were found too. The barrel-shaped jar was made of light greenish calcite. Its shape was reminiscent of pottery vessels typical for the Lower Egyptian culture. Other interesting finds from the necropolis in Wadi Digla include a fragment of the rim of a wide-brimmed basalt jar and a fragment of the rim of a limestone bowl. In 5 graves of adult humans flat stone and slate items were found, most probably used as palettes for pigments. They were placed near the head of the deceased. The presence of palettes is characteristic for Phase II only. Pigments found in Wadi Digla include green copper ore and grey manganese ore pyrolusite. Stone implements were present in 35 graves only and most of them were blades, bladelets and flakes, as well as a single retouched blade and a scraper. No relationship between the sex of the deceased and the presence of flint tools in the grave were identified. In older graves from Wadi Digla (Phase I) shells were fairly common. Some of them, including in particular large shells of *Aspatharia rubens*, were used as containers, *e.g.* for pigments. Shells were deposited in the grave near the head or the upper part of the body. Shells of sea snails *Nerita polita* and *Ancilla acuminata*, were used as beads. In several graves bracelets made of tens of drilled--through shells were found. Other bracelets found in Wadi Digla were made of disc shaped stone beads and tabular bone beads.

Other noteworthy ornaments from Wadi Digla include a bone comb, most probably used to hold hair, found in the grave of a young female (aged 19 to 28), and a narrow spatula found in the grave of a young male (aged 23 to 40).

Apart from human graves, also 14 animal burials (dogs and unidentified quadrupeds) were found in Wadi Digla. Each of the animals was buried in a separate pit, the size of which corresponded to the size of the animal. Approximately half of the graves contained pottery, and some had traces of copper ores or copper items. Bones of young animals were also found in three human graves. Only in one case it was possible to determine the species (pig). According to I. Rizkana and J. Seeher (1990: 93), only parts of carcasses were deposited in graves (as food offering).

Table 14. Structures registered on the settlements of the Lower Egyptians culture.

STRUCTURE / SITE	POSTHOLE	POSTHOLE LINED WITH SILT	STORAGE PIT	HEARTH	RECTANGULAR WATTLE 'N' DAUB STRUCTURE	OVAL STRUCTURE	SUBTERRANEAN STRUCTURE	MUD-BRICKS	MUDBRICK WALL	BREWERY	ANIMAL FENCE	GRAVES OF ADULTS	GRAVES OF CHILDREN
BUTO	X		X	X	X			X			X	X	
MAADI	X	X	X	X	X	X	X	X			X	X	X
SAIS	X							X					
TELL EL-FARKHA	X	X	X	X	X	X		X	X	X	X		
TELL EL-ISWID	X	X	X	X	X			X					
TELL EL MASHAʾLA		X										X	
TELL IBRAHIM AWAD	X	X	X	X									

Table 15. Graves of the Lower Egyptian culture.

	PHASE OF THE LOWER EGYPTIAN CULTURE	NO. OF GRAVES	PIT SHAPE	BODY POSITION	POSITION OF				AVERAGE NO. OF OFFE-RINGS	NO. OF ALL OF-FERINGS IN THE RICHEST GRAVE (NO OF CERAMIC VESSELS)
					BODY	HEAD	FACE	HANDS		
MAADI	1	75	OVAL	CONTRACTED, IN SOME CASES WRAP-PED	LEFT OR RIGHT SIDE	NORTH SOUTH	WEST EAST	IN FRONT OF THE FACE	1-2	4 (3)
WADI DIGLA	1	471	OVAL	HALF CONTRACTED	LEFT OR RIGHT SIDE	NORTH SOUTH	WEST EAST	IN FRONT OF THE FACE	1-2	48 (1)
					WDII – MOSTLY RIGHT SIDE	SOUTH	EAST			
HELIOPOLIS	1	71	OVAL	HALF CONTRACTED WRAPPED	RIGHT SIDE	SOUTH	EAST	IN FRONT OF THE FACE	1-10	12 (10)
KOM EL--KHILGAN	1-2	226[1]	OVAL	CONTRACTED	LEFT OR RIGHT SIDE	NORTH WEST	WEST EAST NORT SOUTH	IN FRONT OF THE FACE	1-2	?
MINSHAT ABU OMAR	2-3	255	OVAL	HALF CONTRACTED	RIGHT SIDE	NORTH	WEST	IN FRONT OF THE FACE	2-5	33 (16)

[1] All graves dated to phases 1 to 3 including Naqadian graves (Buchez & Midant-Reynes 2011: 835)

Other items registered in the necropolis in Wadi Digla include a hearth (70 to 80 cm in diameter) made of burnt blocks of limestone, most probably connected with unknown burial rituals. Small pits with pottery vessels found near graves are also likely to have been linked to burial customs. Traces left on some vessels indicate that they must have been damaged prior to deposition in the pit.

3. SUMMARY

Excavation projects carried out on Lower Egyptian settlement sites made it possible to identify the type of residential buildings typical for this particular culture (Tab. 14). On all the sites explored thus far, rectangular structures supported by posts sunk in the ground were found. Their walls were made of organic materials and then plastered with mud. Some shallow and narrow furrows could be remains of animal enclosures accompanying residential buildings. The exploration of Tell el-Farkha revealed structures whose size was far beyond the size of other previously discovered buildings erected in a manner typical for the Lower Egyptian culture. The sophisticated layout of rooms in the Lower Egyptian residence from the Central Kom and the layout of the structure W96-98 showed that the inhabitants of the settlement erected not only small and simple isolated houses known from other sites. From architectural perspective, adaptation of mudbrick by a Lower Egyptian community seems very important. Mudbrick walls became an element of the local architecture, simultaneously denoting a special character of the accompanying structure.

On the Western Kom, a mudbrick wall separated a large beer brewing center from the remaining part of the settlement. In the case of the Lower Egyptian residence its separation by a mudbrick wall most probably denotes the residence's practical importance for the inhabitants of the settlement. The finds discovered inside the residence, including basalt and bone maceheads, golden and stone beads probably forming a necklace, copper and flint knives, and a fragment of a ripple flake knife also confirm its special character (Chłodnicki & Geming 2012: 96-99; Czarnowicz 2012a: 352, fig. 1:2). It is worth mentioning that 75% of fragments of vessels imported from Levant were excavated westwards of the fence/wall of the residence (Czarnowicz 2012b: 261, fig. 15). An additional aspect discovered during the excavations in Tell el-Farkha is the functional division of the settlement, previously unknown from other settlements of the Lower Egyptian culture.

Another important site is Maadi, where subterranean dwellings (unique in Egypt) were found. They were linked to objects from the Chalcolithic or EB I context in Southern Levant (see Chapter 3).

Human graves are a rare finding within the boundaries of Lower Egyptian settlements. On the basis of the discoveries made thus far one can claim that burials within settlements could have been reserved for neonates, infants and small children, buried in pottery vessels or in shallow pits. Older children, adolescents and adults were buried in separate necropolises, most probably located near the settlement (Tab. 15).

The dead were buried in pits, in a contracted position on either side. In Maadi and in the older phase in Wadi Digla no body orientation principle was identified. In Wadi Digla's Phase II and in Heliopolis it was customary to lay the body on the right side with the head to the south. In Minshat Abu Omar the body also rested on the right side, but the head was to the north and the face to the west. In the necropolis of Kom el-Khilgan, whose first phase is correlated to the Wadi Digla II cemetery no body position rule was identified either. The body was sometimes wrapped in mats, skins or fabrics.

Grave goods were usually scarce and consisted of pottery vessels. Shells, stone and flint tools or palettes were sometimes offered as well. In the necropolis of Minshat Abu Omar, vessels imported from the south and the east were discovered apart from those manufactured locally. Thus far no rules governing grave goods were identified. The current condition of skeletons in the necropolises varies considerably and therefore age and/or sex determination was not always possible in the case of graves with remarkable amount or quality of offerings. Shells of *Aspatharia rubens* were found in 30 graves at Wadi Digla, but the sex of the deceased was identified in 6 of them only. Two skeletons were identified as female, another two as probably female, and the last two as male. Similar difficulties were encountered in the case of flint tools found in graves. Likewise, identifying a relationship between the deceased's age and the amount of offerings is rather challenging. In anthropological terms, the largest amount of information was collected from the necropolis in Minshat Abu Omar, where 80% of skeletons were identified (Kroeper 2004). However, no data regarding relationships between sex, age and grave offerings have been published.

The maximum number of grave goods in adult human graves in Lower Egyptian necropolises varies significantly. In Maadi the maximum number is two, as compared to eight in Wadi Digla and ten in Heliopolis. While the richest grave in Minshat Abu Omar contained 33 offerings, over 50% of the oldest graves from that cemetery had 2 to 5 offerings. It seems that the differences in the number of goods between each necropolis are linked to grave chronology. Older graves (Maadi, Wadi Digla I) were poorly equipped, with either one or two offerings. The number of goods grew significantly in younger graves (necropolises in Heliopolis, Wadi Digla II, Minshat Abu Omar).

Spatial analysis of Lower Egyptian necropolises revealed the existence of clusters of certain grave types. In Maadi and Heliopolis such clusters were formed by children graves. In Heliopolis such graves were located in the western part of the necropolis. In Wadi Digla the boundaries are not so clear-cut, but it is nonetheless possible to identify somewhat irregular clusters of children graves in the central and (probably) southern part of the necropolis. Additionally, in Heliopolis graves without offerings were clustered in the southeastern row, and animal graves in the northeastern section. The spatial arrangement of the necropolis in Wadi Digla is primarily determined by grave chronology. Phase I graves stretched

from the southwest to the northeast. Younger graves were concentrated in the central part of that belt and to the southeast off it. Also in Minshat Abu Omar grave distribution was determined by chronology. Group I graves were more highly concentrated in the south and spread north along the eastern part of the hill.

Human graves in Lower Egyptian necropolises were accompanied by graves of animals (dogs, goats and unidentified quadrupeds). Their interpretation is not straightforward. As far as dogs are concerned, it is generally believed that most prehistoric communities attributed symbolic religious and ritual importance to those animals. The dog was thus a companion, a guardian and a keeper. It was frequently linked to chthonic deities and the underworld, where it was the sentry of hell, the soul hunter or the harbinger of death (Ablamowicz 2002; 2012). Dog burials could have played the role of grave offerings. As a result, the animal could continue to watch over and accompany its master in the afterlife. Burials of other animals also could have been treated as offerings to the dead.

Within necropolises traces of unspecified inhumation rites, such as clusters of vessels or pits with vessels, were found as well.

Chapter 5

Lower Egyptian economy and social system

1. Economy

Lower Egyptian economy was fully based on farming and animal breeding. Hunting, gathering and fishing were all secondary to food production, as confirmed by plant and animal remains found on Lower Egyptian sites.

1.1. Farming

Lower Egyptian farmers grew first of all emmer wheat (*Triticum dicoccum*) and hulled barley (*Hordeum*). Remains of those two plants were found on all Lower Egyptian sites. Barley and wheat continued to be the dominant crop in Egypt until Greco-Roman times. The relative importance of emmer versus barley might have changed in the course of time (Murray 2000a: 512; Samuel 2000; Kubiak-Martens 2012). In addition, the popularity of barley as a crop was determined by its resistance to soil salinity (typical all over Egypt) as well as to frequent droughts. A characteristic feature of this combination of crops was the presence of the following weeds on the fields: darnel (*Lolium temulentum*), phalaris (*Phalaris*), Caley pea (*Lasthyrus hirsutus*) and sorrel (*Rumex*) (van Zeist & de Roller 1993: 13; Kubiak-Martens 2002; 2003).

The two most important products made of emmer and barley were bread and beer, the staple diet of Egyptians both in the Predynastic period and thereafter. Beer production in the Predynastic period in the Delta area is confirmed by the discovery of breweries in Tell el-Farkha. An analysis of the residue of one of the vats found in the brewing installation showed the presence of two cereals: emmer and barley, as well as grains of darnel. Botanical and chemical studies of the residue made it possible to determine the beer production process, whereby the main role was played by emmer (Kubiak-Martens & Langer 2008).

Papilionaceous plants, rich in nutrients in general and protein in particular, were registered on Lower Egyptian sites as well. One of them was vetch (*Vicia sativia*), quite popular at the time, most probably used as animal feed. The communities of Tell el-Farkha and Buto grew peas (*Pisum sativum*) and lentils (*Lens culinaris*). Those plants were fairly easy to cultivate and additionally the Delta's climate was conducive to their growth. It also seems that already

in the Predynastic period people appreciated the nutritive value of those vegetables. Lentils and peas contain easily digestible protein and can substitute meat in human diet. Additionally, pea and lentil stalks could be used as animal feed (Murray 2000b: 640; Kubiak-Martens 2002: 125).

Other plants identified on Lower Egyptian sites include flax (*Linum usitatissimum*), which could be grown both for oil and for the manufacture of fabrics (Serpico & White 2000: 396).

On the sites at Tell el-Farkha and Tell el-Iswid, tubers of nut grass (*Cyperus esculentus*) were most probably used as food. According to M. Serpico and R. White (2000: 402) they were used to manufacture oil. Written sources from the 4th century BC mention that Egyptians cooked nut grass tubers in beer (Murray 2000b: 636; Kubiak-Martens 2002: 125). It is not impossible that such practice was already known in the Predynastic period.

The layers of Phase II in Buto contained traces of grapevine (*Vitis vinifera*) and common fig (*Ficus caricia*). Grapes could have been eaten without any earlier processing or dried and then eaten as raisins. They could have also been used for making juice, either consumed fresh or fermented to vinegar (Murray *et al.* 2000). Making of wine from grapevine in Egypt began on a larger scale in Naqada IIIBC (van den Brink & Levy 2002: 20). Growing of fig trees could also have a wide range of practical uses. Figs could have been consumed in either fresh or dried form, or added to beer or bread (Murray 2000a: 548, 559; 2000b: 623-624). Fig tree latex could have been used in manufacturing dairy products, *e.g.* for coagulation of milk (Serpico & White 2000: 409).

In Maadi, remains of Cucurbitaceae plants were found (*Cucumis melo* or *chate*). In the Egypt of Pharaohs the leafs of those plants were used for manufacturing medicines used in treating stomach conditions. It is possible that the community of Maadi also knew those therapeutic properties (Murray 2000b: 635).

Samples collected from most sites additionally contained charcoal of acacia (*Acacia nilotica*) and tamarisk (*Tamarix*). In Maadi the presence of cedar (*Cedrus*) imported from Southern Levant was also registered. Samples from Tell el-Iswid contained traces of sorrel (*Rumex*) and bulrush (*Scirpus*), which may have grown around the settlement (Kroll 1989; van den Brink 1989; Thanheiser 1997).

1.2. Animal breeding

Animals bred by Lower Egyptian communities include cattle (*Bos primigenius f. domestica*), sheep (*Ovis aries*), goats (*Capra hircus*), pigs (*Sus domesticus*) and dogs (*Canis familiaris*) (Tab. 16). Dogs were not bred for consumption purposes. Instead, they could have been used as guardians and sentinels of the settlement (Abłamowicz 2012). Their graves were registered on the cemeteries at Maadi, Wadi Digla and Heliopolis (see Chapter 4). The Lower Egyptian settlements in Maadi and Tell el-Farkha were the first places where donkey bones (*Equus africanus*) were ever recorded. Donkeys were quite surely used as means of transportation (Ovadia 1992; Abłamowicz 2012: 420).

Table 16. Percentages of domestic animals on sites of the Lower Egyptian culture.

SITES/ANIMALS	CATTLE	PIG	SHEEP AND GOAT	DOG	DONKEY
MAADI	26,23%	19,85%	50,78%	1,74%	1,4%
BUTO	44,49%	53,86%	1,27%	0,38%	0
TELL EL-FARKHA	13,1%	75,7%	4,4%	2,1%	4,2%
TELL EL-ISWID	38,42%	37,44%	23,64%	0,5%	0
TELL IBRAHIM AWAD	34,87%	51,37%	13,3%	0,46%	0

In Maadi and Wadi Digla over 86% of all bones registered within the settlement and the necropolis were the bones of domestic mammals: cattle, sheep, goats, pigs and dogs. In Tell el-Farkha, domestic animal bones represented 96.4% of all animal remains registered there (Ablamowicz 2012: tab. 2). The percentage of each species of domestic animals varies from site to site. Such variations could result *inter alia* from different environmental conditions, different eating habits, or different lifestyles. Thus, they indicate the existence of regional differences within a single cultural unit. In Maadi the dominating group were cattle bones. While pig bones were the least numerous, their size indicates very good breeding conditions. In Tell el-Iswid and in Tell el-Farkha pig bones clearly prevail. In Buto's layer I pig bones significantly outnumber cattle bones, but in layer II the relative proportions become equalized (Boessneck *et al.* 1989; Boessneck & von den Driesch 1997).

The significance of pigs in the economy of Lower Egypt implies a sedentary lifestyle of its communities. Pig breeding was very valuable for the settlement's inhabitants, as it ensured quick and easy response to food demand. Pigs are unlikely to travel long distances, but on the other hand they can graze on woodlands, on grasslands or near the house. In addition, pigs are omnivores, gain weight quickly (already at the age of approximately 1 year they achieve 90% of adult weight) and breed well (2 liters per year, 8 to 15 piglets per litter).

Analyses of pig bone remains from Tell el-Farkha also showed that in order to meet the food demand generated by a considerable number of people, pig carcasses were divided into small portions to maximize their use. The above claim is supported by strongly fragmented bones representing all skeletal parts. The said fact may indicate that meat was processed in pottery vessels before consumption. Attention is drawn to a relatively large number of skull, mandible and teeth fragments, which suggests that head meat could have been consumed too. Furthermore, an analysis of the distribution of the percentages of skeletal elements of domestic mammals showed certain interesting behaviors among the inhabitants of Tell el-Farkha. In the case of pigs, there is a clearly visible surplus of

bones from the less valuable parts and a shortage of bones from high quality carcass parts (*e.g.* ham). This may imply that high quality meat was exchanged for other goods (Ablamowicz 2012: 420).

The high demand for meat among the inhabitants of Tell el-Farkha is indirectly confirmed by the slaughter age of pigs. R. Ablamowicz (2002; 2003; 2012) successfully confirmed that pigs were usually slaughtered at the age of 1 to 3 years (79.9% of all bones), and younger and older animals (under 1 and above 3 years, respectively) were slaughtered less often.

On the basis of an analysis of pig bones from the oldest layers of the Lower Egyptian culture, R. Ablamowicz (2003: 112) also concluded that pigs in the earlier period were generally larger than those in the later period. The said difference is believed to have resulted from specific breeding methods. Young animals were kept in enclosures together with cattle, and only after they grew older they were grazed on pastures.

Examination of pig bones from layers linked to Lower Egyptian settling activity revealed bone material coming from intermediate animal forms. Such material could have originated from recently domesticated pigs or from the offspring of a wild boar and a domestic pig, or finally from a primitive form bred in extensive conditions (Ablamowicz 2003; 2012).

Cattle and small ruminants (sheep and goats), although their breeding is more demanding than pig breeding, also played a significant role in satisfying the food demand of Lower Egyptian communities. Like in the case of pigs, the bones of the animals in question show a remarkably high degree of fragmentation, which suggests careful division of carcasses. Apart from meat, cattle could have provided milk, possibly used for manufacturing a range of dairy products. Ethnographic studies show that milk production is generally known all over Africa, unlike animal slaughtering carried out in a cyclical manner and on a large scale (Krzyżaniak 1980: 145). However, there is no evidence whatsoever to determine the relative importance of milk production in Lower Egyptian economy.

Animal remains from Maadi and Tell el-Farkha also included donkey bones (Ablamowicz 2012: 420), marking the oldest discovery of such remains in Egypt. Donkeys were domesticated in the Near East, but researchers fail to agree on the exact place and time. The prevailing view is that the central spot in the domesticated donkey area is occupied by Southern Levant. According to E. Ovadia (1992), the small number of donkey bones in Chalcolithic Southern Levantine sites implies that from the moment of its domestication the animal was primarily used as means of transportation.

1.3. Hunting, gathering and fishing

Lower Egyptian communities satisfied their food demand by means of food production. Hunting, gathering and fishing played a marginal role in this respect. Bones of wild animals recovered from the settlements were innumerous in comparison to the bones of domesticated animals. Bones of wild mammals, birds and fish accounted for 14% of all bones registered in Maadi and for as little as 3.4% of the bones found in Tell el-Farkha. The most common wild

mammals included aurochs (*Bos primigenius*), wild boar (*Sus scrofa*), hippopotamus (*Hippopotamus amphibius*), gazelle (*Gazella dorcas*), antelope (*Alcelaphus buselaphus*), jackal (*Canis aureus*), hyena (*Hyaena hyaena*) and fox (*Vulpes vulpes*) (Abłamowicz 2012: 416). In addition, capricorn (*Capra ibex*) horns were found in Maadi. The lack of other skeletal parts of this particular mammal suggests that the settlement's inhabitants obtained this material not by hunting, but by other means, *e.g.* by exchange. Even less numerous on Lower Egyptian sites were bird and fish bones. As far as the former are concerned, the dominating species include Anseriformes: greater white-fronted goose (*Anser albifrons*), bean goose (*Anser fabalis*), mallard (*Anas platyrhynchos*), common pochard (*Aythya ferina*) and tufted duck (*Aythya fuligula*). More rare were the bones of Passeriformes: brown-necked raven (*Corvus ruficollis*), or Gruiformes: Eurasian coot (*Fulica atra*). Among fish bones the prevailing ones belonged to catfishes (*Synodontis*). On that basis one can hypothesize that fishing was organized in accordance with certain preferences, with an aim to catch fish providing the largest amount of meat (the energy value of fish meat must have been an important addition to the diet) and simultaneously providing raw material for manufacturing small tools (fish bones were used to produce *e.g.* fish hooks) (Abłamowicz 2003: 110-111; 2012: 417; Makowiecki 2012).

Lower Egyptian communities also gathered bivalves, the most common of which were *Aspatharia* (*spathopsis*) *rubens*. Bivalves may have constituted a dietary supplement, and their shells were used as containers, spoons, or pendants (van den Brink 1989; Boessneck *et al.* 1989; Boessneck & von den Driesch 1997).

Land animals and birds were hunted with harpoons, bows, flint-headed arrows, stone spears and various kinds of nets (used *e.g.* to catch waterfowl). Fish were caught using copper or organic hooks and nets (Rizkana & Seeher 1989: 76).

1.4. Summary

Lower Egyptian communities made a very good use of the natural resources offered by the Nile Delta. Adaptation to local conditions meant acceptance of both positive and negative characteristics of the region. The first farmers from the Delta cultivated first of all two cereals: barley and wheat, both of which were well adapted to the specific soil conditions (moisture fluctuations and high salinity). Diet was based on foods made from cereals (beer and bread) and supplemented with other plants, including in particular the protein-rich Papilionaceous. It also seems that concentration of animal production on pig breeding was the optimum choice in terms of meat production efficiency. The value attributed to pork meat is confirmed by a high degree of bone fragmentation (implying very rational portioning of carcasses), as well as by traces of head meat consumption. Cattle, sheep and goats were most probably used as the basis for milk production. The low percentage of wild animal meat in the Lower Egyptian diet is rather intriguing. Possibly, limited reliance on the Delta's wildlife resulted from specific food preferences on the one hand, and from rational arguments on the other. Hunters focused on large animals and easily available birds, large

numbers of which inhabited the Delta's wetlands. Wildlife was a source of not only meat, but also skins, bones (used as a raw material), and possibly also feathers. A similar situation is observed in the case of fishing, with catfish being the most commonly caught species due to the high amount of meat. Bivalves, rich in easily digestible proteins, were gathered as well.

Considering the above, one should conclude that Lower Egyptian communities made their food choices on the basis of economic arguments: they opted for those sources of food that offered the best ratio of nutritive value to labor intensity. Therefore, it seems that the adaptation of the Lower Egyptian culture, manifesting itself in opting for the most suitable economic strategy, proved successful and ensured conditions necessary for sustained existence.

2. Social system

Assuming that prehistoric societies had a systemic nature leads to a logical conclusion that the (social, economic and ideological) subsystems of those societies were closely interrelated. Individual elements of each of those subsystems must have been reflected in the organization of the other two subsystems. Therefore, the existence of a social division must have been visible *e.g.* in ideology, which in its turn could have been used to legitimize, interpret or explain social divisions. Furthermore, social divisions in earthly life could have affected the organization of a given community's afterlife. The social status of an individual could have been preserved also after his/her death by means of certain grave architecture, grave goods or even funerary rites. Distinguishing an individual through a large number of grave offerings, highly valuable at times, or through unusual grave structure, could have reflected that individual's position (vertical differentiation) or his/her sex or age (horizontal differentiation). The existence of a relationship between social organization on the one hand and funerary practices on the other has been frequently discussed among archeologists and anthropologists (*i.e.* Binford 1972: 208-243; Hodder 1982: 201; O'Shea 1984). Archeologists studying funerary practices of a given society need to realize that what they study is not a consequence of an isolated process, but rather of a number of intertwining processes – demographic, social, ritual, symbolic, geological, depositional, and statistical (Braun 1981: 412). Therefore one should always bear in mind many other factors, elusive from an archeologist's perspective, that could have affected funerary practices (Ucko 1969: 275).

The Lower Egyptian community is generally seen as egalitarian, and thus free from status-related vertical differentiation (Kemp 1989; Commenge & Alon 2002: 140). This view is primarily based on frequent comparisons of the Lower Egyptian culture to its contemporary Naqada culture from the south of Egypt. It is assumed that the process of social differentiation in Upper Egypt began most probably towards the end of Naqada I period. The said process is reflected in archeological material, including in particular more and more important concentrations of goods in an increasingly restricted number of graves throughout the Naqada II period (Guyot 2008: 715). Meanwhile, our understanding of the

Lower Egyptian culture is based mostly on records from settlement sites. This imbalance between the data from Upper and Lower Egypt makes all comparisons between the two regions misleading (Hendrickx & van den Brink 2002; Levy & van den Brink 2002: 7-8; Köhler 2008; *in press* a). It goes beyond doubt that both cultures differed from one another, each representing its distinct and unique model of adaptation to its environment. Climate, geographic conditions and available raw materials all affected the final shape of each culture. It was on the basis of those elements that the members of Naqada and Lower Egyptian communities made their choices and built their own cultures. Meanwhile, in most comparisons these two cultures are situated in opposition to each other. Naqada culture is always seen as "better", being more developed and socially stratified, even if all these processes had just started. In comparison to Naqada culture, Lower Egyptian culture is treated as unspectacular with its egalitarian social system, simple, poor burial custom and household production (*cf.* Maczyńska 2008; *in press* a).

Currently known Lower Egyptian necropolises are not contemporary to one another and therefore they most probably represent different stages in the development of Lower Egyptian communities. On that basis one can trace back the changes in funerary practices and the related social rules.

In terms of size and depth, grave pits in all Lower Egyptian cemeteries are fairly similar and they do not seem to reflect the social status or the age of the deceased. Even the youngest Lower Egyptian graves from group I in Minshat Abu Omar were shallow and the body was most probably deposited right after digging the pit, without any special preparations. K. Kroeper (2004) concluded that both the size and the depth of the grave were of no importance and that in the period in question there was no standardized grave size.

If one looks at the characteristic funerary practice in the oldest phase of the Lower Egyptian culture, one will notice a high degree of similarities between and scarce offerings in graves, which may indicate similar social status of the dead. Meanwhile, the younger necropolis in Minshat Abu Omar stands out in terms of quality and quantity of grave offerings, and the differences in grave goods are the most visible here. The richest grave 330 enshrining a female (?) aged 17 or 18 contained 33 offerings – locally manufactured pottery vessels, a single vessel of Southern Levantine origin, stone vessels, stone beads, flints, shells and a bone spoon (Kroeper & Wildung 1994: 116-122). The grave 231 with the second largest number of goods belonged to a male aged 20 to 40 and contained 25 items, including a W-ware vessel, stone balls, a flint knife and two decorated needles. For K. Kroeper (2004) the number of grave goods was the key factor differentiating graves from one another. According to her, the 33 offerings could have accompanied a leader or chief, and the number of goods reflected his/her social status rather than wealth. If this assumption is true, another important member of the community was buried in grave 105. However, an analysis of offerings in graves from Minshat Abu Omar suggests that it was not only the number of offerings that mattered. Particularly remarkable are grave goods from outside Lower Egypt (from the south and the east), as they are innumerous when compared to local

objects and stand out in terms of form and raw material. All imported items were found in graves containing at least 3 offerings, and most of them were registered in graves with more than 6 offerings. Limited availability of goods imported from outside Lower Egypt, as well as their different form and fabric must have made them particularly valuable. A fine example here is the grave 313, containing only 3 items, 2 of which were local R-ware vessels and the third one was a Southern Levantine keg form vessel. Judging by the number of grave goods only, one could classify this particular burial as poor. However, it seems likely that the value of one of the goods, the Southern Levantine vessel, suggests a special social status of the woman buried in that grave.

Emphasizing the importance of a dead person by means of the number and/or unique character of goods deposited in the oldest Lower Egyptian graves in Maadi, Wadi Digla or Heliopolis is uncommon. In Wadi Digla, only a few graves contained vessels that may have come from Upper Egypt and vessels made of local clay with ornaments reminiscent of Southern Levantine vessels (Rizkana & Seeher 1990: 76, 87; see Chapter 7). In Heliopolis attention is drawn by a grave where presumably the bottom part of an imported vessel with a characteristic plastic knob was deposited. In the younger necropolis in Minshat Abu Omar the tradition of depositing imports is already well visible. Thus, it seems likely that sometime in the middle of Naqada II period a shift in the Lower Egyptian funerary practices may have occurred. Only two necropolises are known from that period: Kom el-Khigan and Minshat Abu Omar. In terms of offerings, graves from phase 2 in the necropolis of Kom el-Khilgan dated to Naqada IIC are similar to those from Maadi, Wadi Digla and Heliopolis. Meanwhile, group I graves from Minshat Abu Omar, some of which are contemporary to those from Kom el-Khilgan, show major differences as regards grave goods. Explanation of this situation is not made any easier by the lack of graves dated to NIID in Kom el-Khilgan.

A closer look at the materials from settlements from the same period does not allow one to hypothesize about sudden changes in the social structure that could theoretically result in the appearance of richer graves. Instead, it seems that the materials from settlements show a steady development of the culture in question. Maadi, one of the key settlements, provided evidence confirming the existence of trade exchange with Upper Egypt and Southern Levant and the emergence of specialized production of certain items (copper objects, basalt bowls). Interestingly, although the inhabitants of Maadi possessed certain exotic imports (vessels, knives, palettes), they did not offer them as grave goods. One of the more interesting finds are blacktopped vessels and their imitations from Maadi. In Upper Egypt vessels with black tops are very rare on the settlement. They were used mostly as grave goods and thus are found mostly in cemeteries. Although Lower Egyptians from Maadi used vessels imported from the south and imitated them locally, they did not accept the southern idea of their use as grave goods. No grave of Maadi and Wadi Digla contained black topped vessels, which were probably used only on the settlement (Mączyńska *in press* b; d). The above context gives a new meaning to the statement by M.A. Hoffman (1979: 209) quoted by

E.K. Köhler (*in press* a) discussing social complexity of the Maadi inhabitants: "[merchants from this site] preferred to invest most of their extra wealth in trade, storage and metallurgy rather than in fancy tombs and luxury goods".

Trade exchange intensified in the middle of Naqada II. Data from settlements, including in particular Tell el-Farkha and Buto, show that the number of imports from the south and the east grew at that time. In the south, Naqada II was a period of intensive social stratification and formation of elites in need of prestige goods denoting and validating one's special position and status. One method of obtaining prestige goods was by accessing the interregional trade network (Köhler 2010: 39; Guyot 2011: 1257). It seems that essentially at the same time the Lower Egyptian culture also saw changes in social complexity. Those changes were related to increasing specialization and intensification of interregional contacts related to the exchange of goods and information. The community that buried its dead in Minshat Aby Omar participated in the exchange between Upper Egypt and Southern Levant and derived benefits from this participation and (likely) intermediation (*cf.* Maczyńska *in press* c). This would have had affected the community's social complexity. A similar situation was observed in Tell el-Farkha which due to a number of discoveries (brewing center, special purpose buildings, imports, mudbrick walls – see Chapters 4, 6 & 8) and its location is considered as the center of commercial exchange between Upper Egypt and Southern Levant (Chłodnicki & Geming 2012; Ciałowicz 2012a; Czarnowicz 2012b; Mączyńska *in press* d). Involvement in trade gave the inhabitants of both settlements (Tell el-Farkha and Minshat Abu Omar) easy access to imports. Southern and eastern items regularly reached the settlements, and some of them remained in the hands of their inhabitants. Quite surely, the exchange had to be managed and controlled by an individual or a group whose social status could have been special as a result. Furthermore, it is not impossible that such a function involved material benefits. At the current state of research and publications our understanding of this issue is incomplete. The only archeological material available are dead bodies and grave goods, some of which are imports standing out in terms of form, material and probably value.

An analysis of the data discussed above does not allow one to precisely define the social rules governing Lower Egypt's burial customs. It seems likely that in the beginning Lower Egyptians did not pay much attention to funerary practices. The arrangement of burials did not require any particular effort. Over time, the number of offerings increased (Tab. 15). In addition, items imported from outside Lower Egypt began to be deposited in graves. Their value was most probably greater than that of goods made locally. It is assumed that grave offerings did not denote the wealth of the deceased, but rather his/her particular social status. Differences in grave goods could thus reflect certain social divisions within the Lower Egyptian culture, including in particular the presence of individuals enjoying a special social status.

The presence of a leader (or leaders) in Lower Egyptian communities could also be inferred from other discoveries. The number and the well-organized structure of breweries discovered in Tell el-Farkha suggest the presence of a person (or persons) in charge

of supervising beer production. While we are unable to determine the social status of such supervisor(s), the function itself could have been a distinguishing factor within the community. Furthermore, it is unquestionable that the amount of beer produced in the huge brewery center must have been greater than the local demand for beer (Adamski & Rosińska-Balik *in press*). Surpluses – just like pork meat – could have been exchanged with Upper Egypt and Southern Levant (Mączyńska *in press* a; d).

Excavation works revealed two major buildings in the settlement of Tell el-Farkha, whose form and dimensions make them significantly different from all previously known Lower Egyptian structures. The first one, located in the central part of the Western Kom, had a distinct courtyard and was divided into a number of rooms. Most probably it was used not only for residential purposes, particularly because it was located in the vicinity of the brewery (see Chapter 4; Fig. 7; Cichowski 2001: 49-63; 2008). The other building, referred to as the Lower Egyptian residence, is also unique due to its form, items found inside it and the presence of a mudbrick wall (see Chapter 4; Pl. 6). It seems that the building must have played an important role for the inhabitants of the settlement and was probably connected with commercial exchange.

The existence of distinct social groups in society could have also been linked to the pursuance of different crafts by different members of the group. Most items and tools were made from locally available materials in individual households, catering for their own needs. It seems however that already at that time specialized production of certain items took place as well. Undoubtedly, manufacturing of metal items required thorough knowledge of metal properties and production processes. While no traces of metallurgy workshops in Lower Egypt have been discovered thus far, researchers generally agree that such workshops did exist. The small number of metal items used by Lower Egyptians may indicative high value of this material and its multiple recycling in the case of damage. It needs to be remembered that the concept and knowledge of metallurgy reached Lower Egypt from Southern Levant, where metal production was a highly specialized craft, and metallurgists enjoyed a special social status (see Chapter 3). When adapting metal and its production process, Lower Egyptians could have also adapted other ideas linked to metallurgy, such as the social position of metallurgists.

Similarly, it seems that beer production involved a certain form of specialization. Producing a beverage of adequate quality depended on following the right procedure. Beer production required one to prepare cereals and then to monitor the brewing process (see Kubiak-Martens & Langer 2004). Physical separation of the breweries from the remaining parts of the settlement by means of a mudbrick wall also suggests that beer production was a specialized occupation.

E.Ch. Köhler (*in press* a) claim that specialization was also necessary in manufacturing basalt bowls, given the skill, labor and energy required. Likewise, manufacturing of imitations of blacktopped vessels involved special skills and more energy than normal production and firing of typical utilitarian vessels (Maczyńska *in press* a).

A careful analysis of social structure data derived from necropolises on the one hand and from settlements on the other shows a certain discrepancy. Materials from settlements do not suggest any significant changes in the social structure. Instead, one observes a fairly constant development of the communities inhabiting the Nile Delta and utilizing its natural resources. Involvement in commercial exchange with other regions and development of specialization exerted profound influence on the social transformation of Lower Egyptian communities. In the initial period the said changes are not reflected in funerary practices. Although the inhabitants of Maadi possessed valuable prestigious items imported from Upper Egypt, such as ritual fishtail knives, palettes, vessels, copper tools, and even tried to imitate them in some cases, they did not offer them as grave goods. Most probably it was only intensified exchange and specialization in the middle of Naqada II that did affect Lower Egyptian burial customs. The number of grave goods increased and began to include valuable imports. Although most researchers believe that the number of grave goods reflected the social status of the deceased, it is not impossible that it was also linked to their wealth. The benefits of exchange and specialization were enjoyed by those individuals who organized and participated in such trade or manufactured given items or products. Golden beads found at Tell el-Farkha or a jar with a painted boat from the grave 757 at Minshat Abu Omar most probably belonged to individuals. The fact that only 5 golden beads and only one such jar were found is quite significant. The community whose members are buried in Minshat Abu Omar had a remarkably diversified social structure. Social changes observable in the oldest graves continued throughout Naqada III. In groups III and IV the number of graves with greater numbers of offerings increased. Interestingly however, the richest grave in each of the three groups contained comparable numbers of goods in proportion to all goods offered in each group (Kroeper 2004: tab. 7). Currently however we are unable to confirm whether the above fact reflects the relatively constant importance of the group's leader throughout the period in which the necropolis was in use, particularly because it is not only the number but also the quality of offerings that needs to be considered.

Relying on the data presented above one is unable to ultimately evaluate the social complexity of the Lower Egyptian culture. Settlement data seem to contradict funerary data. Despite a uniform burial custom, items discovered in the settlements suggest differences in social positions of Lower Egyptian community members. Specialists in manufacturing various items or products (copper tools, vessels, beer), or persons supervising or managing certain activities (trade, beer production) could have enjoyed particular prestige. The presence of luxurious Upper Egyptian items (blacktopped ware, flint knives, rhomboidal palettes) is intriguing – possession of such items could denote a special status in the Lower Egyptian culture.

Full understanding of Lower Egyptian social organization requires a number of further analyses based on both old and new material. Undoubtedly, discoveries of new Lower Egyptian sites would be a welcome contribution to that process.

Chapter 6

Lower Egyptian ceramic assemblages

1. Pottery classification systems

The type of ceramic fabric and its surface treatment are the fundamental features based on which Lower Egyptian pottery is classified in this publication. By reference to these two characteristics it was possible to classify pottery into sets of ware groups with different combination of surface properties, characterized by one fabric, or a set of closely related fabrics (Payne 1993: 26 after Nordström 1972: 40-44, 48-57).

However, comparing Lower Egyptian pottery from different sites involves certain difficulties stemming from differences in classification systems used by respective authors of site reports. Those classifications were based on various combinations of features taken into account in the process of assigning vessels to ware groups.

1.1. Buto – Tell el-Fara'in, Ezbet el-Qerdahi

In Buto, T. von der Way (1997: 81-84) identified three ware groups taking into consideration types of clay and tempers (if any). Additionally, Ware 1 was divided into seven subwares, depending on surface treatment.

Ware 1a	group of pottery with wet smoothed surfaces without slip;
Ware 1b /1c	group of pottery covered with slip, from bright red to brown (1b – dark slip; 1c –light slip);
Ware 1d	group of thick-walled pottery with the inner surface covered with lime coat;
Ware 1e	group of pottery with the outer surface covered with lime coat;
Ware 1f	group of thin-walled pottery with surface covered with white lime coat, sometimes smoothed;
Ware 1g	group of thick-walled pottery with a distinctive white, striated decoration in the rim zone;
Ware 2	group of pottery made of ceramic paste containing large pieces of crushed limestone and crushed pottery (1-2mm);
Ware 3	group of pottery made of ceramic paste containing a large amount of crushed shells.

Each individual ware group has its own vessel forms. The same classification system was applied by T. von der Way (1997) during the analysis of pottery from Ezbet el-Qerdahi.

From 1993 to 2000 excavations in Buto were lead by D. Faltings, and pottery from layers III and IV was analyzed by E.Ch. Köhler (1993; 1998). Interestingly, according to E.Ch. Köhler (1998: 44) in terms of technology and typology the pottery from layer IIIa is to a great extent similar to pottery from layers I and II, which can be probably attributed to the fact that all those layers are associated with the Lower Egyptian culture. E.Ch Köhler used her own pottery classification system, considering the Vienna system to be only partially adequate for describing the early Nile Delta pottery (Köhler 1998: 13-14). Ware groups identified by her by reference to manufacturing technology are characterized by the type of clay, type and size of temper and the presence of slip.

1.2. Heliopolis

Pottery classification proposed by F. Debono and B. Mortensen (1988: 25) took into consideration pottery fabric, shape, color and surface treatment. As a result, the researchers assigned each vessel type to one of the three following ware groups:

1. Straw-tempered ware – group of pottery made of clay tempered with straw and chaff;
2. Sand-tempered ware – group of pottery made of clay tempered with very fine sand;
3. Palestinian ware – group of pottery imported from Southern Levant.

1.3. Kom el-Khilgan

As no detailed reports from the site at Kom el-Khilgan have been published, one may only assume that the system used to describe pottery from Adaïma and from Tell el-Iswid (see below) was also used in reference to pottery from Kom el-Khilgan.

1.4. Maadi, Wadi Digla

I. Rizkana and J. Seeher (1987: 24-32; 1990) classified pottery into ware groups by reference to color and surface treatment, presence of slip, the character of clay and temper, and finally break-color and break-zonation. Based on the above qualities they identified five ware groups. In addition, group I was further divided into four additional subgroups, depending on vessel surface color and treatment.

Ware Ia	Black Ware;
Ware Ib	Reddish-Brown Ware;
Ware Ic	Local Painted Ware;
Ware Id	Local Blacktopped Ware;
Ware II	Red Burnished Ware;
Ware III	Yellowish Washed Ware;
Ware IV	Imported Blacktopped Ware;
Ware V	Palestinian Ware.

Each of the above groups is represented by different vessel forms.

1.5. Minshat Abu Omar

In her general publications describing pottery from the oldest graves at Minshat Abu Omar, K. Kroeper (1985; 1986/87; 1988) applied the terminology used in the classification system developed by W.M.F. Petrie (1921), *e.g.* R-ware, D-ware, W-ware. In more detailed publications presenting individual graves and their content the description of pottery technology involved the identification of clay and temper (type and size), as well as a reference to the Vienna System. Surface color was described according to the Munsell color system (Kroeper & Wildung 1994; 2000).

1.6. Tell el-Farkha

So far, the so called Vienna System was used in analyzing the pottery of the Lower Egyptian culture (see Nordström 1972; Nordström and Bourriau 1993), whereby fabric and surface treatment were the basic qualities according to which ware groups were identified (Chłodnicki *et al.* 1991; 1992a; 1992b; Jucha 2005; Mączyńska 2002: 100-104; 2003a; 2003b; 2004; 2012). The following ware groups were identified in Tell el-Farkha[1]:

R1: Rough coarse ware, equivalent to Petrie's Rough class; Fabrics Nile C3 – Nile C4 (adapted after Vienna System Nile C). It is characterized by a very rough surface with large voids from burned-out organic temper.

R2: Rough ware; Petrie's Rough class; Fabrics Nile B2, Nile C1-2. The rough, wet smoothed surface has voids from burned-out organic temper (2-5mm), which is less coarse than that of R1 ware.

P: Red slipped ware; Petrie's Red-polished class; Fabrics Nile A, Nile B, Nile C1. The surface is covered with light red, red or reddish-brown slip, polished or burnished. The "Lower Egyptian" fiber temper was also recorded among vessels belonging to this ware group.

Y: Yellow slipped ware. Vessels coated with yellow slip are present in Petrie's classes R, L and even W; Fabrics Nile A, Nile B, Nile C. The surface is covered with yellow (cream) slip, smoothed, polished or occasionally burnished (for more details see Mączyńska 2004).

1.7. Tell el-Iswid, Tell Ibrahim Awad

Only short pottery analysis reports from those two Lower Egyptian sites have been published so far. In both cases E.C.M. van den Brink (1989: 67-70; 1992b: 53-54) did not use a formalized classification. He presented the Lower Egyptian ceramics in a descriptive way taking into consideration technological (clay and temper) as well as the typological (forms and ornamentation) qualities.

In 2007 the team of the French Institute of Oriental Archaeology in Cairo began to explore the site. As regards Lower Egyptian pottery, F. Guyot (*in press*) identified 8 fabrics taking into account clay types and temper sizes.

1 For the Western Kom system see Jucha 2005.

AV1	group of pottery made of Nile clay tempered with coarse organic temper;
AV11	group of pottery made of Nile clay tempered with medium organic temper;
AVM1	group of pottery made of Nile clay tempered with coarse organic and mineral temper;
AVM11	group of pottery made of Nile clay tempered with mineral temper;
AM	group of pottery made of Nile clay tempered with mineral temper;
AF	group of pottery made of Nile clay tempered with fibrous temper;
C	group of pottery made of marl clay;
LS	group of pottery made of less clay.

1.8. Other sites

Along with ceramic materials found on big, well explored sites, there are also small collections of Lower Egyptian ceramics, found during rescue project accompanying construction works in Giza (Mortensen 1985; el-Sanussi & Jones 1997) and Tura (Kaiser & Zaugg 1988). Moreover, in 1985 results of an analysis of 12 Lower Egyptian vessels from the es-Staff cemetery were published. The cemetery was explored in 1935 by L. Habachi (Habachi & Kaiser 1985). In short descriptions of those collections the authors presented the pottery in a descriptive way, sometimes (in the case of Giza and Tura) with references to the classification system used in Maadi and Wadi Digla. The pottery from the cemetery of Beni Amir was shortly described by a vessel type, dimensions and analogies from other sites (el-Moneim 1996: 260-272).

In a short publication on pottery from Mendes, R.F. Friedman (1992) analyzed in a descriptive way the basic qualities of the pottery assemblage, along with elements of the classification system proposed in her doctoral dissertation on Upper Egyptian settlement pottery. The classification of R.F. Friedman's (1994) is a modified version of the system proposed by M.A. Hoffman and M. Berger (1982: 67-68) to describe pottery from the Hierakonpolis site.

1.9. Summary

A comparison of the qualities considered in classification systems presented above shows that those systems are to some extent similar and the existing differences between them stem from different combinations of qualities used to identify individual ware groups. Difficulties in comparing ceramics from individual sites might be overcome by analyzing them in detail without references to existing classification systems.

Another inherent challenge in comparing Lower Egyptian pottery from various sites covered by this chapter is that most of those have different chronologies. The sites represent three different phases of the culture (Tab. 3). While Lower Egyptian pottery tradition is a continuum, there are visible differences in pottery forms and ornamentations between its phases.

Lower Egyptian pottery addressed in this chapter comes from settlements (*e.g.* Buto, Tell el-Farkha, Tell el-Iswid, Tell Ibrahim Awad, Maadi) as well as from cemeteries (Heliopolis, Maadi, Wadi Digla, Minshat Abu Omar). A comparison of materials from a settlement and a cemetery is apparently difficult when one considers the differences in the very nature

of those materials. Pottery found in settlements served a different function than vessels found in cemeteries. The former was used for household purposes, such as storage or preparing/consuming food, whereas the latter was used as grave offerings. Lower Egyptian cemeteries explored so far (*e.g.* Heliopolis, Maadi, Wadi Digla, Minshat Abu Omar) have shown that there are no significant differences between pottery from settlements and from cemeteries. It has not been proven that pottery offered as grave goods was made especially for that very purpose. The only difference between the two pottery types is that some vessel forms that were not found in cemeteries appeared to be quite common in settlements. On the basis of the research conducted in Minshat Abu Omar K. Kroeper (2004: 878) concluded that vessels found in graves had not been used before. However, it goes beyond doubt that the repertoire of local forms found in the graves of that cemetery (lemon shaped jars, bag shaped jars, Perie's R76 and R84 jars) is the same as in settlements dated to NIIC-D, such as Tell el-Farkha (Mączyńska *in press* c). Our knowledge of Lower Egyptian burial customs allows one to assume that there was no division into settlement and cemetery pottery. Vessel functions and meanings in both contexts may have been different, but vessel forms were the same. However, the foregoing does not disprove that vessels used in cemeteries were new or previously unused and were purchased or made for this very purpose.

2. TECHNOLOGY

The mode of paste preparation, vessel production and firing process was similar in all phases of the Lower Egyptian culture.

2.1. Raw materials

Lower Egyptian pottery was predominantly made of alluvial Nile clay tempered with mineral temper of sand or crushed stones, as well as with organic temper of straw, chaff and dung. The last type of temper took the form of small particles, usually shorter than 3mm, with circular cross-sections, 1mm in diameter (Rizkana & Seeher 1987: 25; Debono & Mortensen 1988: 25). The distribution of organic particles coming from animal dung in the paste is regular and parallel to vessel walls (Nordström & Bourriau 1993: 163). In some cases sand or chaff was replaced by crushed shells (Buto Ware 3). Long and thin organic fibrous temper was also used as an organic filler, *e.g.* at Tell el-Fara'in-Buto, Tell el-Farkha, Tell el-Iswid, Maadi, Mendes, Minshat Abu Omar[2], leaving tiny cracks on the vessel's surface after firing. Temper size depended on the vessel form. Ceramic paste tempered with fine mineral material (sand) was used for making better quality vessels, characterized by thinner walls and smoothed surface, sometimes covered with slip. Coarse mineral temper resulted in wall roughness, further increased by the presence of organic temper which would leave characteristic small holes (negative impressions of burnt-out straw or chaff) (Rizkana & Seeher 1987; 1990; Debono & Mortensen 1988; van den Brink 1989: 55-108; von der Way 1997).

2 See Köhler 2008: footnote 13.

Pottery made of marl clay, the deposits of which are present in Upper Egypt, was registered on such sites as Tell el-Farkha, Buto, Tell el-Iswid or Minshat Abu Omar. Most finds from settlement sites were fragments of D-ware and W-ware imported from the south (van den Brink 1989; von der Way 1997; Jucha 2005: 55; Mączyńska *in press* c). In the cemetery in Minshat Abu Omar, certain graves contained a few complete vessels with painted decoration and with characteristic wavy handles (Kroeper 1985; 1986/87; 1988).

2.2. Vessel making process

As the potter's wheel was not used, all Lower Egyptian vessels were hand-made, either of a single piece of clay or by coil or slab building. Turning was sometimes used, usually to form vessels' upper parts. Most probably they were placed on turning devices – either in baskets or on small wooden platforms, turned by the potter's feet or one hand. Vessel surface could be covered with slip or smoothed with a hard or soft object. Surface smoothing direction was usually vertical or diagonal on the body and horizontal around the rims (Arnold 1993: 85-86; Bourriau *et al.* 2000: 121-147).

Vessels were fired in hearths and simple kilns, at a temperature from 700 to 800°C (von der Way 1997: 81). After firing, clay color ranged from red to red brown, brown, and to black. Break color could either be uniform, or show darker (black or brown) zones, depending on firing atmosphere and its likely changes during the process. Vessel surfaces were hardly ever uniform, and due to imperfect firing conditions and little control over the firing process surface showed variously colored stains.

3. WARES AND FORMS

Individual elements considered in the typological analysis presented below are discussed jointly, irrespectively of their chronology. An overview of differences between materials from each of the three phases of the Lower Egyptian culture can be found in the final part of this chapter.

3.1. Wares

Considering the type of ceramic fabric and the method of surface formation, Lower Egyptian pottery can be divided into four basic ware groups (Tab. 17):

Rough ware	vessels with rough surface;
Red slip ware	vessels with surface covered with slip, ranging from red to plum and brown to black;
Yellow slip ware	vessels with surface covered with light lime coat;
Blacktopped ware	vessels with a characteristic blackened rim.

Table 17. Pottery wares of the Lower Egyptian culture.

WARES	BUTO	HELIOPOLIS	MAADI/WADI DIGLA	TELL EL-FARKHA	TELL EL-ISWID (IFAO)
Rough ware	Wares 1a	*Straw-tempered ware* (types I-IV, VIIA, IX, X)	Wares Ia, Ib	*Rough ware*	AVM1 AVM11, AV1, AV11
Red slip ware	Wares 1b, 1c, 2	*Straw-tempered ware* (types Vb, VI, VIII)	Ware II	*Red slip ware*	AV11.2, AVM11.2 AF.2
Yellow slip ware	Wares 1f and 1g	*Straw-tempered ware* (types Va, VIIb), *sand-tempered ware* (types XI, XII)	Ware III	*Yellow slip ware*	AV1.7, AVM11.7
Blacktopped ware	-	-	Wares 1d, IV	-	-

Rough ware

Rough ware is characterized by the presence of medium and coarse mineral and organic temper. Ceramic fabric of this kind belongs to the Vienna system groups N. IB2-IC1-2. Vessel surface after firing is rough despite earlier wet smoothing, either by hand or using a soft object, *e.g.* a piece of cloth or animal skin (von der Way 1997: 81-84). In some cases the upper part of the vessel could be subjected to turning. Surface color ranges from red to red brown, brown, and to black, and break color could either be uniform, or show darker (black or brown) zones. Variously colored stains are visible on vessel surfaces. As a group, Rough ware corresponds to Ware Ia, Ib from Maadi and Wadi Digla, Tura, Giza, Ware 1 in Buto, Straw-tempered ware in Heliopolis types I-IV, VIIa, IX, X, Rough ware in Tell el-Farkha, Tell el-Iswid and Tell Ibrahim Awad and AVM1, AVM11, AV1, AV11 in Tell el-Iswid. This type of pottery clearly prevails in inventories from each site. It should be remarked however that the presence of slip was identified on Ware Ia and Ib from Maadi and Wadi Digla, Rough ware from Tell el-Farkha as well as AV.1 and AVM.1 from Tell el-Iswid. However, in Maadi the presence of slip on black surface (Ware Ia) is difficult to confirm due to the non-oxidizing firing atmosphere, as a result of which carbon settled not only on the surface but also penetrated into vessel walls (Rizkana & Seeher 1987: 24). Nonetheless, pottery belonging to these two groups was classified as Rough ware owing to other characteristic feature, namely manufacturing technology and surface treatment (Rizkana & Seheer 1987: 23-24). A similar approach was taken in Heliopolis, where pottery classification system is based first of all on technological features, *i.e.* ceramic fabric composition. As a result, individual ware groups simultaneously include rough surface vessels, red slip vessels and white slip vessels (Debono & Mortensen 1988).

Red slip ware

Pottery covered with slip colored red to brown was made of ceramic fabric containing fine mineral temper and occasionally small amount of finely cut straw/chaff (N. IAB). This group of ware is also characteristic for fine and long organic temper (so-called fibrous temper) leaving hairline cracks on the surface. It was registered in Buto, Tell el-Farkha, Tell el-Iswid, Mendes and Minshat Abu Omar. As regards jars, slip covers their outer surface and possibly part of the inner surface just under the rim. In the case of bowls, either both surfaces or only the inner one is covered. Slip thickness varies. Slip covered surfaces were smoothed with a soft or hard object. Smoothing direction was usually vertical or diagonal on the body and horizontal around the rim. Break colors are usually uniform, although breaks with darker zones are also known. This group of vessels includes Ware 1b and 1c from Buto, Ware II from Maadi and Wadi Digla, Straw-tempered ware types Vb, VI, VIII from Heliopolis, Red slip ware from Tell el-Farkha, as well as AV11.2, AVM11.2 and AF.2 from Tell el-Iswid.

Yellow slip ware

Vessels covered with light lime slip are rarely found among Lower Egyptian pottery. This type of surface finishing is characteristic first of all for the pottery from Heliopolis (Debono & Mortensen 1988: 27). On other sites, Yellow slip ware is either far less numerous, or not present at all. In terms of technology, this group of pottery is fairly diverse. In the settlement of Maadi and in Wadi Digla, Yellow slip ware pottery was made of ceramic paste containing mineral temper consisting of sand and crushed limestone – Ware III (Rizkana & Seeher 1987: 29; 1990: 76). In Heliopolis, pottery of this kind belongs to both Straw-tempered ware types Va, VIIb and Sand-tempered ware types XI, XII (Debono & Mortensen 1988: 25-30). A similar situation occurs in Buto, Tell el-Iswid and Tell el-Farkha, where vessels covered with white lime coat were made of ceramic fabric containing both coarse mineral temper – N. IB2, N. IC and fine organic temper – N. IA, N. IB1 (von der Way 1997: 87; Mączyńska 2008; *in press* b; Guyot *in press*).

Slip thickness also varies from one site to another. In Maadi and Wadi Digla the slip coat is relatively thin, becoming transparent or even invisible in some places. Its color ranges from brown-yellow or red-yellow to yellowish-green or gray-green. Slip-covered surface may show traces of smoothing with a soft object (Rizkana & Seeher 1987: 29; 1990: 76). In Heliopolis vessels covered with white or beige lime coating show traces of wet smoothing (Debono & Mortensen 1988: 25-30). In Buto, pottery with white slip is divided in two groups differing in terms of temper size and wall thickness. In the thick wall group – Ware 1d, vessels were covered with slip to improve its tightness, while narrow wall vessels – Ware 1g had a white, striated decoration in the rim area, formed by immersing this part of the vessel in white liquid slip and subsequently wiping it with a soft object. In addition, slip-covered thin wall vessels had well smoothed surfaces (von der Way 1997: 84). The pottery from layer II in Mendes also includes vessels covered with a thick layer of yellow slip (Friedman 1992: 200).

Blacktopped ware

Pottery with a characteristic black rim zone was registered only in the ceramic assemblage from the Maadi settlement. I. Rizkana and J. Seeher (1987: 27, 29) identified two groups of such pottery, differing by the place of origin. Analyses show that the assemblage from Maadi contains not only original Naqadian blacktopped pottery imported from Upper Egypt – Ware IV, but also its local imitations – Ware Id.

The Maadi settlement assemblage contains a total of 12 fragments of imported vessels with discernible black tops. It seems that the local function of such vessels was different than in the south. While in Upper Egypt blacktopped pottery was usually deposited as grave offerings, no graves containing vessels of this kind were discovered either in Maadi or in Wadi Digla. It seems that such vessels were used by the settlement's inhabitants, rather than offered as grave goods. Their low number and the presence of local imitations could suggest their high value. Possibly, possession of such vessels denoted particular social status (Mączyńska *in press* a; d).

In terms of technology, pottery imported from the south differs from its local imitations. Ceramic fabric used to make blacktopped ware contains only mineral temper of sand and crushed stone. Vessel surface is covered with slip, either dark red, plum or red brown. The rim zone is colored black, both inside and outside[3]. Break color in the rim zone is also black, while it changes to red brown with a black core in the other vessel parts. The entire surface was very well polished with a hard object, either vertically or diagonally.

Local imitations of blacktopped ware (Ware Id) differ from imported originals first of all by the presence of organic temper and a different character of the black rim zone. In vessels manufactured locally only the outer surface is black, while break color is light brown or red brown. Furthermore, only the outer surface of the vessel is covered with slip. Imitations of blacktopped ware are not as carefully crafted as originals.

3.2. Vessel forms

Each ware group is characterized by specific vessel forms.

Rough ware

Since this group is fairly widespread, it is characterized by a rich repertoire of open and closed forms. Among closed forms, the most numerous subgroup on all sites discussed here are various types of jars with globular or ovoid body, flat or pointed base, without neck or with a short distinguished neck, wide or narrow mouth and a slightly everted rim – Maadi, Wadi Digla, Giza types 3, 4, 5, Buto types G1a, G1b,G2a, G2b, Heliopolis types I-IV, es-Staff, Abb. 1/1,4,5,7,8,9, Tura Taf. 42a,b; 43a, b-d, Tell el-Iswid types 3a1, 3b1, 3b2, 4b1, 4b2-2 (Rizkana & Seeher 1987: pls. 7-23; Debono & Mortensen 1988: pls. 1-4; von der Way 1997: Taf. 1-13;

3 For more details about the methodology of obtaining black rims of this kind see Rizkana & Seeher 1987: 27; Lucas & Harris 1962: 380; Davies 1962; Hendrickx *et al.* 2000: 171-187; Baba & Saito 2004).

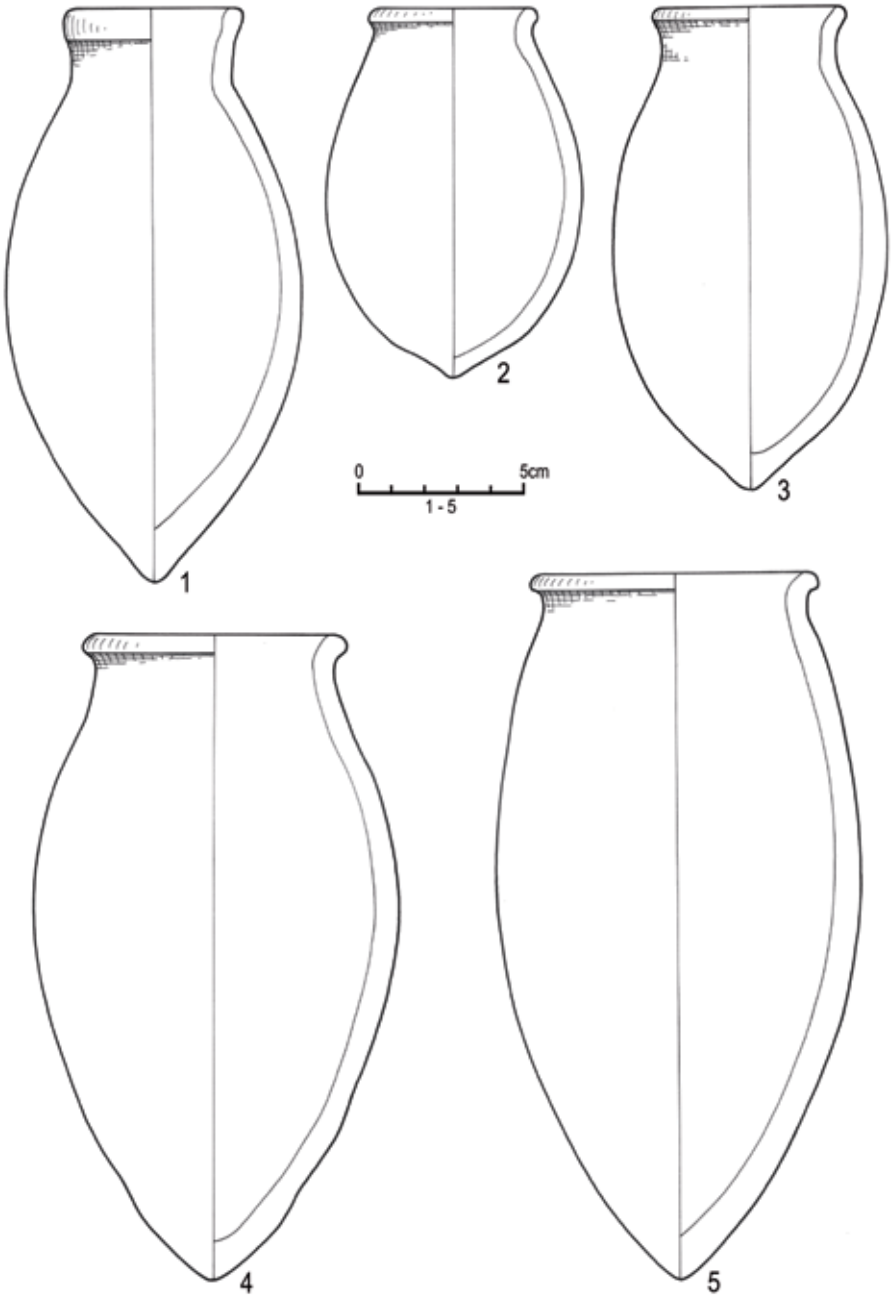

Figure 9. Tell el-Farkha. Lower Egyptian pottery.

Guyot *in press*). On such sites as Maadi, Wadi Digla and Heliopolis, another typical form are jars on a raised base – Maadi type 1, characteristic mostly for Ware Ib and Heliopolis types Va, Vb (Rizkana & Seeher 1997: pls. 1-5; Debono & Mortensen 1988: pl. 5). Rough surface forms also include small jars with a short vertical neck and pointed or round body, usually referred to as lemon shaped jars or bag shaped jars (Figs. 9, 10:1-2, 4; Pl. 12) – Buto type G1a1; Tell el-Iswid type 4b) (von der Way 1997: Taf. 1, 3:4-10; Mączyńska 2012: figs. 1.5,7; 3;). Lemon shaped jars are believed to be strong cultural markers of Naqada IIC, specific to the Lower Egyptian culture (Buchez & Midant-Reynes 2007; 2011). However, as shown by an analysis of grave contents from Upper Egypt carried out on the basis of available publications made by E.Ch. Köhler (*in press* b), vessels of this kind are fairly common in the south as well. The results of the said analysis seem to challenge the assumption that lemon shape jars are cultural markers. In Tell el-Farkha they account for approx. 45% of all closed forms, while in Tell el-Iswid only a few fragments of these vessels were registered. Rough ware from Mendes, Tell el-Iswid and Tell el-Farkha includes holemouth jars (rim diameter: 12-17cm), most probably used for cooking (Friedman 1992: 200; Sobas 2012: 183; Guyot *in press*). In Maadi, Rough ware also comprises large storage jars – type 6, all belonging to Ware Ib and big vessels with a wide, flat base, vertical walls and wide mouth – type 7 (Rizkana & Seeher 1987: 37, pls. 24-31). In Buto, Rough ware includes storage jars with a ridge running parallel to the rim (Habachi & Kaiser 1985: 43-46; Mortensen 1985: 145-147; Debono & Mortensen 1988: 25-30; Rizkana & Seeher 1987: 34-40; 1990: 26-27, 78-89; van den Brink 1989: 67-71; 1992b: 53-54; el-Sanussi & Jones 1997: 241-253; von der Way 1997: 88-94). In Tell el-Farkha in layers dated to the Lower Egyptian culture Rough ware consists of small and medium size rolled-rim jars, wide-mouthed jars with an undistinguished neck and flat or pointed base, similar to Petrie's R81 and R84 (Figs. 11:1-3; 12:3). For a long time it had been believed that vessels of this kind belonged to the Naqadian pottery tradition and their presence was linked to the so-called Naqadian expansion (Mączyńska 2004; Jucha 2005). However, analyses of pottery from Tell el-Farkha showed that vessels of this kind were known already in the first phase of the settlement, and their relative quantity compared to other forms in phases 1 and 2 on the Central Kom was constant (approx. 10% of all diagnostic sherds). The presence of R81 and R84 jars in Tell el-Farkha could be explained by their function (Mączyńska 2008; *in press* a). According to S. Hendrickx *et al.* (2002: 293-294) Petrie's jars R81 and R84 are the early beer jars. Given that breweries were registered already in phase 1 of the settlement in Tell el-Farkha, such early emergence of jars of this kind in the north could have been caused by the need for storage vessels for beer produced in the settlement. Therefore, if the idea of beer production originated in the south, the idea of its storage could have also come from the same region. It is undeterminable who made these vessels, but Lower Egyptian potters were probably able to follow Upper Egyptians and could have produced similar vessels in the north using the same, well available Nile clay, since the production of early beer jars did not require any special skills (Mączyńska *in press* d). R81 and R84 jars are also characteristic for layer IIIa in Buto, although a few

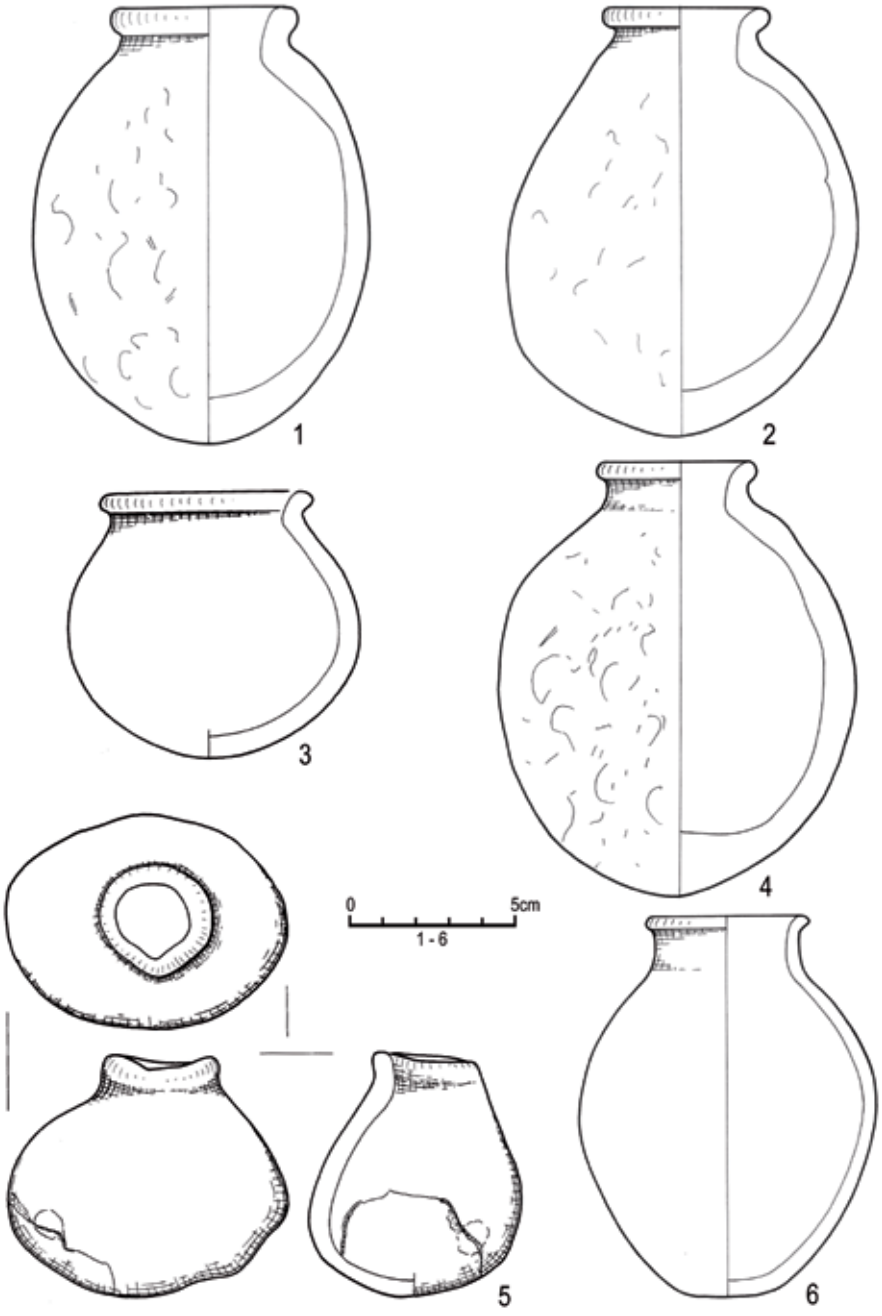

Figure 10. Tell el-Farkha. Lower Egyptian pottery.

such vessels are also known from older layers (Köhler 1998: 44). Vessels of this type were also registered in group I graves dated to Naqada IIc-d in Minshat Abu Omar, *e.g.* graves 665, 669 (Kroeper & Wildung 1994; 2000).

As regards open forms, Lower Egyptian culture sites are dominated by conical bowls differing from one another mostly in terms of rim shape. Particularly characteristic are irregular forms with a simple or slightly everted rim and convex or straight walls (Fig. 13:2-4). Their bases can be either flat or round – Maadi types 1, 2, Buto types O1a,b, O2, es-Staff Abb. 3, 6 (Rizkana & Seeher 1987: pls. 48-52; von der Way 1997: Taf. 20-27). In some cases, *e.g.* in Buto type O3b and O3c, rims are so strongly everted that they form a T-shaped profile (von der Way 1997: Taf. 33). Less numerous are deep bowls with convex walls and a thickened rim – Maadi type 3, Buto type O3a (Rizkana & Seeher 1987: pl. 54; von der Way 1997: Taf. 30). Rough ware bowls further include large pans with diverging walls (wall diameter of approx. 60cm) with brown-red surface, most probably used for mashing organic products (food) – Maadi type "pans", Buto O5a. According to I. Rizkana and J. Seeher (1987: 42, pl. 53), such function is suggested by a thin layer of crushed limestone or calcite pressed into wet surface of the vessel. Considering relatively low hardness of the pressed stone fragments, such pans must have been used for mashing soft, probably organic substances. In addition, the group of pans with brown-red surface include deeper pans with a thickened club-like rim – Maadi type "basins", Buto type O5b (Rizkana & Seeher 1987: pl. 59; von der Way 1997: Taf. 33).

Red slip ware

In Maadi, Wadi Digla this group includes globular or elongated jars with a short neck and slightly everted rim – type 5 (Williams 1982: 220; Rizkana & Seeher 1987: 39; 1990: 85-87). Explorations of the cemetery of Heliopolis yielded the same types of elongated vessels with everted rim on a flat or raised base – types Vb, VI and vessels with simple distinguished neck, everted rim and globular, flat or pointed base (Debono & Mortensen 1988: pl. 5). The situation is similar in Buto, Tell el-Iswid and Tell el-Farkha, although one should also mention fairly common elongated vessels with ovoid body, clearly distinguished vertical neck and slightly everted rim – Buto types G1a-b, G2a-b, G3a and Tell el-Iswid types 3b1, 4b3, 4b4 (Fig. 10:6; von der Way 1997: Taf. 1-8). In Tell el-Farkha, this group also contained big jars with distinguished necks tapering towards a rolled rim (Fig. 11:4-5; Mączyńska *in press* e).

Red slip ware also features a number of open forms. In settlements their relative frequency is clearly lower than that of open-form Rough ware vessels. In Maadi only a few slip covered bowls were registered, *e.g.* a bowl with convex walls and a straight, slightly everted rim – type 3. In Buto the number of bowls is greater. They are represented by vessels of straight or slightly convex walls of various thicknesses – type O1a, flat forms with strongly everted rim – T-shaped profile and a ridge running parallel to the rim – type O3a (von der Way 1997: 92-93, Taf. 5). In Tell el-Iswid bowls covered with red slip have their Rough ware

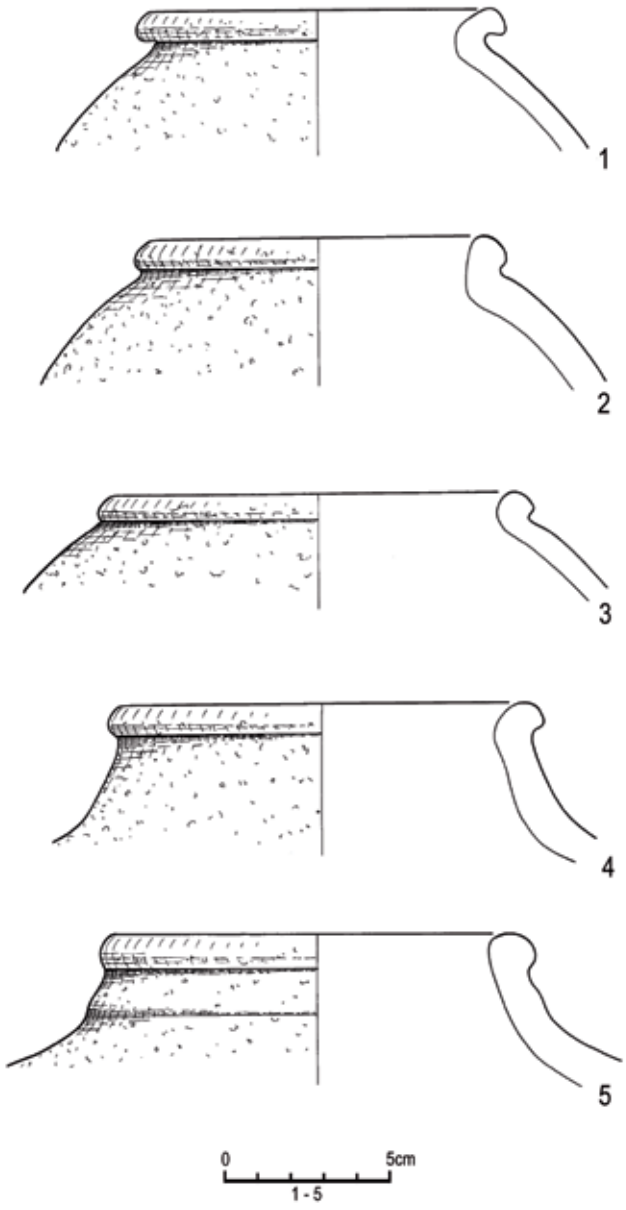

Figure 11. Tell el-Farkha. Lower Egyptian pottery.

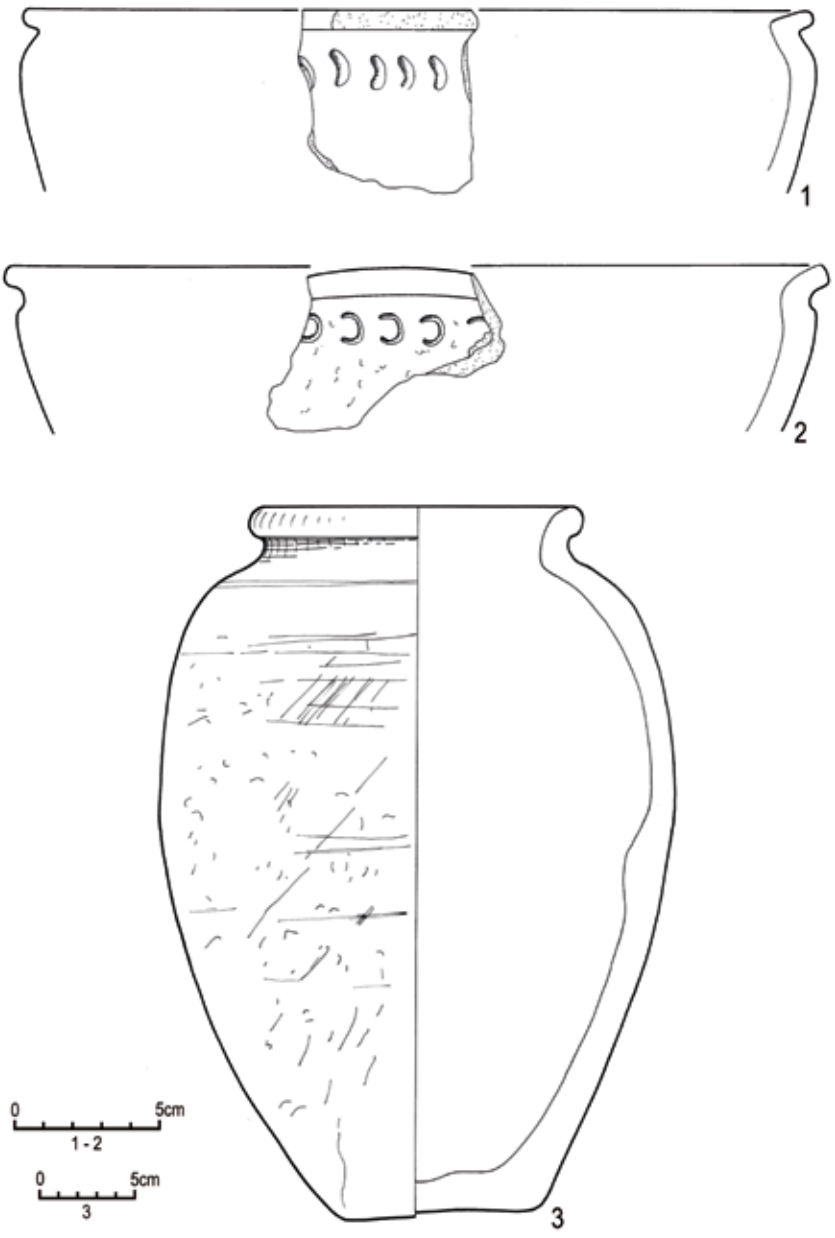

Figure 12. Tell el-Farkha. Lower Egyptian pottery.

equivalents, namely bowls with convex walls and a rolled rim, conical bowls with a simple rim, shallow bowls with convex walls, *e.g.* types 1a1, 1b2, 2a1, 2b1-b. In Tell el-Farkha, Rough ware covered with red slip is dominated by two shapes: simple vessels with straight sides and a simple, rolled or everted rim, as well as medium-depth bowls with a rounded rim and concave walls (Fig. 13:1; Mączyńska *in press* e). In cemeteries open-form Red slip ware is virtually non-existent. Such a duality results from the fact that open-form group consists mostly of vessels used in households. In settlement sites their number should be greater than the number of closed forms, given their common use and the inherently high risk of damage. A different situation takes place in cemeteries, where bowls are either not found at all or discovered as single, isolated finds, usually as jar lids (Debono & Mortensen 1988: 29; Rizkana & Seeher 1990: 27, 87).

Red slip also covers all vessels with thin and long fibrous organic temper. In Tell el--Iswid fibrous temper is found in various vessel forms: a holemouth jar, a small globular jar and jars with an everted rim (Guyot *in press*, fig. 9). In Tell el-Farkha this type of temper was registered in sherds, probably coming from a variety of vessel forms. Thus far only one such form has been identified: a jar with an everted rim, similar to those registered in Tell el-Iswid (Guyot *in press*). This kind of jars is also known from Buto, but it seems that T. von der Way (1997) did not notice this kind of temper. E.Ch. Köhler (1998: 10-11), who investigated materials from younger layers of the site, recorded the presence of fibrous temper in vessels from layers III and IV, dated to the beginning of Naqada III. Buto is the only site where this type of temper was registered in vessels from younger layers (Köhler 1998: 43-44, Taf. 69:1-2). Fibrous temper was registered mostly among closed forms – various kinds of jars (Köhler 1998: Taf. 15:19-21).

Yellow slip ware

In Maadi jars characteristic for this particular ware feature globular and elongated jars with a narrow mouth, everted rim and narrow flat base – type 5a as well as large jars with a globular or elongated body, everted rim and V-shaped bottom – type 5c (Rizkana & Seeher 1987: 40). In Wadi Digla, researchers registered only two Yellow slip ware jars. Both of them were classified as jars with a globular body, distinguished neck and everted rim – type 5a (Rizkana & Seeher 1990: 87). In Heliopolis, explorations yielded vessels with a globular body, similar to forms known from Maadi and Wadi Digla types Va, XI, XII and vessels with a straight, long neck, slightly everted rim and flat base, additionally thickened on the outside – type VIIb (Debono & Mortensen 1988: 57-30). In Buto, white lime slip is characteristic for a number of wares. Ware 1d includes thick-walled storage jars with a ridge running parallel to the rim. Furthermore, Ware 1d and 1g vessels include jars with an ovoid or globular body known also from Maadi, Wadi Digla and Heliopolis – type G2a (von der Way 1997: 89). In Tell el-Iswid white slip ware represents 1% of the entire pottery assemblage. Like in Buto, Yellow slip jars include ovoid or globular vessels – type 4a2 (Guyot *in press*).

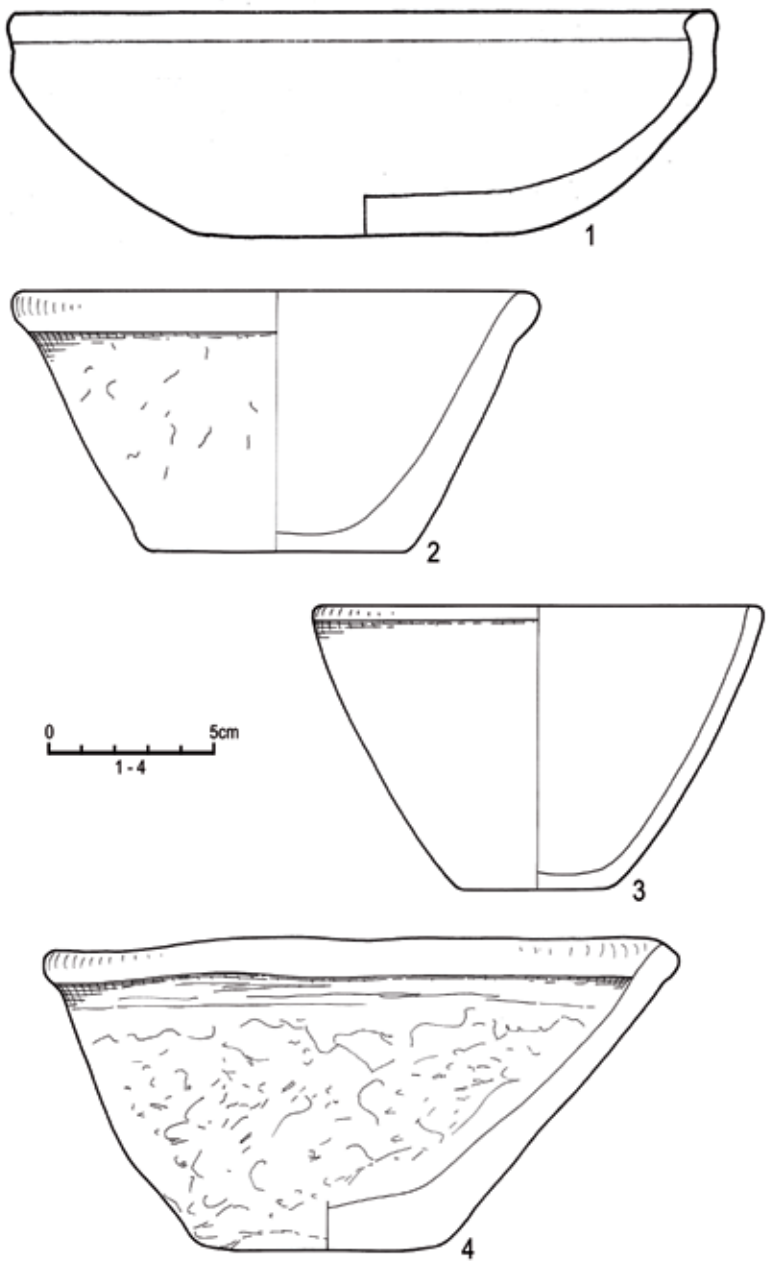

Figure 13. Tell el-Farkha. Lower Egyptian pottery.

Open forms are present only in inventories from the settlement in Buto, Tell el-Iswid and Tell el-Farkha. In Buto those are bowls with straight, convex and occasionally concave walls – types O1b, O2a as well as large vats and pans – type O5 (von der Way 1997: 92). In Tell el-Iswid this ware group features conical bowls with a straight rim and bowls with concave walls and rolled rim (Guyot *in press*). In Tell el-Farkha sherds covered with yellow slip are probably fragments of big vats, similar to those registered among rough pottery of this phase (Mączyńska *in press* e).

Blacktopped ware

Vessels with discernibly black rim were found exclusively in Maadi. Both original imports from the south and their local imitations have the same forms, although their relative proportions may vary. Blacktopped ware includes jars, beakers and bowls (Rizkana & Seeher 1987: pls. 68-71). Most jars are quite small. The most characteristic are jars with a squat body and straight ogival rim – type 8 a and b. In addition, a single vessel of shape similar to type 5a was found. It has a globular body, distinguished short neck and everted rim – type 9 (Rizkana & Seeher 1987: 52). S-profile beakers constitute a fairly homogenous group. One of the forms is characterized by a gradually increasing diameter from base to rim, giving the vessel a tulip-like profile. Another form is more slender and has a more pronounced S-profile. Its greatest diameter is at mid-height of the body.

The relative number of bowls compared to jars and beakers is very low, which is in line with the general scarcity of these forms on the entire site. Such a situation is attributable to the research method applied in the 1930s, whereby archeologists' attention concentrated on complete vessels only. Imported forms include fragments of shallow and deep bowls with convex walls – types 1a and b and fragments of shallow bowls with slightly everted rims – type 2. Their local imitations include a fragment of a straight-sided hemispherical bowl with a slightly everted rim – transitional form between type 1b and type 2 (Rizkana & Seeher 1987: 51-52).

3.3. Miniature vessels

Miniature vessels from Lower Egyptian sites do not constitute a large group of artefacts. Forms of miniature jars and bowls include both copies of larger vessels, as well as forms without full-scale equivalents. Not all proportions of miniature copies correspond to those of originals, and consequently small differences may occur, *e.g.* as regards rim diameter (Rizkana & Seeher 1987: 46, pls. 33-34, 48; von der Way 1997: 95).

The number of registered miniature vessels is 97 in Maadi, 29 in Buto, 8 in Tell el-Farkha and 3 in Tell el-Iswid. The group as a whole consists of both jars and bowls. Most miniature jars are Rough ware, although Red slip ware miniatures are not unknown. The dominating form are globular jars with a narrow mouth and base and everted rim – Maadi type 5a, Buto type G2a, vessels on a raised base – Maadi type 1 and elongated jars with a strongly

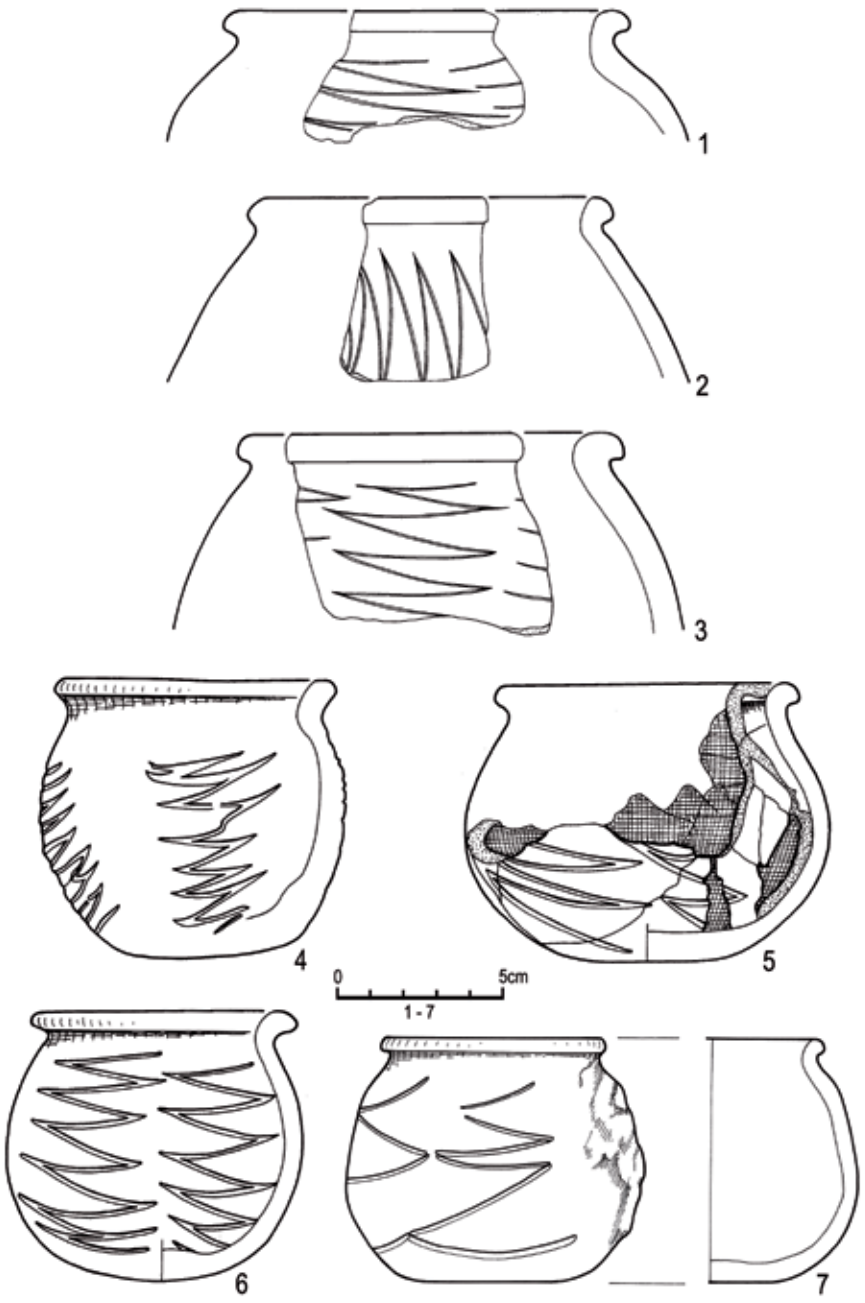

Figure 14. Tell el-Farkha. Lower Egyptian pottery.

everted rim – Buto type G1a. In Maadi attention is drawn to two miniature vessels on a raised base with two horizontally pierced lug-handles. According to I. Rizkana and J. Seeher (1987: 46), vessels with lug handles resemble basalt jars known from Maadi.

In Buto, a miniature jar with an everted rim, elongated body and a knob at the base could be an imitation of a stone vessel. According to T. von der Way (1987: 95), the base knob may imitate a raised base. On this site miniature bowls outnumber miniature jars. Fairly common are simple semicircular vessels, forms with an everted rim, as well as bowls with a flat or pointed base. Particularly remarkable is a mid-depth pointed-base miniature bowl with a strongly everted rim.

In Tell el-Farkha miniature vessels are rather innumerous. Attention is drawn to 5 small globular jars with a round base and a rolled rim (Figs. 10:3; 14:4-7; Pls. 11, 13). 3 of them are decorated with an incised zigzag pattern. The jars are not exactly miniatures, but nonetheless they are much smaller than other jars with an incised zigzag pattern known from the site. Another note-worthy item is a vessel with an asymmetrical oval body with rough surface (Fig. 10:5), and two Rough ware bowls – one made of a small lump of clay, and the other slightly larger, with a flat base, straight diverging walls and simple rim (Mączyńska 2012: figs. 1:1-4, 6; 4:4; 5:6-7).

In Tell el-Iswid researchers found 3 miniature vessels in the form of small buckets made of very fine fabric (Guyot *in press*).

According to I. Rizkana and J. Seeher (1987: 46), miniature vessels could have been toys or – in the case of vessels with handles – substitutes of full-scale vessels. Miniature vessels could have also been containers *e.g.* for cosmetic oils. The last hypothesis was partially confirmed by excavations in Maadi, where miniature bowls with well visible traces of red, greasy stains were found. Miniature bowls could have also been used as lids for larger vessels.

3.4. Special forms

Special forms of Lower Egyptian pottery include vessels or fragments of churns, as well as bird and boat shaped vessels.

Although churns are known from Chalcolithic and EBI Southern Levant, they are extremely rare ceramic forms (see Chapter 3; Kellner & Amiran 1953: 11-14; Amiran 1969: 33-34; Braun 1996; Braun & van den Brink 1998: 82). Specimens found in Maadi – 1 vessel and 1 fragment (Rizkana & Seeher 1987: pl. 64:1-2) and in Buto – 1 vessel fragment (von der Way 1997: Taf. 39:2) are locally-made products, wet polished and covered with red slip (see Chapter 8).

In Maadi and in Buto researchers also registered bird shaped vessels. They do not constitute a homogenous group and differ from one another in terms of color and size. From Maadi come four fragments of vessels of this kind (Rizkana & Seeher 1987: pl. 64:3-5). Two of them belong to Ware Ib, and the other two to Ware Ia and Ware Ic. Three of them are rather small (approx. 20cm), but the size of the forth one most probably matched the

actual size of the bird. Lower Egyptian layers in Buto contained 3 fragments of bird shaped vessels, 5 to 5.5cm long and 3 to 3.5cm wide (von der Way 1997: Taf. 58:6-7). Both in Maadi and in Buto bird representations are rather schematic, showing a more or less prominent beak and some incised details, such as eyes or feathers. Available fragments suggest that the opening used to fill or empty bird-shaped vessels was placed on the bird's back. Similar vessels are known from Upper Egypt (*e.g.* Petrie 1920: pl. XXIV, 1-11; 1921: pl. XVIII, F69A-T) and from the Chalcolithic Southern Levant (*e.g.* Gophna & Lifshitz 1980: fig. 5.6).

Other special forms include boat-shaped vessels. In Maadi approx. 17 fragments coming from different items were found. All of them are similar in terms of shape, technology and surface finishing, and are classified as painted ware (Ware Ic) covered with cream slip and painted red patterns. Boat-shaped vessels resemble a canoe-like boat with sharp, recurving ends and U-shaped or V-shaped cross-sections (Rizkana & Seeher 1987: 48, pl. 65). Similarly shaped boats appear as decorations on D-ware pottery.

Special forms also include potstands used with vessels whose bases were neither wide nor stable, angular vessels (two fragments in Maadi: a plate and a deeper vessel) and multiple vessels (Rizkana & Seeher 1987: pls. 60:1,5; 33:25-31; 62:1, 3).

3.5. Miscellanea

This group includes a variety of handles, lids, spouts and fragments of perforated sherds.

Handles

Handles are rarely present on Lower Egyptian pottery. They can be found both on vessels made locally and on those imported from Southern Levant and Upper Egypt. They can be divided into several groups, differing from one another in terms of shape and place of fastening. Those groups include loop-handles, lug-handles, ledge-handles and wavy-handles.

As far as vertical loop-handles raising from the rim are concerned, on most vessels there is only one such handle. In Maadi they were used on small cup-like jars with a globular body and on similarly shaped larger jars. Handles of this kind were functional only on small vessels. On larger vessels they were purely decorative, because the vessel was too heavy (Rizkana & Seeher 1987: 39). Fragments of similar handles are also known from Buto, but due to their high degree of fragmentation it cannot be fully explained on what vessels they were used (von der Way 1997: 103).

Apart from loop-handles, other vertical handles on Lower Egyptian pottery include smaller lug handles of a circular or oval cross-section. One of its ends is attached to the vessel's neck, and the other to the shoulder. In some cases, such a handle is made of two, or even three coils of clay. Although handle opening was not too big, it was large enough to ensure comfortable control of the vessel. Handles of this kind were registered in Maadi on Southern Levantine jars with a funnel-shaped neck and distinct shoulders (Rizkana & Seeher 1987: 54), as well as in Buto, where due to the high degree of fragmentation it is impossible to determine on what vessels they were used (von der Way 1997: 103).

Lug-handles are small handles with a very small hole drilled through them. They were usually placed in the upper part of the vessel and took the form of oval or round knobs or swellings with a semicircular cross-section. Handles of this kind were found in Heliopolis on an elongated jar with a raised base (Debono & Mortensen 1988: pl. 8) and in Wadi Digla on globular jars (Rizkana & Seeher 1990: 49, 62, pls. 34, 53). In Buto, researchers found a small handle with a drilled-through hole, similar to lug-handles from Maadi (von der Way 1997: 103).

Another group of handles known from Lower Egyptian pottery are ledge-handles, fastened to the lower part of the vessel, below the jar's largest diameter (two handles on either side). This type of handles was found only on imported Southern Levantine pottery (see Chapters 3 and 8). The outer edge of those handles has rather shallow indentations, most probably made by finger. Handles of this kind were registered in Buto, Tell el-Isiwd, Tell el-Farkha and Minshat Abu Omar (Pls. 10, 23). They were placed approximately at two-thirds of the vessel's height, two handles on either side. Their outer edge showed well visible indentations and bumps, formed by squeezing the edge between the thumb and the index finger.

Horizontal handles referred to as wavy-handles can also be found on jars imported from Upper Egypt. However, Upper Egyptian vessels with wavy-handles were large elongated jars with a short neck and everted rim (Petrie's W22 and 24). So far, jars with wavy-handles have been registered in Buto, Tell el-Farkha and in Minshat Abu Omar graves (Kroeper & Wildung 1994; 2000; von der Way 1997:104, Taf. 47-48; Sobas 2012).

Spouts

Spouts make a rather innumerous group of items. One of the preserved spout fragments comes from the settlement in Maadi. According to O. Menghin and M. Amer (1936), it once belonged to a jar. A different interpretation was presented by I. Rizkana and J. Seeher (1987: 49-50). According to those researchers, the said fragment was part of a handle loop, used to reinforce the bond between the handle and the wall. I. Rizkana and J. Seeher are of the opinion that the spout from Maadi could have also been a cylindrical neck of a vessel or a specific cylindrical clay tube of unknown function. The researchers further suggest that some of the churns whose fragments were found in Maadi and Buto had a similar cylindrical neck. The spout function could have been replaced by an indentation in the rim, forming a short lip protruding from the wall.

Another spout was registered in the pottery assemblage from Heliopolis. It was found on a vessel of unspecified fabric, identified from a photograph. The vessel is a black ovoid jar with everted rim, filter in the mouth and spout below the rim on a perforated pedestal food (10cm in diameter). Thus far, it is the only example of this type of jars found on Lower Egyptian sites (Debono & Mortensen 1988: 31).

Lids

This group of clay items includes both purpose-made lids, as well as bowls used as lids. The overall number of such items is rather low. Their identification is possible only in the case of purpose-made lids. Bowls used as lids can be identified as such only if they are found *in situ*, either on top or inside a jar.

In Maadi two lids were registered. One of them was disc-shaped and was made of a fragment of a larger vessel with perforation along the edges, most probably for fastening the lid to the jar (Rizkana & Seeher 1987: pl. 61). The other lid has the shape of a small disc with a lug protruding on one side. In the cemeteries of Maadi, Wadi Digla and Heliopolis researchers found bowls or their fragments that could have been used as lids (Debono & Mortensen 1988: 34; Rizkana & Seeher 1990: 27, 87). In Buto, Tell el-Farkha, Tell el-Iswid and Tell Ibrahim Awad no lids have been found so far. It is not impossible that the function in question was served by small bowls or lids made of organic materials, such as fabric or skin plastered with mud. In the cemetery of Heliopolis one grave contained a jar with traces of mud on the rim, possibly left by a plug or lid made of mud (Debono & Mortensen 1988: 24, 34).

Perforated sherds

Small perforations in pottery could have served a variety of functions. Depending on the intended purpose, they were made either before or after firing. Perforations in the rim zone were usually made before firing and were used to fasten lids, while those made after firing are most probably traces of repairs. Such perforations were made along crack lines and were used to join the broken pieces together (Rizkana & Seeher 1987: 50). Apart from perforated sherds, excavation works in Buto also yielded 3 fragments of jars with relatively large holes made by finger in wet clay before firing. Most probably the jars were used as strainers, but due to the small size of available fragments the exact form of those vessels remains unknown (von der Way 1997: 103).

4. Decoration

Lower Egyptian pottery decoration can be divided into four groups, depending on the technique: incised, impressed, painted and plastic.

The most typical ornamentation motif were zigzags made with a long and narrow tool with a sharp edge, moved in alternating directions, leaving a characteristic pattern behind it. One variety of this motif is a dotted zigzag made with a similar technique but involving the use of a different, comb-like tool (Figs. 14; 15:6-9). The distance between zigzag arms could vary. Continuous zigzags were usually made vertically, while dotted zigzags were horizontal. Motives like that were registered on pottery from Buto, Tell el-Farkha, Tell Ibrahim Awad, Tell el-Iswid and Tell el-Murra on Rough ware jars with a globular body, undistinguished neck and slightly everted rim (van den Brink 1989; 1992b; Chłodnicki *et al.* 1991; 1992a; 1992b; von der Way 1997: 96-98; Jucha 2005; *pers. comm.*; Mączyńska 2002: 100-104; 2003a; 2003b; 2008; *in press* e).

Another motif made with a technique similar to the dotted zigzag technique could be parallel rows of closely spaced dots, known from Lower Egyptian pottery found in Buto. Like zigzag motives, parallel dotted lines can be found on Rough ware pottery. One such vessel was additionally covered with red slip (von der Way 1997: 97).

Parallel rows of closely spaced chevrons are yet another decoration motif present on Lower Egyptian pottery. The length of a single chevron varies from 0.8 to 1.4cm, and the greatest width is 0.2 to 0.3cm. This particular motif is known from Buto and Tell el-Iswid (von der Way 1997: 98). Patterns similar to rows of chevrons known from Buto include rows of fingerprints and rows of nail-marks.

Pottery from Buto, Ezbet el-Qerdahi, Heliopolis Maadi and Wadi Digla is also characteristic for rows of impressed dots – fingerprints made on shoulder or around necks of globular body jars or bowls with a wide mouth and everted rim. In Maadi, Wadi Digla and es-Staff this type of decoration can be found on Red slip ware – Ware II, while in Heliopolis it decorates jars belonging to Sand tempered ware types XI and XII (Debono & Mortensen 1988: 30; Habachi & Kaiser 1985: 43-46; Rizkana & Seeher 1987: 50; 1990: 87). In Buto, impressed dots were made on Rough ware bowls covered with red slip (von der Way 1997:100, pl. XVII), whereas in Ezbet el-Qerdahi researchers found 3 fragments of Rough ware jars with such decoration (Wunderlich *et al.* 1989: 313-316, Abb.2/6,7).

The last impressed motif on Lower Egyptian pottery is a crescent, made just under the rim of Rough ware bowls (Fig. 12:1-2). A motif like that was registered in Buto, Tell el-Farkha and Tell el-Iswid (van den Brink 1989: 55-108; 1992b: 63-54; Chłodnicki *et al.* 1991: 5-33; 1992a: 171-190; 1992b: 45-62; von der Way 1997: 100, pls. XXIX, 2-8; XXXVIII, 10-11; Jucha 2005; Mączyńska 2002: 100-104; 2003b; 2008; Guyot *in press*).

Among incised motives, one can differentiate systems of lines and so-called potmarks. As far as the former are concerned, in Buto, Tell el-Farkha and Maadi a variety of diagonal lines systems were registered (Rizkana & Seeher 1987: 50; von der Way 1997: 99). In its turn, the group of potmarks is much more diverse, as it includes marks made both before firing (in wet clay) and after firing. Potmarks were made either on the outer or inner surface of the vessel, under the rim. According to I. Rizkana and J. Seeher (1987: 29) marks made in wet clay could have denoted the potter, while those made after firing could have been made to identify the owner of the vessel (or its content). It seems however that the meaning of potmarks is not so straightforward and continues to be debated among archeologists (*cf.* Helck 1990; van den Brink 1992a; 1996; 2001; Kroeper 2003a; Jucha 2008; Tassie *et al.* 2008; Anselin 2011; Breand 2011; Hartmann 2011; Wodzińska 2011).

Potmarks took a variety of forms. Single vertical lines were rather uncommon. Usually they were combined with horizontal lines to form geometric patterns of squares or rectangles, sometimes internally divided. Other geometric motives include crossing lines, circles, hooks, chevrons and S-lines, sometimes grouped together to form more sophisticated combinations (Debono & Mortensen 1988: 24, 33, pls. 4, 5, 6, 17; Rizkana & Seeher 1987: 50-51, pls. 78, 79; 1990: 87, pls. 35, 42, 46, 50, 55; von der Way 1997: 99, Taf. 41).

The interesting group of potmarks found in Maadi and on a single vessel from Heliopolis includes representations of plants and animals, such as crocodiles or other unidentified quadrupeds (Debono & Mortensen 1988: fig. 15/6; Rizkana & Seeher 1987: pl. 79/1, 3-6,12-14). Human representation is known from one vessel found in Maadi, where a human head with a discernible nose and eyebrows can be recognized (Rizkana & Seeher 1987: 50-51, pl. 79/10).

The other type of decoration consists of painted motives. Compared to the two types discussed above, painted motives are the least numerous. Painted decorations are known from Maadi, where they were found on Wares Ic and II and accounted for approx. 0.5% of the entire pottery assemblage (Rizkana & Seeher 1987: pls. 42-47). Painted motives on bowls are twice more common than on jars. As regards Ware Ic, vessel surface was originally covered with light slip forming contrastive background for the decoration. Ornamentation colors include dark red, dark brown and even brown black. Paint was applied in the form of rather thick lines. Sometimes vessels were covered with an irregular system of lines, dots and slashes that could have formed a net pattern or other, more sophisticated systems. Net patterns usually formed connected U-shaped, wavy, zigzag or radial lines, or systems of intersecting lines. In addition, combinations of those elements could have formed a variety of other patterns (*e.g.* ladders). Less sophisticated patterns are also known, such as rope imitation pattern around a jar neck, passing through one of its lugs, used in practice to hang the vessel. Other motives include painted dots scattered all over the vessel surface.

Although vessels with painted decorations are preserved only fragmentarily, in Maadi a number of sherds with figural representations were found. One of them was interpreted by O. Menghin and M. Amer (1932: 31) as a fragment of a palm tree or a schematic representation of a human figure. Over 30 years later S.P. Tutundzić (1966: 115) concluded that the image had been originally interpreted upside-down and that it actually depicts the front end of a boat with a human figure standing on it. The figure is slender, has a small head and one of its arms hangs low. A crescent near the hips may symbolize the figure's feminine gender. Other figural representations from Maadi include two birds and a variety of floral motives. Due to the high degree of fragmentation it is impossible to identify their details (Rizkana & Seeher 1987: 43-45, pl. 43:15).

Vessel fragments with painted decorations were also found in Tell el-Farkha, Buto and in Tell el-Iswid. All of them belong to D-ware and are imports from Upper Egypt (Fig. 15:1-5, 10). Most of them were made of marl clay. In Tell el-Farkha, painted pottery from the settlement's phase 1 features a spiral motif and a system of wavy lines with triangles underneath them. All those elements are known from Upper Egypt, where they are present on pottery dated to the second half of Naqada II. In layers dated to phase 2 of the settlement, fragments with such motives as wavy lines, ss-patterns, aloes and a boat fragment were found. All of them are dated to NIIC-D (Pls. 18-19). The other fragments show poorly decipherable decorations, rendering their precise identification impossible (Jucha 2005; Sobas 2012; Mączyńska *in press* c).

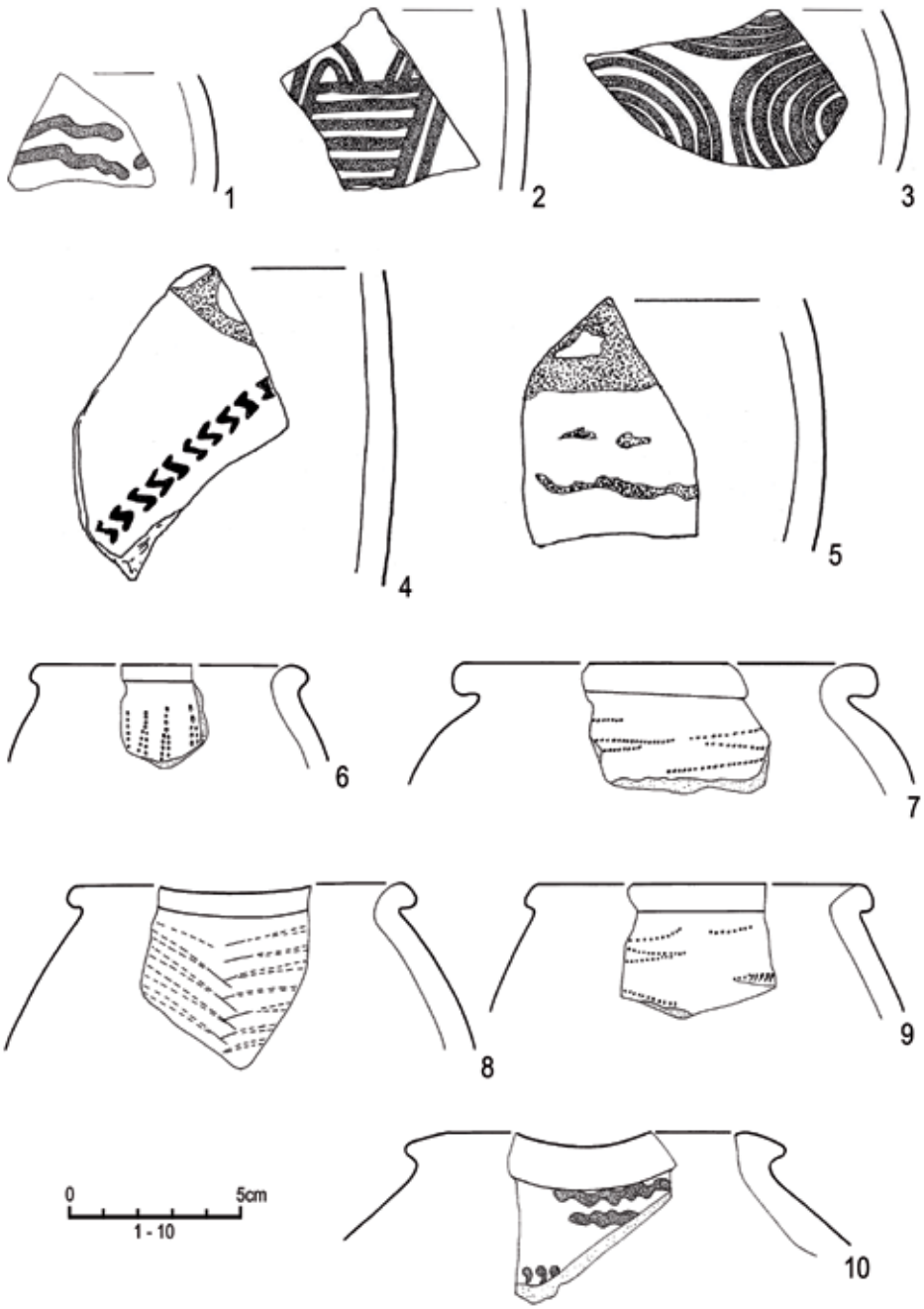

Figure 15. Tell el-Farkha. Naqadian and Lower Egyptian pottery.

In a number of graves from Minshat Abu Omar researchers found complete D-ware vessels. The most remarkable are 4 small, squat, lug-handles jars corresponding to Petrie's D9c. Two of them feature a painted dark red spiral motive. The others are decorated with wavy, parallel, and horizontal lines. On one jar, wavy lines on the body are interrupted by one line of a horizontally arranged ZZ-pattern. However, particular attention is drawn by an oval, lug-handles jar with 2 painted boats with 2 cabins in the middle. Between and just under the ships there are 2 trees and a mountain range made up of 5 triangles. In addition, between the trees there are 2 rows of S-lines (Kroeper 1985: 12-14, figs. 1-4; Kroeper 1986/87: figs. 3-5).

Plastic elements are the last group of Lower Egyptian pottery ornamentations, represented mostly by knobs, present both on locally made vessels and on Southern Levantine imports. Knobs were either oval or elongated. They were usually placed on vessel shoulders, either individually or in groups of as many as 6. Sometimes they were accompanied by a row of diagonally impressed oval indentations, registered in Buto, Maadi and Wadi Digla.

Another form of plastic ornamentation, known only from Buto, is a wavy rim characteristic for straight-walled open forms. It was formed by pressing the rim with a thumb from the top (or from the side, if the rim was everted). According to T. von der Way (1997: 102) and D. Faltings (2002: fig. 10:4), wavy rim bowls have their analogies in the Chalcolithic and EBI Canaan (see Chapters 3 & 8).

A few Lower Egyptian vessels also feature plastic ridges. In Maadi two fragments of such vessels were found (Rizkana & Seeher 1987: 50). In addition, certain larger storage vessels from Maadi have a plastic ridge running around the vessel just under the rim, with numerous holes pierced perpendicularly through it. More ridges go from the circumferential ridge towards the base, thus forming a more sophisticated arrangement.

5. Vessel functions

The function of a ceramic vessel depended on a number of factors. The two most important ones were the vessel's form and the composition of the ceramic fabric (Rice 2005: 207-242). The type and size of temper determined the vessel's physical properties, which in their turn determined the vessel's durability and fitness for a given purpose. Fine temper was adequate for vessels whose walls had to be thin and smooth, while coarse temper was more suitable for vessels that could have thick, irregular and rough walls. Fine temper was added *e.g.* to paste used to make liquid containers. To further reduce wall permeability, walls were smoothed and covered with slip. Tableware (bowls, cups, plates) also had smooth walls, which made cleaning easier. Coating with slip or smoothing facilitated the removal of food remains.

The presence of coarse mineral or organic temper (quartz or straw) facilitated evaporation of water contained in the clay and improved the circulation of hot gases inside vessel walls, thus making the firing process more efficient and economical. Furthermore, coarse temper increased vessel wall resistance to thermal shock, thus preventing damage caused by

heating and cooling. For this reason, this type of temper was most often used in the process of making cookware. Temper made of crushed limestone had similar properties. However, such temper was used very rarely due to complex chemical reactions occurring at temperatures above 660°C, eventually resulting in cracks in and brittleness of vessel walls. Coarse temper vessels covered with light slip could have also been used for storing cool water. Their porous walls were more permeable for water which subsequently evaporated and formed an insulation layer, which in its turn prevented the water inside the vessel from heating up. In addition, white-colored walls of such jars reflected sun rays.

Sometimes the function of a vessel was also determined by its shape. Most cookware forms had simple outlines, no carination, and round bases to reduce the effect of thermal shock inherent to the cooking process (Köhler 1998: 40-41; Killebrew 1999: 83-126; Bourriau *et al.* 2000: 121-147; Rice 2005: 227-242). Storage vessels had restricted forms, making closing and pouring easy. Vessels used for transportation required portability, so they had to be light-weight and preferably came with handles. Their orifices were restricted to facilitate closing and to protect the content. Tableware and cookware had to be stable and unrestricted to ensure easy access (Rice 2005: tab. 7.2).

Solid understanding of physical and chemical properties makes vessel production more efficient, but it needs to be remembered that such knowledge was not available to the Delta inhabitants in the 4th millennium BC. However, through observations and repeated trial and effort people could possibly discover certain relationships between types of temper, vessel shapes and their practical use. Sometimes vessel functions were determined by other factors, such as current fashions or preferences of a group or possibly even individuals. Such preferences could have been determined by the ideological system. Apart from purely utilitarian functions, vessels could have had a symbolic function as well (*e.g.* grave goods). Our understanding of these aspects supported by detailed ethnoarcheological observations and analyses projects ideal situations, which rarely took place in the past, as decisions were made in a different cultural context. An interesting observation was made by K. Kroeper (2004) in Minshat Abu Omar. Although vessels deposited as grave goods did not differ from those used in settlements (either in terms of form or technology), ceramic offerings do not show any use wear traces. On that basis it could be assumed that they were manufactured or purchased for the very purpose of depositing them in a grave.

6. Social aspects of pottery production

The technology, production methods and firing conditions of Lower Egyptian pottery suggest that there was little specialization in pottery production. E.Ch. Köhler (1997: 81-89) uses the term 'household production' to describe this stage of craft development, characterized by rather unsophisticated manufacturing conditions. All pottery was hand-made and fired in open hearths or primitive kilns, providing no or little control over firing process. As a result, vessel walls were relatively thick and uneven, and their surfaces were soft,

with frequent traces of burned-out organic temper. Vessel colors were non-uniform, with multiple darker and/or brighter patches. According to E.Ch. Köhler (1997: 81), Lower Egyptian potters were not economically dependent on their craft which was more seasonal rather than full-time and thus required relatively little workload. Pottery production was also affected by the specific climate of the Nile Delta. Considering reasonably cold winters (from October to March) involving torrential rains, high humidity (approx. 80%) and low temperatures, pottery production was possible only in summer, when warm and arid climate allowed to dry and store vessels.

Interesting insights were provided by ethnographic analyses of contemporary Egyptian pottery production held by E.Ch. Köhler (1997: 82) in the Delta, and specifically in Disuq near Buto. Although today's workshops are technically more advanced and have purpose--made facilities for vessel drying and storage, work in the winter season is still impossible due to cold and humid climate. Potters are forced to temporarily close their workshops and to sell either stock built up in summer or vessels imported from Upper Egypt. According to E.Ch. Köhler, potters' dependence on weather conditions in the Delta in the early and middle Predynastic period must have been much greater, since the climate was much more humid than today.

According to E.Ch. Köhler (1997: 82-89), the organization of Lower Egyptian pottery production could have been also affected by the culture's agricultural character, limiting the community's potential in this particular area. The researcher concluded that in summer, offering the most favorable climate for pottery making, pottery was produced mostly by women who were not busy with harvest and stayed at home taking care of their children.

7. Summary

The above overview of Lower Egyptian pottery presents its key diagnostic features. To make material analysis possible, various classification systems applied by researchers analyzing pottery from different sites were unified. Such unification made it possible to capture interesting phenomena related to pottery production. Apart from constant features, such as production technology and certain vessel forms (jars with a globular body and slightly everted rim), some of the recorded elements were unique to a given phase or site. Such variations are a reflection of the sites' chronological diversification and intra-cultural differences stemming from local pottery making traditions.

In terms of manufacturing technique and technology, pottery from all three phases of the Lower Egyptian culture is similar (see Tab. 2). Its common features are:

- prevalent use of Nile clay;
- sand, straw and chaff as the most common type of temper;
- simple production techniques (vessels were made of a single lump or coils/slabs of clay);
- simple firing conditions (open hearths, simple kilns);
- prevalence of Rough ware.

Differences between consecutive phases can be seen first of all in vessel forms and ornaments. Typical early phase elements are:

- blacktopped ware – beakers, jars, bowls (Maadi);
- slender jars on a raised or pointed base (Heliopolis, Maadi, Wadi Digla);
- large storage vessels (Buto, Maadi);
- bowls with thumb-indented rim (Buto);
- jars decorated with knobs (Buto, Heliopolis, Maadi, Wadi Digla).

Typical middle phase elements are:

- zigzag pattern (Buto, Tell el-Farkha, Tell el-Iswid, Tell Ibrahim Awad);
- impressed crescent pattern (Buto, Tell el-Farkha, Tell el-Iswid, Tell Ibrahim Awad);
- prevalence of vessels with pointed or round bases over those with flat based (Buto);
- prevalence of jars with a globular body and everted rim over other jar types (Buto, Tell el-Farkha, Tell el-Iswid, Tell Ibrahim Awad);
- jars with a vertical neck, simple, slightly everted (or thickened on the outside) rim and pointed or round base, known as lemon shaped jars and bag shaped jars (Buto, Kom el-Khilgan, Tell el-Farkha, Tell el-Iswid).

Typical late phase elements are:

- greater share of pottery made of marl clay (Tell el-Farkha);
- higher frequency of jar forms: Petrie's R81 and R84 (Tell el-Farkha, Buto);
- increased amount of pottery with painted decorations (D-ware).

Moreover, site assemblages include vessel forms typical for all phases of the Lower Egyptian culture. This could be explained by their functionality and popularity. These include:

- bowls with a simple or slightly everted rim, convex and straight walls, and flat or round base;
- jars with a globular or elongated body, flat or round base with distinguished or undistinguished short neck and narrow or wide mouth.

An analysis of pottery from each individual site reveals certain differences reflecting site-specific local conditions. The Lower Egyptian culture is not internally homogenous and each site represents a somewhat separate local community. There can be many underlying reasons, such as the effect of local tradition, environmental conditions, choices made by each community, as well as external factors, such as the presence of representatives of other cultures. When analyzing material effects of cultural processes, an archeologist is not always able to interpret those factors, and some of them are simply untraceable.

Thus far, a handful of important characteristics unique to one or two sites have been identified:

- prevalence of vessels with cream or beige lime coat in the cemetery of Heliopolis;
- presence of vessels made of Nile clay tempered with crushed shells in the settlement of Buto;
- presence of locally made blacktopped ware in the settlement of Maadi;
- presence of vessels combining local and Levantine traditions (*e.g.* wavy rims) in the settlement of Buto;
- presence of jars R81 and R84 already in Naqada IIC in the settlement of Tell el-Farkha.

Some of the above characteristics may be a consequence of preferences and/or requirements of a given community (lime coat, miniature vessels, locally made blacktopped pottery, beer containers), while others may be a form of adaptation to the local environment (crushed shells used as temper) or the effect of "foreign" presence (elements of Levantine tradition).

The Lower Egyptian culture (and therefore its pottery) continues to be subject to archeological studies. Excavation works are still under way on the sites in Tell el-Farkha, Buto, Tell el-Iswid and Sais, and each season yields more and more information. It seems that the priority of the studies of Lower Egyptian pottery is to investigate its regional differences. However, achieving that goal requires access to more materials, unification of pottery classification systems used on every site and intensification of reconnaissance surveys to discover new Lower Egyptian sites. Equally important will be a new typological approach to pottery and introduction of analyses of individual vessel features in the context of the entire pottery making process.

Chapter 7

Other assemblages of the Lower Egyptian culture

1. Flint assemblages

Lower Egyptian flint assemblages is not as diversified as Lower Egyptian pottery. A common feature for all sites of this culture is intensive production of blades. In 1993 K. Schmidt (1993: 270) analyzed materials from Lower Egyptian sites and identified three different industries. One of them was apparently characterized by the presence of twisted blades and bladelets removed from single platform cores made of pebbles. Their main feature is a counterclockwise torsion of the blade: the twist and turn of the axis. This type of debitage products were used for manufacturing burins, perforators and endscrapers. Another characteristic of this industry is microretouch of the Ouchtata type.

The second Lower Egyptian industry was said to include twisted blades too; these however were removed from cores made of nodular flint. According to K. Schmidt, blades must have been obtained directly at flint sources located outside settlements. Larger blades of this kind were used for making endscrapers and burins characterized by steep and semi-steep lateral retouch, of alternating dorsal and ventral sides.

Unlike the first two industries, the third one apparently bases on flakes. K. Schmidt identified tabular scrapers with cortex on the dorsal surface. Some of them were manufactured by local flint knappers, while others involved the use of foreign materials and most probably came from Levant, where production centers specializing in tabular scrapers were discovered (Rosen 1983: 79-83; 1997: 75; *in press*; Schmidt 1993: 267-277).

1.1. Buto - Tell el-Fara'in

Stone assemblage from the first two settlement phases in Buto does not differ greatly from the general profile of Lower Egyptian flint assemblages presented by K. Schmidt (1993: 270). In the opinion of that researcher, materials from phases I and II are a continuation of earlier trends initiated during occupation of the Maadi settlement.

Raw materials

Most raw materials used for manufacturing flint tools in Buto came from local sources. In the Predynastic period, most products were made of opaque, fine to medium grain flint with colors ranging from honey brown to brown black originating from erosive sediments from the western edge of the Delta (Schmidt 1985: 281-282; 1986: 201).

Debitage methods and products

Blade cores from Buto usually have prepared platforms and their *„angle de chase"* is approx. 60 degrees (Schmidt 1993: fig. 1:1-2). Blades are approx. 3 to 5cm long and 1cm wide. Platforms of blades are pointed in most cases, and the bulb is flatten and poorly distinguished. Buto's blades are characterized by a twist and traces of heat treatment (Schmidt 1986: 201-204).

Tools

The most basic blade tools are backed pieces and truncated blades, with a characteristic fine abrupt edge retouch (Schmidt 1993: 1:3-14). No burins have been found in Buto, and endscrapers and perforators are scarce (Schmidt 1988: fig. 6:16-18; 1993: fig. 3:1-4). Such a poor repertoire of tools is explained by K. Schmidt (1993: 270) by reference to the specific subsistence strategy of Buto's community. In his opinion, bladelet tools were used for exploring aquatic environment. Tabular scrapers in the assemblage from Buto are also far less common (Schmidt 1988: fig. 9:1-4; 1992: fig. 3). They were the only tools not made of locally available flint and – in the opinion of K. Schmidt (1988: 297-306; 1996: 270) – they were imported from Levant.

An important item from Buto are bifacial knives of Hemamija type A (2 pieces) and B (49 pieces). All of them are known from phase II, thus corresponding to their NII chronology on other sites in Lower and Upper Egypt (Schmidt 1996: 281, fig. 1). Like in Maadi, Buto's oldest phase I also contained bifacial Badari knives, considered to be an earlier form of more elaborate Hemamija knives.

The presence of locally manufactured segmented sickle blades was confirmed in Buto in phase III only. In layers linked to Lower Egyptian culture, a few "Canaanean blades" coming most probably from the Chalcolithic Southern Levant were registered as well (Schmidt 1987: 253). A similar situation occurs in Upper Egypt, where sickle blades are either totally absent or constitute a trace amount in flint assemblages from Naqada I and II sites (*e.g.* Hierakonpolis, Naqada). A fairly large number of sickle blades similar to those from phase III were registered in Predynastic layers on the Mostagedda site. However, it is unclear whether the blades were used throughout the existence of the settlement, or were introduced only towards the end of that period (Schmidt 1996: 283).

Apart from items manufactured locally or imported from Levant, Buto's assemblages also include a small number of bifacial tools imported from the south. Attention is drawn to a fragment of a ripple-flake knife found among a deposit of Upper Egyptian vessels with wavy handles (Schmidt 1992: 33-34; 1987: 253).

1.2. Ezbet el-Qerdahi

Raw materials, debitage products and tools

In terms of raw material, flint assemblage from Ezbet el-Qerdahi is in many ways similar to that from Buto (Wunderlich *et al.* 1989: Abb.3). Also in terms of technology both sites are analogous. Significant differences are discernible in the character and typology of flint

products. Flint assemblage from Ezbet el-Qerdahi includes almost exclusively cores and their fragments. Blades and blade tools are very uncommon here. Such a situation may result either from merely partial exploration of the site, or from the fact that this site – unlike Buto – was of a workshop character. The type and way of core processing are characteristic for the Lower Egyptian culture. There are cores with a single platform, and the *angle de chasse* of blades is acute. There are also characteristic twisted blades. The more remarkable tools from Ezbet el-Qerdahi include a large blade with one abrupt edge and a scraper with a horizontal working edge. Also a fragment of a large bifacial tool was found in Lower Egyptian layers. Its cross-section is irregular and oval-like. Most of the surface is covered with surface retouch, and cortex is present only on one of the surfaces. The horizontal edge is abruptly retouched on one side only. In terms of form, the item is reminiscent of tools found in Early Dynastic and Old Kingdom assemblages, as well as of tools known from the Merimde culture. However, according to J. Eiwanger (1988: 37), the item in question represents a later cultural tradition, judging by the differences in retouch techniques. According to K. Schmidt, the tool fragment from Ezbet el-Qerdahi should be linked to the Lower Egyptian culture (Wunderlich *et al.* 1989: 316-318).

1.3. Heliopolis

Explorations of graves from the necropolis in Heliopolis yielded only 2 blades made of transparent flint. Unfortunately there are no drawings or information of their exact location. According to F. Debono and B. Mortensen (1988: 35), both blades represent the type commonly found on Egyptian sites from the end of the Paleolithic to the end of the Middle Kingdom.

1.4. Maadi – settlement

Raw materials

Four types of flint material were identified on the site: gravel flint in the form of pebbles, nodular flint, imported flint (used to make tabular scrapers) and other rock crystals. Tools used for routine works were made of flint pebbles. The material is still easily accessible and fairly common in Lower Egypt. Pebbles found in Maadi most probably came from a nearby wadi, from where they could be easily transported to the settlement. Their external surface was strongly polished as a result of river transportation and eolian processes. Flint color ranged from light brown to dark red and brown. Cores were made of large pebbles, owing to which blades were 3 to 7cm long. According to I. Rizkana and J. Seeher (1984: 237; 1988: 14-16), knapping was carried out within the settlement, which is confirmed by a large number of unused pebbles and cores with one or two platforms, rejected because of internal defects.

Nodular flint in Maadi's assemblage is less common. It is characterized by coarse, uneven and thick cortex with numerous indentations. Its color ranges from nearly black to grey. This particular material was used for manufacturing the majority of long and wide blades

found on the site. The small number of cores found in the settlement suggests that a workshop specializing in nodular flint processing was located outside the settlement's boundaries. The likely place of origin of nodular flint used in Maadi was Abu Rawash, 20km north-west of the settlement.

Flint used for manufacturing tabular scrapers is the third type of flint material from Maadi. Apart from Levantine scrapers, Maadi assemblages also include scrapers made locally using large concretions of local flint, with a slightly convex surface. This is why their dorsal side has smooth and even cortex. The color of this type of flint ranges from dark grey to dark brown (Rizkana & Seeher 1984: 238; 1988: 14-16).

Items made of rock crystal include less than twenty flakes, blades and tools (blade tools, endscrapers, burins, scrapers).

Debitage method and products

Flint assemblage from Maadi is characterized by the use of simple debitage methods. Core platform did not require any special pretreatment and made it possible to knap 2 or even 3 series of blades, depending on when the core lost its natural curve and rendered further use impossible. Nodular flint cores are little processed too. However, owing probably to the value of the material, cores were reshaped while in use, to maximize the number of blades that could be knapped. Most cores were processed by means of a hard hammer, although some instances of using a soft hammer and a punch were registered as well. Most blades have butts damaged by impact force.

Tools

The basic kind of debitage used in Maadi for the production of tools were blades and bladelets made of pebbles and nodular flint concretions. Longer and larger blades were obtained by processing nodular flint cores, while smaller blades were knapped off pebbles found on the surface. Most blades have a characteristic twist. The most numerous group of tools from Maadi are retouched blades. I. Rizkana and J. Seeher (1988: 20) identified 15 types of retouched blades. Longer and wider blades have a fine retouch on the right edge on the dorsal side and occasionally a deeper abrupt retouch on the left edge on the dorsal and/or ventral side. Smaller blades have a fine retouch on the right edge, while the left edge remains unretouched. A characteristic feature of small blades from Maadi is a small notch just under the bulb on the right edge on the upper side. Most probably the purpose of the notch was to facilitate the blade's installation in the handle.

Apart from retouched blades, other typical tools were perforators and burins. One end of perforators was usually covered with more or less regular retouch on both sides of its edges. I Rizkana and J. Seeher identified 8 main types of perforators, depending on the form of the sting and the presence and type of retouch. The assemblage from Maadi also contains many types of burins, usually made of broken blades. Endscrapers are another very numerous group of tools, including both scrapers on blades (single or multiple) and tabular scrapers,

as well as oval sidescrapers on flakes. Flake sidescrapers were very easy to manufacture and did not require any particular preparations or knowledge of special techniques. Tabular scrapers on flakes are a characteristic feature of the flint tradition from Maadi. Scrapers of this kind are typically retouched circumferentially, and cortex is present on their upper surface. In most cases platforms were prepared. Gloss on the bulb and use-wear analyses of similar tools from Bab edh-Dhra in Jordan indicate that scrapers of this type were used for butchering (Rizkana & Seeher 1984: 243; 1988: 23; Rosen *in press*).

Apart from blades and flakes, finds from Maadi also features bifacial forms, accounting for 0.1% of the entire flint assemblage (55 tools). Among all bifacial tools, two knives are particularly remarkable. One of them is finished with a fish tail edge, and the edge of the other knife is pointed. Both knives were made of blades. Other bifacial tools include bifacial tongued points with a slightly concave base or characteristic side wings.

Another fairly numerous group of tools are sickle blades with rectangular or pointed profile, sometimes with characteristic sickle gloss. I. Rizkana and J. Seeher (1984: 249; 1988: 33) divided sickle blades into two groups, depending on the edge retouch type. The first group includes blades with a denticulated edge made of nodular flint. The other group consists of regular, flat blades of straight edges (retouched or not), with a trapezoidal cross-section, made of opaque flint similar to the material used for manufacturing tabular scrapers. The type of material and an alternative manufacturing technique suggest that these tools may be of foreign origin. According to I. Rizkana and J. Seeher (1984: 249; 1988: 35), given that local production of sickle blades was well developed, their import from the east would be irrational. The existence of two manufacturing traditions could be linked to the presence of migrants from Southern Levant, who would have brought in their own set of flint tools, including sickle blades. Another intriguing fact is the low number of sickle blades in the Maadi assemblage (44 locally made blades and 6 Canaanean blades). The settlement's inhabitants were clearly a farming community, and their subsistence strategy was fully based on agriculture (see Chapter 5). Large numbers of harvest tools should thus be present. I. Rizkana and J. Seeher (1988: 36) see two possible explanations of this paradox. The low number of sickle blades could result from the fact that manufacturing and repair workshops were located outside the settlement, close to farm fields. The other explanation points to possible division of works. Maadi could have been supplied with grain from another settlement, while Maadians would specialize in another craft, *e.g.* metallurgy, pottery or trade exchange with the east.

The assemblage from Maadi also included several core tools made of flat pebbles described as choppers or chopping tools (Rizkana & Seeher 1988: 19).

1.5. Maadi, Wadi Digla – cemeteries

Only one grave from the cemetery in Maadi (MA15) contained an unspecified flint blade. In the absence of the grave's description it is impossible to determine whether the blade was an offering or was accidentally deposited in the fill. Pottery was the prevailing type of grave

offerings in Maadi. On the one hand, the lack of flint tools could have resulted from local burial customs. On the other hand however, it can be explained by the fact that the cemetery was explored only fragmentarily (Rizkana & Seeher 1985: 249; 1990: 18, 27).

As regards grave offerings, a similar situation is observed in Wadi Digla where flint artefacts were registered in 35 graves (7%). In as few as 8 graves (WD40, WD60, WD77, WD108, WD307, WD397, WD41, WD430) researchers considered the finds to be offerings. In all other cases flint items were found in the fill. Due to the poor preservation conditions of skeletons, no relationships between the sex of the deceased and the presence of flint offerings were identified. In the 35 graves containing flint items, sex of the deceased was determined (to a varying degree of certainty) in 10 cases only. Most individuals buried in those graves were males.

Flint artefacts from the cemetery in Wadi Digla include blades and flakes made of gravel flint. Grave WD307 contained a retouched blade of nodular flint, and a tabular scraper was found in WD401. The latter is believed to be of eastern origin, but in terms of technology and typology it is reminiscent of scrapers from Maadi and Buto. Another interesting discovery was made in grave WD138a, where a collection of flint artefacts were found. Although the grave was damaged, its pit contained 40 bladelets and 6 flakes with a core, as well as a single blade made of undeterminable rock crystal.

In Wadi Digla, in most cases (32 graves) flints were deposited in graves dated to the younger phase of the cemetery (Rizkana & Seeher 1985: 249; 1990: 90).

1.6. Minshat Abu Omar

The cemetery's 15 oldest graves reported on so far contained flint items deposited as offerings. A significant number of them were blades usually made of brown flint (*e.g.* in graves 687, 669, 202). Attention is drawn to grave 330, where 2 groups of blades were discovered, consisting of 14 and 3 items, respectively. An interesting find was discovered in grave 231, where offerings included a flint knife, a blade and a set of 14 trapezoidal microliths, most probably arrow heads.

Particular attention is drawn by group I knives, although only general descriptions of those findings are available. Grave 231 contained a knife with one polished side and a retouched edge (so-called *Federrretouche*). Another interesting knife was found in grave 224: on one of its surfaces a ripple flake retouch is present and the other surface is polished (Kroeper & Wildung 1994; 2000).

1.7. Tell el-Farkha

Flint assemblage from Lower Egyptian culture layers is not particularly impressive. Although flint items were recorded both by the Italian mission "Centro Studi e richerche Ligabue" from Venice exploring the site from 1988 to 1990, and by the Polish Archaeological Expedition of the Eastern Nile Delta operating there since 1998, the entire assemblage is neither rich nor diverse in terms of technology and typology.

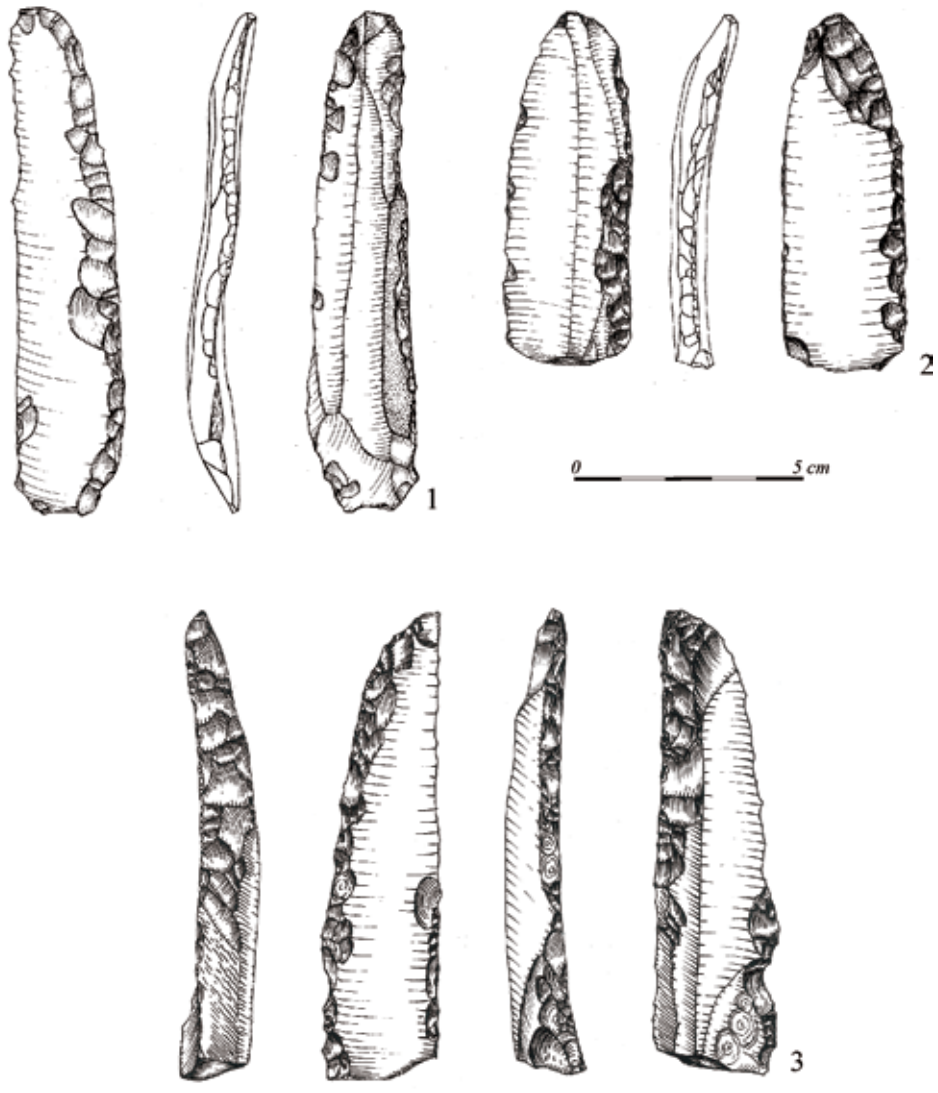

Figure 16. Tell el-Farkha. Lower Egyptian flint knives (Kabaciński 2012: fig. 1).

Raw material, method of core processing, debitage and tools

Excavations carried out by the Italian mission yielded blades and flakes made mostly of flint with colors ranging from beige to grey and brown, and to black. Most items in the assemblage were 1 to 2cm wide blades. Among phase I tools, S. Salvatori and D. Usai (1991: 38, 42)

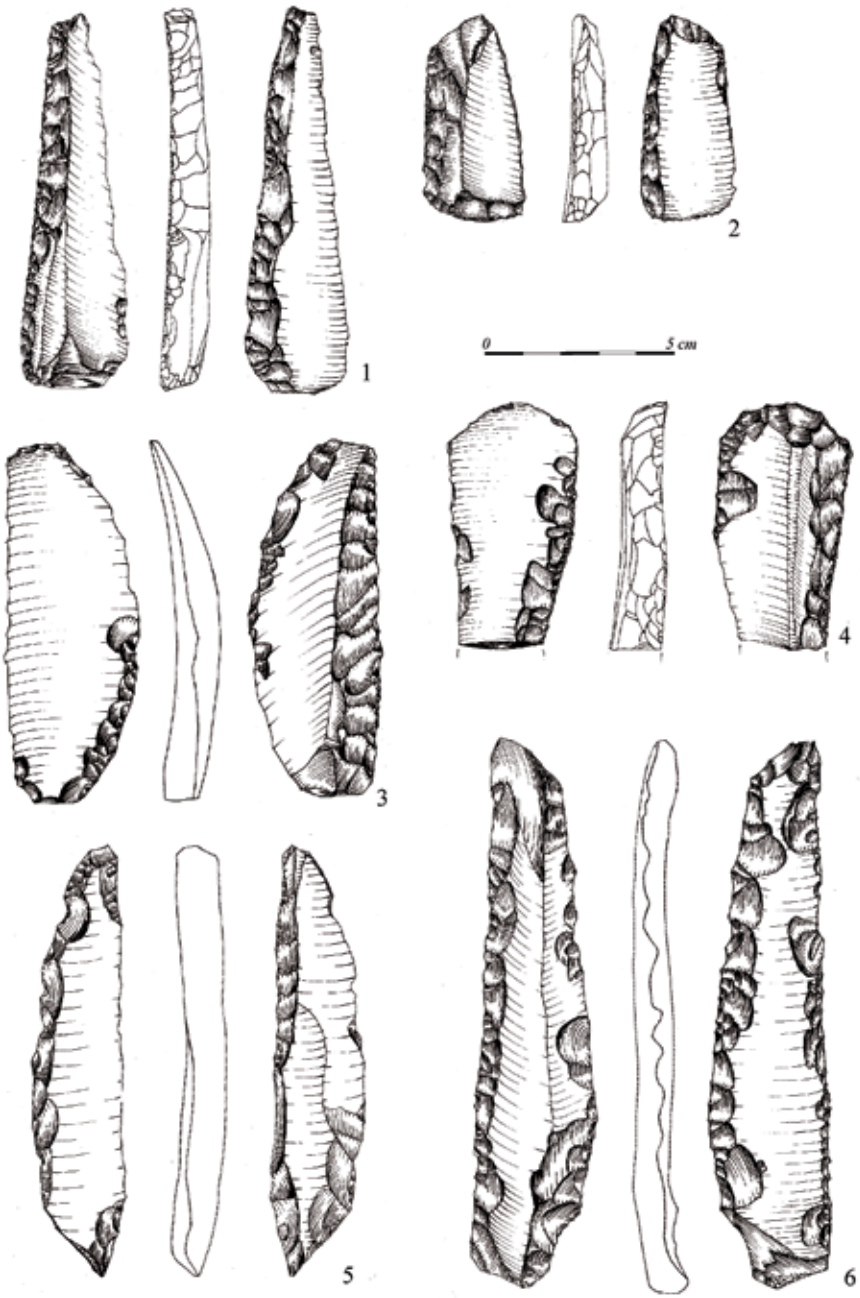

Figure 17. Tell el-Farkha. Lower Egyptian flint knives (Kabaciński 2012: fig. 2).

list an endscraper on microblade, a circular scraper on flake with deep retouch and a side-scraper on blade with deep direct retouch on the left edge. Also, Lower Egyptian culture layers contained two flint knives on blades. One of them is made of gravel flint with direct medium relatively flat and edge invasive distal retouch. On the left side there is an inverse normal-scalar proximal and median retouch. On the dorsal side of the other knife there is a direct central expansive and edge invasive retouch on the left side (Salvatori & Usai 1991: 34- 45).

Overview of flint items unearthed by the Polish expedition shows a more complex image of the Lower Egyptian flint tradition (Kabaciński 2002; 2003a: 99-101; 2003b; 2012). The communities of Lower Egypt relied on local materials, including first of all light-beige chert. Most common items in the assemblage are wide and massive blades, removed most partially *in situ* by means of a soft hammer from single platform cores. As far as tools are concerned, attention is drawn to massive perforators with sides formed by bifacial, semi-flat retouch, as well as blades with microlithic retouch of the Ouchtata type. Unlike in Buto and Tell el-Iswid, sickle blades found in Tell el-Farkha have one retouched edge (sometimes with the Heluan retouch), made of locally available material.

Flint knives are an important element in the flint assemblage. Thus far, 36 such knives have been registered. Most of them were made of brown or light-brown chert. J. Kabaciński (2012) classified most of them as Hemamija B knives (22 specimens) (Figs. 16-17, 18:1-4). Their handles are mostly rounded. The Lower Egyptian assemblage also features knives with edge retouching (7 specimens), similar to Hemamija knives, but differing in terms of production pattern (Fig. 18:5-6), as well as knives with bifacial surface retouching (5 specimens). As far as the last group is concerned, particularly remarkable is a knife made from dark grey to black material. The back of the knife is worked with steep retouch similar to "ripple flaking" on the upper side. The flat side of the lower face of the knife is covered with lamellar retouch. That knife is most probably imported from the southern Egypt. On the site reseracher also found a fragment of an obsidian knife believed to have been imported from Upper Egypt (Kabaciński 2003a: fig. 26). Another flint knife of Upper Egyptian origin with a ripple flake retouch comes from the Lower Egyptian residence situated on the Central Kom (see Chapter 5; Chłodnicki & Geming 2012: fig. 17).

1.8. Tell el-Iswid, Tell Ibrahim Awad

Raw material

In Tell el-Iswid, like on other Lower Egyptian sites, layers from that period contain flint artefacts made of a variety of materials. Blades were made of glassy, caramel-colored flint, while smaller blades and bladelets were made of opaque flint, with colors ranging from honey brown to dark red.

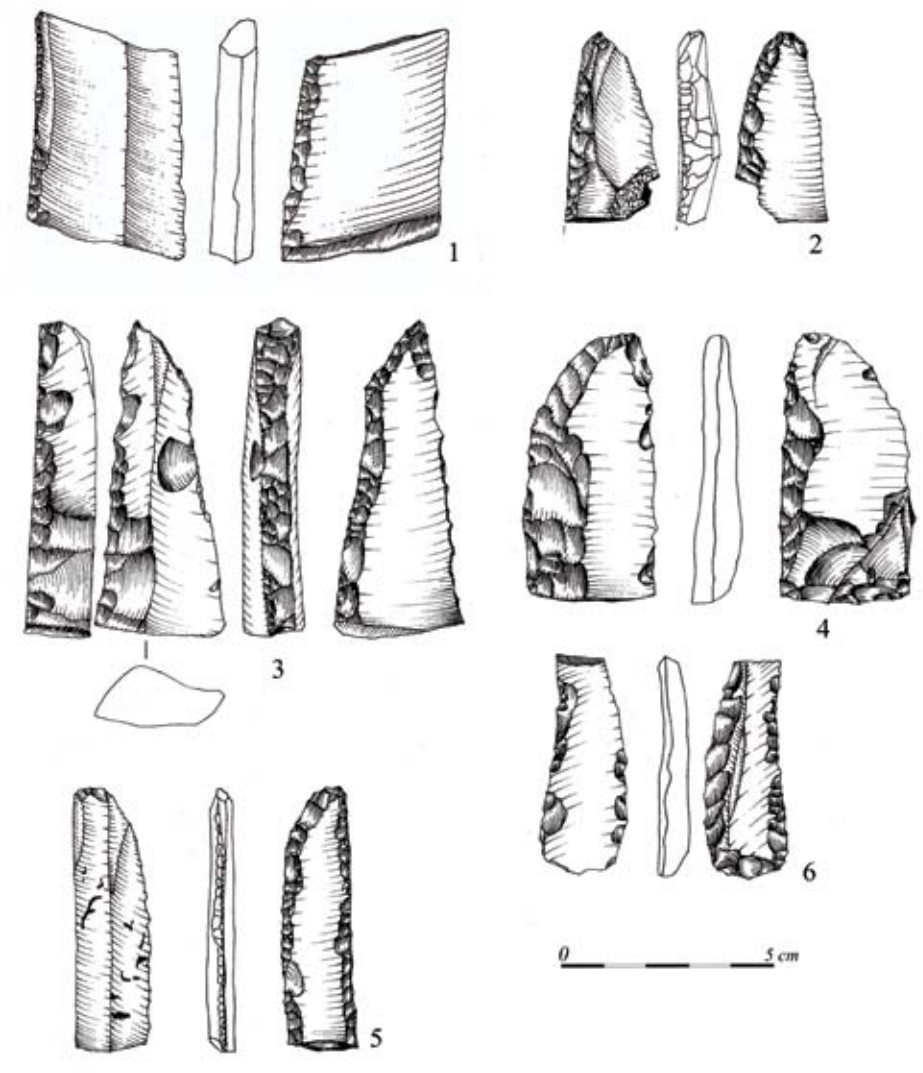

Figure 18. Tell el-Farkha. Lower Egyptian flint knives (Kabaciński 2012: fig. 3).

Debitage methods and products

Phase A flint assemblage from Tell el-Iswid does not differ considerably from the assemblages from Maadi or Buto. Small size globular cores are present here as fragments only. Blades are characterized by a specific twist. Noteworthy tools include blades with microretouch of the Ouchtata type and microendscrapers with fine notches near the bulb (van den Brink

1989: fig. 15:1-9). The edges of larger blades usually show alternating retouch. Semi-flat retouch on the ventral side is uncommon. Large and wide blades were used to make Hemamija knives. The knife's right dorsal side is covered by steep or semi-steep retouch, and the left side is covered by semi-steep or semi-flat retouch. Hemamija knives are typical for Naqada II in both Upper and Lower Egypt. In Tell el-Iswid 15 such knives were found. In Phase A layers, two knives with bifacial surface retouch were discovered as well. One of them, made of opaque, honey-brown flint, has a straight spine, strongly bulging semi-circular working edge and a discernible handle. The working edge is covered with steep retouch on one side only. According to K. Schmidt (1989: 88-91), the knife has analogies among Upper Egyptian knives with ripple flaking retouch and reminds one of the bifacial knife found from Buto's phase II. Particular attention is also drawn to the other knife, made of obsidian (van den Brink 1989: fig. 15:11). In terms of technology, it is similar to Gebel el-Arak type knives with their characteristic ripple flaking retouch. Material used for manufacturing this knife is not naturally available in Egypt. An analysis carried out by E. Pernicka (1996: 286) showed that the obsidian from Tell el-Iswid could have come from either Anatolian or Ethiopian outcrops. In the opinion of K. Schmidt (1989: 90-91; 1992: 34), in terms of technology and typology the knife should be considered as an import from Upper Egypt. K. Schmidt believes that the knife's material reached the south via Uruk culture colonies in northern Syria, Levant and Delta. The finished products could have been subsequently exchanged between Naqadians and Lower Egyptians.

No report on Lower Egyptian flint assemblage from Tell Ibrahim Awad has not been published thus far.

1.9. *Chaîne opératoire* of the Lower Egyptian culture

Taking into account all information on Lower Egyptian flint tradition presented above, one can determine its *chaîne opératoire*.

Raw materials

The Delta's inhabitants in the Predynastic period (Naqada I-beg. IIIA1) used locally available raw materials, such as pebbles collected on the surface and in gully erosions, as well as nodular flint and other rock crystals. The first two materials are most commonly found on Lower Egyptian sites. The only rock crystal items are a handful of bladelets from Maadi. Materials imported from the outside and present on Lower Egyptian sites include obsidian (Buto, Tell el-Iswid, Tell el-Farkha) and Levantine flint (Maadi, Buto).

Knapping technique and methods

Preparation of cores depended on the type of the debitage product to be knapped. Since most flint items are blades, bladelets and blade tools, the assemblage is dominated by blade cores with a single platform and *angle de chasse* of approx. 60 degrees. Most researchers are of the opinion that cores were additionally heat treated.

Blades were removed by means of soft or hard hammers, whose size depended on the core type. Gravel flint cores were used to make rather small blades. Nodular flint cores were large enough for removing blades approx. 1cm wide and 3 to 5cm long. The common feature in both cases was an axial twist of the blade.

Tool production

The edges of blades were retouched. Smaller blades have a fine alternating retouch on the right edge, while larger ones have a fine flat retouch on the dorsal side of the right edge and a deeper retouch on the dorsal and/or ventral side of the left edge. Smaller blades typically show a microretouch of the Ouchtata type as well.

Retouched blades on Lower Egyptian sites are accompanied by blade tools. Smaller blades were used to manufacture burins, perforators and endscrapers, as well as sickle blades. In their turn, larger blades were used to make endscrapers, perforators, backed blades and knives. Burins were registered in Maadi only. They were made of broken blades. Perforators and endscrapers are fairly common in Maadi, while in Buto they are scarce. Perforator stings could have been covered on both sides with regular, steep retouch. Endscrapers on blades had working edges formed by steep retouch on one or both sides. The most common tools in Buto are backed blades, truncated blades and retouched blades. Only in Maadi and Tell el--Farkha locally made sickle blades have been found so far. Hemamija knives, a typical Lower Egyptian tool, are known from Buto, Maadi, Tell el-Farkha and Tell el-Iswid.

Oval flakes with cortex on the upper side were removed from large cores. They were used to manufacture tabular scrapers, whose form was reminiscent of tools imported from Levant.

The most noteworthy foreign items found on Lower Egyptian sites include flint and obsidian knives imported from the south. Their form (*e.g.* fish tail) and technology (ripple flake retouch) were reminiscent of the Upper Egyptian flint tradition. On the other hand, tabular scrapers from Buto and Canaanean blades from Maadi are considered to be Levantine imports (see Chapter 8).

The above overview of Lower Egyptian flint tradition is one of few attempts at analyzing this industry from the technological perspective. All earlier works on Lower Egyptian flint tradition relied on typology as the central point of reference. The concept of *chaîne opératoire* proposed by A. Leroi-Gourhan (1964) allows one to take a dynamic approach to flint production by prehistoric communities, without making references to statistical data. By taking into account each production stage separately, one can retrace the production process with regard to decisions and choices made by man. Reduced role of typology and statistics "humanizes" flint studies in a certain way. Flint assemblages can be interpreted from the perspective of knowledge, skills and technical proficiency of the flint maker and his community. Furthermore, the *chaîne opératoire* concept made it possible to clearly organize available sources and to comprehensively analyze materials from all Lower Egyptian sites. A comparison of materials from various sites reveals regional differences within the Lower Egyptian culture. That said, the differences are not as discernible as in the case of pottery.

They result mostly from natural conditions and people's adaptation to those conditions. It seems that functionality was the most important feature of flint tools and their aesthetic aspects were of minor importance, unlike in the case of pottery. In Buto, the repertoire of tools was probably linked to the exploitation of aquatic environment, as the settlement was located in a wetland area. Backed and truncated blades could have been used as harpoon or javelin barbs, while retouched blades could have been cutting tools. The dominance of this particular subsistence strategy is suggested by the lack of sickle blades. On other sites the repertoire of tools is similar and probably results from similar environmental conditions and similar subsistence strategies. Endscrapers, side scrapers, retouched blades and knives used for scratching or cutting could have had a variety of uses. However, without use-wear analyses their function cannot be determined precisely. It is equally difficult to determine the exact function of commonly found perforators which could have been used in processing organic materials: animal skins, wood and bones. Another remarkable fact is that burins were found only in the settlement of Maadi.

Little variation in flint tradition in the period from NI to NIID1 is well visible all over Egypt. K. Schmidt (1996: 279) and D.L. Holmes (1992: 310-316) are of the opinion that in the said period one can notice certain common features of the flint industry observable along the entire Nile Valley. According to K. Schmidt, one such feature is the technology of manufacturing twisted blades, shared by the north and the south of Egypt towards the end of Naqada I and in the beginning of Naqada II. K. Schmidt's view is based on the assumptions of D.L. Holmes (1992: 313), who proposed that this peculiar blade manufacturing technique involved heat treatment, leaving a trace in the form of glossy surface. Blades with traces of heat treatment are found in large quantities on Middle and Upper Egyptian sites, *e.g.* in Mostagedda. Originally, heat treatment traces were not identified by researchers analyzing materials from Maadi. However, according to D.L. Holmes, who had an opportunity to personally examine flints from that site, the numerous twisted blades were removed from heat treated cores. Both K. Schmidt and D.L. Holmes agree that the twisted blades industry is a common feature across the entire early Predynastic Egypt. D.L. Holmes believes that most similarities exist between inventories of the Lower Egyptian culture and those from Mostagedda in Middle Egypt. She even assumes that flint knappers from Mostagedda adopted certain technical solutions from their northern neighbors from Maadi. In his turn, K. Schmidt (1996: 280) refers to the inventory from Mostegedda as the southern counterpart of the Lower Egyptian industry. In his opinion, flint industry producing twisted blades with traces of heat treatment was common in NI and in early NII. Subsequently, in late Naqada II it disappeared altogether, both in Lower and Upper Egypt. The common features of Maadi and Mostagedda are visible also among Hemamija B knives. In the south, knives of this type were found on sites dated to Naqada II in Hemamija, Mostagedda, Badari and Naqada. K. Schmidt is of the opinion that the tradition of making these knives originated in Lower Egypt and then spread along the entire Nile Delta in Naqada II. The same situation occurred in the case of

Badari knives, found in the south in Predynastic layers dated to early Naqada I to Naqada II. According to K. Schmidt, Badari knives in the south are a counterpart of Hemamija knives from Lower Egypt.

In 2007 N. Buchez and B. Midant-Reynes (2007; 2011) concluded the earlier discussions on the flint tradition of the Upper and Lower Egypt in the 4th millennium BC. According to the researchers, the Nile Valley in the 4th millennium BC saw two flint traditions: the northern one in the Maadi-Delta region with strong Levantine influences, characterized by the presence of twisted blades and heat treatment of cores, and the southern one exemplified by the assemblages of el-Tarif and Maghar-Dendera based on flakes and some bifacial pieces of outstanding quality. During Naqada IIB-IIC/D the northern tradition reached Middle Egypt, followed by Upper Egypt, as proven by flint inventories from Adaima and Hierakonpolis. Another change occurred in early Naqada III, when assemblages with regular standardized blades replaced those with twisted blades in the entire Nile Valley.

2. Clay items

Excavations on Lower Egyptian sites yield large quantities of clay items, outnumbered only by pottery. Those items include figurines, beads, discs and balls.

2.1. Buto – Tell el-Fara'in

The clay assemblage from Buto is dominated by discs made of fragments of bodies of damaged pottery vessels (von der Way 1997: Taf. 57:8-14). Their diameters vary from 3.2 to 5.2cm. Most discs were made of clay with fine to medium organic temper (Ware Ia). Two discs were covered with slip (Ware Ib and Ic). According to T. von der Way (1997: 111-112), clay discs were most probably used in weaving.

Other remarkable clay items found in Buto include globular clay beads present in the site's phases I and II. They are fairly small, with diameters ranging from 0.9 to 1.6cm. One of those beads was made of green and blue faiance.

Buto's assemblage of figurines is rather modest. Tell el-Fara'in revealed only a handful of zoomorphic representations, such as a fragment of a trunk of an animal, probably a hedgehog or a bird (von der Way 1997: Taf. 58:1). It has the shape of an oval, flattened on one side. The other, convex side has multiple punctures, representing either bristles or feathers.

Other clay items found in Buto do not form a morphologically cohesive group and their respective functions cannot be determined, as the finds are fragmented beyond recognition. They include *e.g.* small clay cones (von der Way 1997: 112).

2.2. Ezbet el-Qerdahi

Excavation works in Ezbet el-Qerdahi yielded a piece of fired clay, interpreted as a representation of the front part of a dog's trunk. The head and the front legs broke off, leaving still visible marks. The hind part of the figurine is missing (von der Way 1997: 112, Taf. 58:2).

2.3. Maadi – settlement

Clay items registered in Maadi included fragments of anthropomorphic and zoomorphic figurines. I. Rizkana and J. Seeher (1989: 11-12, pl. 1:1-3) are of the opinion that only one fragment of a figurine can be considered to be representing a human. The fragment in question depicts an oval, slightly reclined human head with schematically marked eyes, nose, open mouth, chin and neck. Similar representations of human heads are known *e.g.* from el-Mahasna. Another fragment from Maadi, probably anthropomorphic as well, shows the upper part of a trunk with horizontally stretched arms, forming the letter T. This particular arm position was characteristic for human representations in Naqada I and in the beginning of Naqada II (Petrie 1920: pl. VI:2.3; Ucko 1968: figs. 6, 20, 21). Both the head and the bottom part of the figurine are missing.

Anthropomorphic figurines from Maadi were accompanied by three representations of animal heads, being fragments of either figurines or zoomorphic vessels. Figurines could have been made only of clay, or partially of organic materials – straw or wicker. Two of the heads are covered with bright slip and decorated with dark red lines. The third fragment shows only traces of beige slip. In all cases animals' heads are shown as small knobs. Ears or horns are visible on one head only. It is impossible to identify the depicted species, but quite surely all of the represented animals were quadrupeds (Rizkana & Seeher 1989: pls. 4-6).

The assemblage of clay items also includes 104 pottery discs made of vessel fragments. Their originally sharp edges were smoothened and made oval. In most cases a hole is drilled in the central part of the disc (only 1/3 of all discs do not have such a hole). While disc diameters range from 3 to 14cm, two-thirds of all discs are 4 to 8cm in diameter. The function of clay discs is unknown. In Maadi, some discs without holes were found *in situ* – they could serve as vessel lids. Other discs could have been used *e.g.* for fastening animal skins or mats to the floor, as fishing net weights or weaving weights or finally as endpoints of lines and ropes (Rizkana & Seeher 1989: pl. 2).

Other clay artefacts include an elongated, rather roughly made bead, a corroded faiance bead and three fragments of clay rods of unknown purpose (Rizkana & Seeher 1989: 12-13).

2.4. Tell el-Farkha

Lower Egyptian culture layers from this site yielded a relatively low number of clay items, which could be attributed to the fact that only part of the Lower Egyptian settlement has been explored.

In the archeological assemblage from the phases 1 and 3, fairly common are items referred to as tokens. They can be found all over the settlement and most probably were linked to trade activities. The items in question includes cones, balls, discs with or without hole. They could have been connected with commercial and bookkeeping purposes (Kołodziejczyk 2012: graph 1). Clay balls, measuring several centimeters in diameter were formed

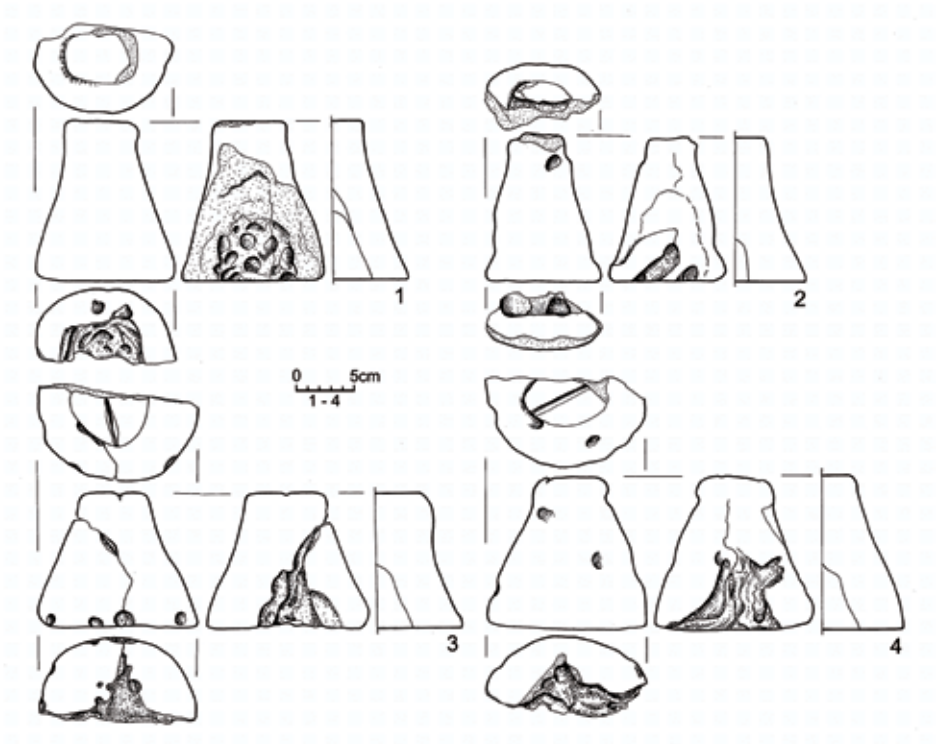

Figure 19. Tell el-Farkha. Bell-shaped firedogs (Chłodnicki & Geming 2012: fig. 19).

of clay tempered with organic temper. Clay discs form a more varied group, featuring round or oval objects of several centimeters in diameter, relatively thin, made of clay tempered with straw. Some of them have holes, made before or after firing. Moreover, some of these items may have been made from vessel fragments, specially processed and drilled to serve a specific purpose. Also clay cones were interpreted by P. Kołodziejczyk (2012) as tokens. These pyramid-shaped objects are several centimeters high, and have flat or slightly convex bases (round or oval), a few centimeters in diameter.

Another interesting find is a large fragment of a probably ceramic plate found in a Lower Egyptian pit. The piece is approx. 71cm long, 34cm wide and 5cm thick. One of the edges is slightly bent upwards, but otherwise the plate is flat. It was made of Nile clay tempered with sand and chaff. The plate is thoroughly burnt, which implies that it was used near fire. It means that it could have been used for preparing food (Mączyńska 2003a: fig. 7:2).

Attention is also drawn to 4 bell-shaped firedogs made of Nile clay tempered with medium size organic and mineral temper found inside the Lower Egyptian residence, at small distances from one another (Fig. 19). All of them are similar in terms of manufacturing technique and dimensions. The narrower end of each of the forms is flat and is approx.

10cm in diameter. In two cases a line is etched on the flat surface. The diameter of the wider end is approx. 30cm. In all 4 cases the central part of the base was partially emptied. The indentation's surface shows fingerprints, most probably of the object's maker. All four objects were found close to one another and probably they were used jointly. Similar objects are known from Merimde site (Tristant 2004: 100, fig. 110).

2.5. Tell el-Iswid, Tell Ibrahim Awad

Lower Egyptian layers from Tell el-Iswid yielded a high number of fired, manually shaped lumps of clay. Found *in situ*, they formed a row, most probably marking the boundaries of a structure used to store unspecified items (van den Brink 1989: 64).

In Tell Ibrahim Awad, a 20cm disc made of alluvial Nile clay with a coarse organic temper was found. One of its surfaces is flat, while the other features small circles (each approx. 4cm in diameter), impressed in wet clay. According to E.C.M. van den Brink (1992b: 54, fig. 12), the disc could have been somehow used in preparing food.

3. Stone items

The number of stone artefacts in the Lower Egyptian culture inventory is not impressively great. Although stone processing technologies were known to the Delta inhabitants in the early and middle Predynastic period, they preferred tools and implements made of materials that were easier to process, such as clay or flint. In certain cases, limited access to stone material in the Nile Delta and the need to transport it over long distances could have also played a role. Compared to clay or flint items registered in settlements, stone items are thus innumerous. In the case of cemeteries, the disproportion is even greater.

3.1. Buto – Tell el-Fara'in

An analysis of stone material from Lower Egyptian layers showed that most stone items were made of quartzite (85%). Other stones, such as sandstone, limestone or basalt came in smaller quantities. In terms of morphology however, particular attention is drawn by basalt items, *i.e.* vessels, quernstones and grinding stones. Other materials – quartzite, sandstone, granite and flint – were used predominantly for manufacturing quernstones and grinding stones. Limestone was used exclusively for spindle whorls.

Stone artefacts from Lower Egyptian culture layers on the site in question include 34 vessel fragments, mostly made of basalt. One of the most numerous groups are fragments of conical vessels with a strongly everted rim and a 90-degree angle between the rim and the body (T-shaped rim). The rim's width ranges from 2.5 to 5cm (von der Way 1997: Taf 50). Similar vessels with T-shaped rims, made of travertine, are part of the collection from Maadi. No analogous vessels have been found in Upper Egypt. In Buto, fragments of conical vessels come mostly from phase I. Only two fragments were found among materials of phase II.

Barrel-shaped and cylindrical vessels are another fairly numerous group of basalt items. They have a flat base, lug handles and a conical or cylindrical body. Their rim could have been straight or slightly everted (von der Way 1997: Taf. 51:1). Similar vessels were registered in Maadi and in Tell el-Farkha (Pl. 9), as well as on the cemetery in Heliopolis. In Buto their presence is limited to phase I.

Basalt finds from Buto also include a jar fragment with an easily discernible shoulder and a straight neck, as well as a piece of a bowl with remarkable swelling of walls between the mouth and the base (von der Way 1997: Taf. 52:1). Basalt used to make the bowl was porous and its texture differed from that of other basalt items found in Buto. The material's origin has not been fully confirmed despite petrographic analyses. By analogy to bowls with walls swollen at mid-height known from the EB I Southern Levant, the fragment in question is considered to be a Canaanite import (von der Way 1997: 109-110, footnote 623). Other basalt vessels whose fragments were found in Buto remained unidentified due to excessively small fragments sizes and non-diagnostic forms. One could mention *e.g.* a trumpet-shaped foot and a drilled-through piece of a vessel body (traces of repair) from phase I. Stone assemblage from phase II in Buto is much poorer. Exploration of phase II layers yielded only a single flat basalt base and six non-diagnostic vessel wall fragments.

Basalt, sandstone and quartzite were also used to make quernstones. Two types of quernstones are known from Buto, differing from each other by the degree of sophistication. The first type are quernstones with concave working surface. The opposite convex surface is either unprocessed (raw) or shows only a few processing traces. In the other type of quernstones both surfaces are flat and show traces of sophisticated processing (von der Way 1997: Taf. 53-55).

Grinding stones in the shape of irregular spheres were made of sandstone, quartzite or granite, while basalt was rarely used for that purpose. In certain cases it is difficult to determine whether grinding stones were actually used for grinding, or perhaps for smoothening (*e.g.* pottery). Not unlike vessels, basalt grinding stones are present only in phase I. Grinding stones made of other materials are present in phases I and II of Buto. The same is true for hammerstones, made exclusively of flint pebbles, present in the inventories from phases I and II (von der Way 1997: Taf. 56) Also from both phases come small limestone discs of bi-conical cross-section, with a drilled hole. Their diameters range from 3.2 to 4.6cm, with the exception of one such object whose diameter was 8.2cm. Most probably, the discs were used in weaving as spindle whorls (von der Way 1997: Taf. 52: 3-13).

Buto's inventory features a single palette made of greywacke (phase IIb). It has the shape of an irregular tetragon, and both of its surfaces are flat. Similar palettes are known from the settlement in Maadi and from the cemetery in Wadi Digla (von der Way 1997: 109-110).

3.2. Giza

In Giza, near Mansuriyah Canal, north of the pyramids, construction workers accidentally found an assemblage of 9 pottery vessels and a fragment of a basalt cup, dated to the older phase of the Lower Egyptian culture. The material used to make the cup was grey-to-black

and had a fine grain structure. However, it differed from the material of basalt vessels from Maadi. According to A. el-Sanussi and M. Jones (1997: 241-253), it was reminiscent of materials used in the architecture and sculpture of the late Old Kingdom, then imported from the desert north of the Quarun Lake in the Faiyum Oasis. Despite having been polished, the cup's surface showed traces of processing. In terms of form, the basalt fragment from Giza is similar to vessels from Maadi.

3.3. Heliopolis

Stone items were rarely found in graves from Heliopolis. In their report, F. Debono and B. Mortensen (1988: 34) mention only two stone vessels made of basalt and limestone and two palettes of nodular flint. The form of the basalt jar is typical for late Naqada I and early Naqada II in Upper Egypt. It has an oval body, a wide mouth, two lug handles on the shoulders and a discernible foot. The vessel's material is black and its structure contains numerous glistening particles. Outcroppings of this kind of basalt can be found in northern Egypt: in Abu Za'abal, in north-western part of the Giza pyramids' area, in the desert between Cairo and Suez and in the Faiyum Oasis. In the south, basalt of this kind can be found south-east of Zamalut in Aswan, in the Eastern Desert and in the Sinai. The report's authors are of the opinion that the jar is of local origin, judging by its discernible foot, typical for Lower Egyptian pottery. The other stone vessel from Heliopolis, made of limestone, is oval and has only partially preserved rim and two drilled-through lug handles. The holes do not penetrate directly through the handles, but rather through the vessel's walls (Debono & Mortensen 1988: pl. 8). Similar vessels were registered in Upper Egypt, where they are uncommon in late Naqada I/early Naqada II, becoming more numerous in archeological materials from Naqada IIC. Both the basalt jar and the limestone jar have their analogies among stone vessels found in the Maadi settlement.

Stone vessels found in Heliopolis's graves were accompanied by stone palettes. While in the south they are fairly common among grave offerings, in Lower Egypt they are rather difficult to find in graves. The palettes from Heliopolis were made of flint nodules, in both cases containing lumps of pigments. In grave 56 the palette was accompanied by a lump of ochre, whereas in grave 65 it was accompanied by a lump of malachite (Debono & Mortensen 1988: 35).

Petrified wood was found in graves 35, 64 and 66. In grave 34 it was used as a vessel lid. In grave 64, a piece of petrified wood was found next to the deceased's right arm, while in grave 66 it was placed between stones. In the latter two cases the function of petrified wood remains obscure. Similar finds are also known from the Neolithic settlements in Merimde, Wadi Hof and Faiyum, where petrified wood was used in making axes, flint tools, and even vessels (Debono & Mortensen 1988: 36).

3.4. Maadi – settlement

At present, the collection of stone items from the Maadi settlement features a total of 110 complete stone vessels and their fragments. Most of them were made of soft stone materials: travertine, calcite, limestone and basalt, which is explained by the ease of processing by means of available stone and possibly copper tools, as well as due to easy access to the material. Limestone is generally available in the vicinity of the Maadi site. The nearest outcroppings of travertine are in Wadi Gerrawi near Heluan, some 20-30km away from Maadi, in the Sinai as well as in the desert between Cairo and Suez. The availability of basalt in Lower Egypt is limited to a few places, such as the surroundings of Abu Rawash, Abu Zawal midway between Cairo and Bilbeis, the desert between Cairo and Suez and the Faiyum Oasis. Hard stone material did not play any significant role in the manufacturing industry in Maadi. Having analyzed the form of stone vessels from Maadi, I. Rizkana and J. Seeher (1988: 56-57) identified 7 main vessel types. The first type are footed cups, usually made of basalt. Similar vessels are known from Lower Egypt (Buto, Heliopolis) and Upper Egypt (Hierakonpolis), from layers dated to Naqada I and early Naqada II. The second type are barrel-shaped jars, again usually made of basalt, although some of them were made of travertine or limestone. Barrel-shaped jars can have different bases (flat or ring-shaped), and their lug handles may or may not be drilled through. I. Rizkana and J. Seeher date them to Naqada I. Similar vessels are known from Upper Egypt, from the Naqada cemetery (graves dated to SD 36, 38, 47, 51), Badari (grave 3823 - SD 35-37) and Abadiyeh (grave B56 – SD 34) and from other sites in the Delta, and specifically from the Tell el-Farkha settlement (Pl. 9) and the Heliopolis cemetery. The third type of vessels are tubular jars with lug handles. As in the case of barrel-shaped jars, most tubular jars were made of basalt. The collection also includes 4 tubular jars made of limestone and one made of travertine. Similar vessels are known from layers dated to Naqada I in Adaima, Abadiyeh (graves U290, B102) and in Heliopolis. The fourth type consists of wide-brimmed jars – their brim can be 1 to 5cm wide. These jars were made of basalt, travertine, diorite and limestone. Similar vessels are known from Naqada I and Badari culture contexts from Upper Egypt (Badari, grave 5400; Mostageda, grave 2004) and from Lower Egypt (Merimde). All bowls found in Maadi (approx. 20 items) are grouped as type 5. They differ from one another by wall profile (globular bowls, V-shaped bowls and bowls with swollen, straight and everted rim). The bowls were made of a variety of materials. Some were made of soft stone (travertine, basalt, limestone) or hard stone (granite, conglomerate). One of the bowls is a Southern Levantine import. Type 6 includes three cylinders, one of which is a vessel fragment and the other two are semi-finished products. Type 7 consists of limestone incense burners. They are bowl-shaped, but their walls and bases are thicker. Their makers did not pay any particular attention to the burners' shape or surface finishing. An analysis of their content showed traces of resin-thick vegetable oil and soot. In the opinion of I. Rizkana and J. Seeher (1988: 63) those remains indicate that a mixture of resins and vegetable oils was burnt in order to generate a specific scent.

A comparison of stone and pottery vessels from Maadi suggests bidirectional interactions between both industries. Some forms, such as footed vessels, barrel-shaped vessels and tubular vessels, are typical for both pottery and stone artefacts. Pottery barrel-shaped and tubular vessels are known only from Lower Egyptian sites and should therefore be considered as a product of the local tradition. In their turn, pottery vessels with ring-shaped base and lug handles are unique to Upper Egyptian inventories (Rizkana & Seeher 1988: 65).

Other remarkable stone items from Maadi include slate and limestone palettes. Among slate palettes attention is drawn in particular to carefully crafted rhomboidal palettes with polishing on both surfaces, as well as palettes of irregular or semi-rectangular shape. In the opinion of I. Rizkana and J. Seeher (1988), rhomboidal palettes should be considered as imports from the south, where they are one of the characteristic elements of Naqada I culture. Finally, irregular palettes are believed to have been made by local craftsmen. In most cases they take the form of flat, elongated plates, sometimes with pointed tips, with only roughly made surfaces. Some limestone palettes featured engravings depicting animals or a net motive. Possibly, palettes were ornamented not only for aesthetic purposes, but also to prevent surfaces from being excessively smooth. Other items from Maadi include tetragonal gypsum plates with holes along the edges. Their function is obscure. A similar plate found in grave 560 in the Qau cemetery is currently in the possession of the British Museum in London.

Other stone items are quernstones, grinding stones and hammerstones. Most quernstones from Maadi were made of hard limestone with numerous inclusions of fossils and shells, making it easier to grind grain or pigments. Quartzite, sandstone and basalt quernstones were found in Maadi as well. Most quernstones were irregular in shape, and the working surface was concave. The shape of grinding stones was regular, either spherical or leaf-shaped, or even trapezoidal. Grinding stones were made of the same material. In some cases the surface of quernstones had become so smooth that they could no longer be used. To restore their functionality, the surface was roughened by means of quartzite or limestone hammerstones of regular, spherical shape. Hammerstones were also used in flint processing.

Maadi's stone inventory also includes conical maceheads made of travertine (2 items), granite (1 item) and diorite (4 items). Maceheads first appeared in inventories from sites dated to the early Predynastic period, *inter alia* in the Faiyumian (Caton-Thompson & Gardner 1934). Their popularity grew during Naqada I. Originally, maces were used as weapons, but over time their utilitarian function was gradually replaced by a figurative one. In NIII they become a symbol of power, *e.g.* Scorpion and Narmer maceheads (Ciałowicz 1987). The maceheads from Maadi have drilled openings with diameters ranging from 7 to 13mm. According to I. Rizkana and J. Seeher (1988) the openings were too small to fit a stable, rigid club. Therefore, mace clubs had to be thin and flexible, but due to small size and weight of the head controlling the weapon was nonetheless possible.

Drilled-through discs are another type of items commonly found in Maadi. Their forms vary from spherical to conical and to discoid with two flat surfaces and discoid with one flat and one concave surface. While most discs are made of limestone, the collection

also includes nearly twenty basalt artefacts of this kind. Their function is linked to weaving (spindle whorls), but it is not impossible that some of them were used as beads, pendants or fishing net weights. The surface of several limestone discs shows unidentified ornamentation of red paint. One disc was decorated with two dotted lines, possibly imitating the texture of diorite or marble.

Numerous beads and pendants were found in Maadi as well. Among them there are small limestone beads; discoid beads made of slate, lignite, marble, travertine, turquoise, selenite and carnelian; spherical rock crystal and limestone beads as well as tubular beads of travertine, diorite, limestone and calcite. Pendants found in Maadi were elongated and were made of marble, sandstone, calcite and limestone.

Other interesting stone items from Maadi are stones with a characteristic rut running through the middle. I Rizkana and J. Seeher (1988) identified two groups of such stones. The first one consists of stones of a shape more or less resembling a leaf, with flat surfaces and rounded edges and corners. The shorter axis of one of the surfaces features a deep U-shaped rut with traces of smoothing and polishing. This group consists mostly of basalt stones. The two authors are of the opinion that such stones were probably used to straighten reed arrow vanes. The other group includes limestone objects with rough surfaces with the rut running along the longer axis. These were most probably used as weights, *e.g.* for fishing nets.

3.5. Minshat Abu Omar

Pottery is the most common type of offerings in group I graves. In addition, some graves contained stone vessels, palettes, balls and stone beads.

Stone vessels were registered in a few graves in the cemetery, namely 330, 761, 816, and 815. For the most part, stone vessels were deposited in graves with greater quantities of offerings, in clusters of several items. The most numerous ones are vessels with a flat base, oval body and flat everted rim, sometimes with a discernible neck and two lug handles on the shoulders. They were made of travertine[1], limestone, breccia or sandstone (*i.e.* graves 63, 330, 761, 789, 815, 816). 3 graves (330, 816, 882) contained jars with lug handles of similar rim shape, but with a stouter body. Finally, grave 330 contained a vessel made of serpentinite, with a globular body, two lug handles and a separately profiled base. Stone bowls made of slate, siltstone and breccia were found in 3 different graves (330, 816, 1103).

In the oldest graves of the cemetery 3 slate palettes were discovered (graves 63, 305, 816), each with a different shape: a crescent, a fish and a bird's head. Zoomorphic palettes had been known since the beginnings of Naqada culture, but the period of Naqada II saw their particular growth (Cialowicz 1991: 19-25, 28-30). A pear-shaped macehead of red breccia found in grave 224 has similar chronology.

1 Kalzit-Alabaster (Kroeper & Wildung 2000).

Another type of grave goods were stone balls. 7 irregularly shaped balls (6 of travertine and 1 of gabbro) were found in grave 231. Grave 110 contained two balls (lapis lazuli and travertine) and a single oval pebble. Finally, grave 148 had 20 balls with diameters ranging from 6 to 13mm, made *inter alia* of gabbro, travertine, and limestone.

Stone beads make a fairly numerous group of artefacts. Most of them were made of carnelian, but other materials were used as well, such as travertine, lapis lazuli, steatite, limestone, quartz and faiance. Most beads are disc-shaped with slightly convex walls, but cylindrical, elliptical, round and oval beads were also registered in the oldest graves. Beads were usually found in clusters, the most numerous of which came from grave 699, where 1850 disc and cylindrical beads made probably of lapis lazuli, limestone, carnelian and faiance were found. Last but not least, a tear-shaped talc slate pendant was found in grave 202 (Kroeper & Wildung 1994; 2000).

3.6. Tell el-Farkha

The largest group of tools excavated in layers of the Lower Eyptian culture is comprised by various grinding stones (nearly 30%), made exclusively from sandstone and quartzite. The number of working surfaces varied from 1 to 3 or even 4. The site yielded both small items (diameters of several centimeters) and larger stones measuring up to 16cm and weighing up to 1kg (Jórdeczka & Mrozek-Wysocka 2012).

Another type of tools commonly found on the site are various hammerstones made of sandstones/quartzite (with strong silica structures) as well as chert and flint cobbles (Pl. 20). This group is extremely diverse in terms of sizes, with objects measuring only several centimeters and those weighing almost 2kg. Hammerstones made from chert and flint cobbles usually have standard sizes (hardly ever exceeding 7cm in diameter). Querns found in Tell el-Farkha's oldest settlement layers were made of quartzite (Pl. 21). A vast majority of grinding stones and hammerstones are irregular forms, since they were made of fragments of damaged tools. The group of hammerstones also includes a relatively numerous group of compound tools, usually with cubic forms, combining functions of hammerstones and grinding stones (with flat or slightly convex, polished surfaces). According to M. Jórdeczka and M. Mrozek-Wysocka (2012) the latter function is suggested by impact marks visible on surfaces. Those tools may have been used for a variety of purposes, such as processing of other stone tools, crushing and grinding of dyeing materials, as well as crushing and grinding of plant foods.

Querns found in Lower Egyptian culture layers were made of quartzite and quartzitic sandstone. They are objects with a trough-shaped working surface, although querns with flat or concave and convex surfaces were found too.

In Lower Egyptian layers a number of small sandstone pads (anvils) were also excavated. They were made from parts of larger tools, most probably quernstones, which is suggested by the presence of slightly convex polished surfaces. In central areas of convex sections numerous impact marks are visible (Jórdeczka & Mrozek-Wysocka 2012).

In the opinion of M. Jórdeczka & M. Mrozek-Wysocka (2012) the existence of stone working activities related to reworking of worn or damaged tools can be inferred from the on-site presence of both finished objects and numerous flakes as well as production waste generated during core drilling. Moreover, several dozens of semi-finished quartzite and sandstone products were also recorded at the site, with characteristics suggesting an early stage of preparation of grinding stones and hammerstones. Some other methods typical for stone production were registered too, such as removal of protruding elements, surface roughing, grinding, smoothing and polishing.

Materials from the settlement's phase 2 (NIID1) include a barrel-shaped stone vessel (Pl. 9). The jar has two lug handles at the top and a flat base, but its rim zone is missing. The jar's form is typical for Lower Egyptian culture and similar vessels are known from the Maadi site (barrel-shaped jars). A flat base of a diorite vessel was also found among phase 2 materials.

Another vessel from the said period is a medium-sized massive cylindrical mortar jar made of basalt. Its surface was carefully smoothed, while the interior shows signs of drilling (Pl. 8). According to G. Pryc (2012), such cylindrical jars may be copies of Badarian bone vessels. They were also common in Upper Egypt and Lower Nubia in Naqada I (Brunton & Caton-Thompson 1928: 28, pl. XXII:6).

Excavations of Lower Egyptian culture layers also yielded a collection of 27 beads – 23 made of stone and 4 made of golden foil, probably forming a necklace or other personal adornments. Stone beads have a variety shapes and were made of various materials – agate, carnelian, rock crystal, steatite (Pl. 16). The entire collection was found within the Lower Egyptian residence on the Central Kom (Chłodnicki & Geming 2012: 97-89).

Attention is also drawn by another stone artefact found in the said residence: a pear--shaped basalt macehead with impact marks on the surface (Pl. 14). It was found together with a similarly shaped bone macehead which – judging by the material used – probably had a purely symbolic function (Chłodnicki & Geming 2012: 97).

3.7. Wadi Digla

The cemetery of Wadi Digla revealed three stone vessels. In grave WD102 researchers found a small barrel-shaped jar made of bright yellow calcite (Rizkana & Seeher 1990: pl. 21). A piece of a wide-mouthed basalt jar was recorded in grave WD100 (Rizkana & Seeher 1990: pl. 21). Most probably, the piece was recycled and used as a palette. Jars of this kind were fairly common in early Naqada I. Finally, the third stone item was a piece of a limestone bowl, found in grave WD159. It seems rather unlikely for it to have been a grave offering and its presence in the grave must have been accidental. Just like in the cemetery of Heliopolis, only a few graves from Wadi Digla contained palettes used for grinding pigments. However, unlike in Heliopolis, the palettes from Wadi Digla were made from a variety of stone materials and by much more advanced craftsmen. The palette

from grave WD40 is a flat, limestone plate (Rizkana & Seeher 1990: pl. 9). Grave WD108 contained an irregular slate palette. The same material was used to make the palette from grave WD259 (Rizkana & Seeher 1990: pl. 33). The aforementioned piece of a basalt vessel's rim was used as a palette as well. All palettes found in graves were placed near the deceased's head, which may indicate the purpose of pigments ground on those palettes. Due to the scarcity of anthropological data, no relationship between the palette's presence and the sex of the deceased was identified. Dating of palettes by analogy constitutes another challenge. Only the rhomboidal palette has its equivalents in Upper Egypt in Naqada I and in early Naqada II. The other palettes were dated on the basis of pottery deposited in the same graves, either to the second phase of the Wadi Digla cemetery or to the transition period between phases I and II.

Beads are the last type of stone artefacts from Wadi Digla. Grave WD 257 contained 5 spherical stone beads, forming a bracelet together with 11 sea snail shells. Grave WD300 contained a bracelet made of 27 spherical stone beads (Rizkana & Seeher 1990: 90-91).

4. Metal products

The only metals present in Lower Egyptian culture sites are copper and gold. The former was registered in Buto, Maadi, Tell el-Farkha, Heliopolis cemetery, Wadi Digla and Minshat Abu Omar. In some cases mineralogical analyses made it possible to determine that the material was imported from the southern Sinai (Rizkana & Seeher 1989; Midant-Reynes 1992; Watrin 1998; Ciałowicz 2001). Consequently, copper is considered as one of the commercial goods exchanged between the communities of Southern Levant and the Nile Delta (see Chapter 8).

Lower Egypt's gold most probably came from the Eastern Desert. Gold deposits in quartz veins ran down the length of Egypt's Eastern Desert into Nubia (Rapp 2009: 147-148; fig. 7.1; Klemm & Klemm 2013: 29-40). Golden beads were registered on the site of Tell el-Farkha in the Lower Egyptian layers (Pl. 15).

Since metals must have been expensive, metal artefacts constitute a small percentage of all unearthed artefacts. As a result of the high cost of metals, damaged items and implements were most probably remelted. More common than copper itself was malachite, *i.e.* copper ore used as pigment.

4.1. Buto – Tell el-Fara'in

In Buto, Lower Egyptian layers yielded 3 copper items. Phase Ib layers contained a strongly corroded fishing hook with a broken sharp end, 1.5cm long, of rectangular cross-section (approx. 0.2mm). The other two artefacts were found in phase II a-b layers: a well preserved copper wire and a piece of unknown function, found by sieving. The material used to manufacture those items came from Wadi Araba in the vicinity of Feinan and Timna in the Sinai (Pernicka & Schleiter 1997: 219-222).

4.2. Heliopolis

Information on copper finds in Lower Egyptian culture graves is extremely scarce. The low number of such finds is probably attributable to the fact that copper items were not customarily offered as grave goods, possibly due to the high value of the material. In the cemetery of Heliopolis in grave 34 fragments of unidentified copper items and a single fragment of a copper bracelet were discovered. No more accurate information is available (Debono & Mortensen 1988: 16).

4.3. Maadi – settlement

In the Maadi settlement copper is present as finished tools, ingots, or ore. Although the first excavation report (Menghin & Amer 1932: 48) mentions the presence of a fairly large quantity of copper, subsequent verification of research results revealed that copper items were in fact a rare finding in Maadi. The Sinai was apparently the material's place of origin, where outcroppings of copper ore existed. This assertion is confirmed by a mineralogical analysis which indicated that copper from Maadi came from deposits in Timna and Feinan in Wadi Araba in the Sinai (Rizkana & Seeher 1989: 78-79).

Copper most probably reached Maadi in the form of ore and as smelted semi-finished products. Studies held thus far did not show any traces of ore smelting on site. Most researchers are of the opinion that copper ore was predominantly used as green pigment, rather than raw material used to obtain metal. I. Rizkana and J. Seeher (1989: 79) further claim that copper and copper ore found in Maadi did not necessarily come from the same source. It is also likely that it was not economically reasonable for Maadians to import large amounts of heavy and low-grade ore and then to smelt it locally. It was more reasonable to import smelted semi-processed products in the form of ingots of specific weight (3 ingots of approx. 825g are known), which were then used to manufacture tools (Rizkana & Seeher 1989: 17, pl. 4; Seeher 1990: 150). A report from excavation works published by K.H. Dittmann in 1936 contains a description of a metallurgy workshop in Maadi, based on an oral communication between the author and M. Amer (Dittmann 1936: 158). However, it was probably a preliminary interpretation that was subsequently abandoned and removed from the final research report.

A stylistic analysis of copper items from Maadi indicates that their forms are local and do not show any similarities to copper items from Levant. According to B. Midant-Reynes (1992: 102), Maadians did borrow the material and its processing techniques from their neighbors, but the form and style of copper items are Maadi's own contribution to the metallurgic industry in the Delta in the 4th millennium BC.

A different view of the metallurgic industry in Maadi is presented by L. Watrin, who claims that the absence of ore smelting traces does not necessarily mean that such activities did not take place on the site. He is of the opinion that a similar situation occurred in the case of pottery: the fact that no traces of a pottery workshop were registered on

the site does not disprove local production of pottery. According to L. Watrin (1998: 1218; 1999) a copper smelting workshop could have been located in a damaged or not yet explored part of the settlement.

Copper artefacts from Maadi include tools and personal adornments. A fairly large group consists of needles and pins of various sizes, made of copper wire of usually round and less often square cross-section (Rizkana & Seeher 1990: pls. 3-4). The differences being very subtle, it is sometimes impossible to differentiate between them. Rectangular cross-section copper wire was also used to make fishing hooks. Out of 11 hooks found in Maadi only five are still in the collection, while the others are now missing (Rizkana & Seeher 1989: 14). Other copper items include chisels and spatulas. The function of chisels is unclear, because unlike classical chisels those from Maadi have two sharp cutting edges on both ends. Copper spatulas could have been used to prepare pigments or other cosmetics. Unfortunately, the tools are so corroded that microscopic use-wear analysis was impossible. Three copper sheet fragments were found in Maadi as well. The report's authors are of the opinion that copper sheet could have been used for making vessels (Rizkana & Seeher 1989: 15). The last type of copper items known from Maadi are four rather chunky axes and adzes of a trapezoidal outline. Having analyzed materials from Maadi, I. Rizkana and J. Seeher (1989: 16) noticed the lack of flint axes or adzes. They concluded that copper axes and adzes apparently replaced flint ones. The low number of metal tools of this kind in the settlement can be explained by the fact that damaged or defective items were remelted.

4.4. Minshat Abu Omar

Offerings found in the oldest graves from the cemetery in Minshat Abu Omar also contained some metal items, such as copper beads, needles, a band and a harpoon. Cylindrical beads from graves 205 and 755 were made of copper sheet. One of the more interesting finds is a single-barbed harpoon, approx. 12.7cm long, found in grave 761, *i.e.* one of the richer graves, containing a total of 16 different offerings. Attention is also drawn to grave 755 with 17 offerings, where a necklace made of 38 gold sheet beads (approx. 4mm in diameter) was found (Kroeper & Wildung 1994; 2000).

4.5. Tell el-Farkha

Lower Egyptian culture layers in the Lower Egyptian residence contained a copper knife (Pl. 17; Chłodnicki & Geming 2012: 98). However, only its triangular rounded-tip blade was preserved. No analogous findings from other Lower Egyptian sites are known. M. Czarnowicz (2012a: 351) mentions a very similar knife known from the Ashqelon site in Israel, dated to the EB IA2 period, which corresponds to the period when Tell el-Farkha's Lower Egyptian residence was developed.

An analysis of the knife's chemical composition confirmed that it was made of arsenic copper with elevated nickel contents, while stable lead isotope analyses indicated Feinan as the likely place of origin of the material used to make the knife (Rehren 2013).

Also from the Lower Egyptian residence came 4 unique beads made of thin golden foil. Although they differed in size (from 0.6 to 1.2mm), they had the same barrel shape (Pl. 15). Possible sources of gold used to make the beads are Upper Egypt and the Eastern Desert (Chlodnicki 2011).

4.6. Wadi Digla

In Wadi Digla, graves dated to the earlier phase (WD 159, 386, 387, 388, 390) contained remains of copper ores. The same material was also found in one of the animal graves (grave 9) (Rizkana & Seeher 1990: 93).

5. Products of organic materials

5.1. Buto – Tell el-Fara'in

Among products made of organic materials found in Buto, only bone tools and shell items were found. Out of a total of seven bone items, four were interpreted as awls. Bone identification was possible in one case only (tibia of a cow). The surface of all awls was smoothened. Apart from awls, the assemblage from Buto includes a bone piece with toothed edges and a drilled-through disc resembling limestone spindle whorls used for weaving. Attention is also drawn by a narrow bone comb with 9 teeth and a characteristic endpoint in the form of a knob, dated to the older phase of the settlement (von der Way 1997: Taf. 57:1-7). Although the knob itself is missing, the comb is reminiscent of items known from Maadi.

Shells registered in Buto included *Aspatharia rubens* shells, possibly used as cosmetic containers, and drilled-through sea shells. Also, large quantities of the first fin rays of *Synodontis* were found. They were used as harpoon or arrow heads (von der Way 1997: 110-111).

5.2. Heliopolis

Among organic materials unearthed in Heliopolis graves, F. Debono and B. Mortensen (1988) list shells, nummulites and petrified wood. Two Nile clam shells (*Spatha* or *Unio*) could have served as receptacles used for mixing pigments or as spoons. In grave 11, a Nile shell covered the mouth of the deceased female. *Ancillaria* shells from the Red Sea were used as adornments, and nummulites probably served a similar purpose. In certain graves traces of delicate materials of animal and plant origin were preserved, such as remains of animal hides (*e.g.* graves 1, 4, 9), wood (graves 1, 12) and mats (grave 3, 7?, 9).

5.3. Maadi – settlement

Easy processing and general availability made animal bones one of the most popular organic materials used for making adornments and tools. In Maadi, animal bones were used to make three kinds of beads: spherical, barrel-shaped and cylindrical (Rizkana & Seeher 1989:

pl. 7). The form of spherical and barrel-shaped bone beads is similar to that of beads made of other materials. Particular attention is thus drawn to cylindrical beads made of hollow bones (such as bird bones). The production process involved making small incisions and then breaking the bones into fragments. Broken surfaces were then polished (sometimes the other bead surfaces were polished too). The surface of one such bead features small grooves. However, it has not been determined whether the grooves are processing traces or intentional decoration. In some cases, larger hollow bones were used as handles for copper tools. One of the artefacts in the collection from Maadi is a copper awl fitted with a hollow bone handle.

Other bone items known from Maadi are two types of spatulas, or flat objects cut out of larger bones. Spatulas of the first type were fairly wide, their tip was rounded and the base was probably flat. Two such spatulas were made of a cow's shoulder blade, and another one of a cow's rib (Rizkana & Seeher 1989: pl. 8:1-3). The other type of bone spatulas is represented by a collection of 9 items found together. All of them are flat and narrow, have rounded tips and were made of cow ribs. One spatula has a hole drilled in it. I. Rizkana and J. Seeher (1989: 22, pl. 8:4-15) are of the opinion that the spatulas were imported from Southern Levant. They are known and commonly present in Chalcolithic settlements, such as Teleilat Ghassul.

Another remarkable find from Maadi is a collection of over 100 bone awls made of ovicaprid tibiae, metatarsi and metacarpi. They could have been used for perforating animal skins, making baskets, weaving or even making and repairing fishing nets (Rizkana & Seeher 1989: pl. 9:1-19). Also a couple of fragments of pins were found in Maadi. Since none of them has a characteristic eye, they could have been used *e.g.* for decorating pottery.

Other bone artefacts include a comb, a harpoon head and a hook. The bone comb from Maadi is narrow and has a characteristic knob at its end (Rizkana & Seeher 1989: pl. 9:23). Similar combs dated to Naqada I and the first half of Naqada II are known from Upper Egypt, *e.g.* grave 1636 in Naqada, Matmar (Rizkana & Seeher 1989: 23). As far as the harpoon head is concerned, only the tip and two well sharpened barbs have been preserved, and the base is unfortunately missing. As a result, it is impossible to determine how the head was fitted to the pole. The last of the three items, a fairly big hook, was most probably used for catching large fish (Rizkana & Seeher 1989: 23-24).

The only horn artefacts found in Maadi are three combs. Two of them were made of cattle horns, and the third one of the horn of *Capra ibex*. In terms of form, there are no differences between all three combs. The tip is formed by two recesses. Similar combs are known from Naqada I and Naqada II periods in Upper Egypt (Rizkana & Seeher 1989: pl. 10:1-3).

It was very uncommon for Maadians to process animal teeth and tusks. The only artefacts made of hippopotamus tusks are spherical beads found in a jar.

Bone and horn items from Maadi were accompanied by products made of animal skins and fabrics. One should mention here a skin container with four very well preserved corner pieces made of folded skin tied with cord (Rizkana & Seeher 1989: pl. 10:13). There

is a hole in one of the corner pieces, most probably used to attach a handle. In the absence of any analogies, it is impossible to determine the container's function. Most probably such vessels were used to store water or other liquids, although I. Rizkana and J. Seeher suggested their use in butter production.

In their turn, shells (including ostrich shells) were used more frequently. Although in the osteological assemblage ostrich is represented by a single bone only, pieces of ostrich shells were quite common on the site. Probably Maadians did not hunt ostriches, but did take their eggs to use shells as liquid containers. Only 3 shell vessel fragments are known from Maadi (Rizkana & Seeher 1989: pl. 5). Such a low figure can imply that ostrich shells were used only for specific purposes, *e.g.* for storing special substances. The objects found in Maadi are decorated with engraved ornamentation, most probably done with a flint blade or a sharp copper tool, and subsequently inlaid with black pigment. The main decoration motive was a row of alternating hatched triangles. In addition, the base of one of the shells features an engraved circle with two zigzag lines inside. The decorated ostrich shell containers differ from one another by the form of the opening. One of the shells has a small opening struck out at the tip, surrounded by a row of small holes. In another vessel the upper part of the shell was cut off (probably because of the shell's damage), thus forming a fairly wide mouth. The upper part of the third container is missing. Ostrich shell vessels were found at small distances from one another. The place of discovery and the rarity of vessels may indicate that they were not made by local craftsmen. Similar decorated ostrich shells are known from Predynastic assemblages of Upper Egypt, *e.g.* the cemetery in Naqada (grave 1480), where an ostrich shell with two engraved deer was substituted for the deceased's skull (Petrie & Quibell 1896: 28). A geometric decoration motive of hatched triangles and zigzag lines is also present on an Upper Egyptian wooden ostrich shell model of unknown chronology, on one of clay ostrich shell models from Abadiyeh – grave B101 – SD 34 (Petrie 1901: 33, pl. V) and on Naqadian pottery (Petrie 1921: pls. XXIII 74; XXIV 32; XXVI 32; XXVII 67). Judging by the chronology of shells and of geometric ornamentations, I. Rizkana and J. Seeher (1989: 20) proposed early Naqada II as the approximate dating of ostrich shells from Maadi.

Fragments of ostrich shells were also used by Maadians to make beads. Only a few of such beads were found, but this could be explained by their small size. Furthermore, two larger ostrich shell discs were found in Maadi as well.

Maadi's proximity to the river explains the great number of river clam shells, first of all *Aspatharia (spathopsis) rubens*. Bivalves were an important element in Maadians' diet (see Chapter 5). Some of them were so large that a few of them could feed several people (Rizkana & Seeher 1989: pls. IV 1; XXXI 16). Other shells include those of mollusks from the Mediterranean and the Red Sea. Nearly one fifth of a total of 555 freshwater shells show traces of processing, such as edge polishing, cutting and drilling. Shells with polished edges could have been used as containers, but also as scratching tools. Cutting a shell in two

halves gave it the form of a spoon or a spatula. Some shells have drilled-through openings – they could have been used as pendants or robe decorations. The use of shells has a long tradition in Egypt, and examples are known from Merimde Beni-Salame, the Faiyum Oasis, Armant, Hemamieh and Shaheinab (Rizkana & Seeher 1989: 20-21).

Sea mollusk shells reached Maadi only occasionally, probably through commercial exchange. Since they were used mostly as pendants, bracelets, decorations of robes or bags, most had holes in them. Larger shells (*Tridacna maxima* and *Tridacna squamosa*) from the Gulf of Suez and the Red Sea were used as vessels. Several of them (including 5 complete vessels) were found in Maadi.

In Maadi, organic materials of animal origin (bones, horns, shells) were accompanied by plant materials which are totally decomposed on most sites. Those materials include: wood, fabrics, cords and baskets (Rizkana & Seeher 1989: pls. 10-11). As far as wooden items are concerned, they included elements of subterranean structures (posts), as well as vessels and various kinds of tools. Three types of wood material were used: locally available tamarisk and acacia and imported cedar. The group of wooden vessels from Maadi includes three tamarisk bowls with characteristically rounded shoulders. There are no vessels of equivalent typology in the pottery assemblage from Maadi. According to I. Rizkana and J. Seeher (1989: 24-25), the shape of wooden vessels from Maadi resembles that of Levantine bowls. However, due to the local origin of the raw material they cannot be considered as imports. Possibly, wooden bowls are prototypes of clay carinated bowls introduced to Egypt much later, in Naqada III.

Explorations in Maadi revealed a few items made of local wood, such as a piece of a small flat rod with traces of grass or reed mat, a piece of a "mace" with a broken-off handle and a piece of a pendant with a hole in one of its ends. Particularly remarkable is a boomerang-shaped fragment with three engraved grooves on both sides. Similar items are known from the Badarian culture assemblages in Mostagedda and are also used as decorations on D-ware in Upper Egypt (Brunton 1937: pl. XXV 38-39; Kantor 1944: fig. 8A). In Maadi larger rods were found as well. One of them has burn marks on one of the ends. I. Rizkana and J. Seeher (1989: 25) are of the opinion that they could not have been used as torches for the lack of traces of any flammable substances, *e.g.* resins.

Cedar wood was imported to Maadi from Levant. The more interesting cedar wood items include a vessel lid which – according to the report's authors – was not made by local craftsmen and reached Maadi together with a vessel containing products imported from the east. Cedar wood was also used to make small rods with oval or rectangular cross-sections. As some of them have burn marks, they could have been used as a form of incense.

Preserved pieces of fabrics found in Maadi were in most cases wrapped around jars' necks. They were used to protect jars' content against insects or contamination. A piece of fabric filled with mud could have formed a kind of a plug.

Other artefacts made of plant materials include cords made of two strands, most probably used to tie animals, make mats, or as a structural element of fences and dwelling walls.

Finally, explorations in Maadi yielded one fairly big but shallow basket made of wheat stalks woven circularly bottom up, a piece of a finely woven basket or tray and a woven lining mat found on the bottom of a storage vessel, most probably serving as a cover for the jar's mouth (Rizkana & Seeher 1989: 26).

5.4. Maadi, Wadi Digla – cemeteries

The assemblage from the Maadi cemetery is relatively unimpressive not only in terms of pottery or flint items, but also as regards organic materials. 2 *Aspatharia* shells were found in 2 graves (MA2, MA4). They are believed to have served as containers for pigments or other cosmetics. Grave MA 36 contained fragments of a cord and a mat placed near the forehead of the body. The preserved elements could have been part of a container or a form of ornament.

Also in the cemetery in Wadi Digla *Aspatharia (spathopsis) rubens* shells accompanied pottery and stone vessels. The shells were probably used as cosmetic containers, as suggested by the presence of remains of powdered dark grey ore, probably pyrolusite (a manganese ore). It was found in shells from grave WD48. In graves WD88 and WD98 shells with powdered manganese ore were found. Another possible function of the shells could be linked to specific burial customs. Like in Heliopolis, in two graves (WD98, WD180) shells were deposited near the deceased's mouth. It is unfortunately impossible to determine whether such position of the offering was intentional or accidental. According to I. Rizkana and J. Seeher (1990: 89-90), materials available thus far do not seem to indicate any relationship between the presence of a shell and the sex of the deceased. Shells were deposited near the head, and in two cases near the pelvis. An analysis of datings of shell--containing graves shows that this particular custom was observed in the older phase of the cemetery, and was abandoned in the second phase.

Certain personal adornments deposited in Wadi Digla graves were made of shells as well. Grave WD51 contained three drilled-through sea snail shells. Since they were found near the shoulders, they may have been part of a necklace. Grave WD75 revealed two or three bracelets made of identical shells. In grave WD257 researchers found a bracelet made of snail shells and stone beads. Snail shells from Wadi Digla belonged to two species: *Nerita (amphinerita) polita* (WD51 only) and *Ancilla acuminata* (other graves). Both species are known from the southern part of the Red Sea and the Gulf of Aden.

Furthermore, Wadi Digla community also offered elephant and hippopotamus tusks as grave goods. Grave WD66 contained an ivory comb, used not only to clip hair, but also as adornment. Bone items would be deposited in graves as well. Grave WD386 contained a tubular bone bead, while a narrow bone spatula was found in grave WD153.

5.5. Minshat Abu Omar

In Minshat Abu Omar objects made of organic materials are rather innumerous. Out of all graves reported on so far, 6 oldest graves contained such items. Particular attention is drawn to 3 bone spoons, 2 of which (made of ivory) come from the richest grave 330. One of them is 7cm long, has a straight handle and an oval shallow bowl (2.1 and 1.9cm in diameter). The other ivory spoon is shorter (4.5cm) and has a round bowl. Its handle, round in cross-section, widens at the end and has a hole in it. The third spoon (found in grave 799) is fragmentarily preserved. Originally it was 8cm long, its handle was straight and its round bowl had diameters of 1.6 and 1.8cm.

Grave 231 contained 2 pins ornamented with engraved decoration in the form of diagonal lines. The longer of the 2 pins is 11cm and one of its ends is preserved. Both ends of other pin broke off, and the length of the preserved middle section is 7cm. In grave 882 several fragments of a single needle, approx. 6-7cm long and 4mm in diameter, were found. Traces of unidentified blue pigment were found on two of those fragments. The same grave contained a bull's head amulet made of bone, approx. 2.5-2.7cm long, 1.3-1.5cm wide and 2-3mm thick.

Owing to the site's proximity to the branch of the Nile, the cemetery's graves also contained *Aspatharia (spathopsis) rubens* shells. In most cases there was only one shell per grave (*e.g.* in graves 63, 330, 659, 750, 755). In addition, grave 755 contained shells of *Nerita* and *Cerithium*, probably serving as beads (Kroeper & Wildung 1994; 2000). Small wooden sticks were also found in group I graves 148, 224, 231.

5.6. Tell el-Farkha

The oldest phases from Tell el-Farkha contained only 6 items made of animal bones (Kurzyk 2012). They do not form a consistent group and quite surely they represent only a small fragment of the rich repertoire of bone tools. The conditions in the Nile Delta (high groundwater level, high temperatures and natural soil processes of mineralization and dissolution) are not conducive to preserving delicate organic substances (for details see Abłamowicz 2012).

One of the more interesting artefacts from the layers of the Lower Egyptian culture are two fragmentarily preserved objects, interpreted by K.M. Ciałowicz (2012c: 237) as pieces of a tag. Both have deep undercuts, and their surface is smooth and polished. According to K.M. Ciałowicz (2012c: fig. 40) they are probably connected with early contacts between Lower and Upper Egypt (Naqada IIC/D).

Attention is also drawn by a kind of a 2.75cm long spatula made of a rib with a distinct notch preserved between its upper and lower parts, and by a cone-shaped object with dimensions 3.51 x 1.37 x 0.82cm, with clearly visible traces of smoothing and polishing, interpreted by M. Kurzyk (2012) as an awl. Lower Egyptian culture layers also contained an object of undeterminable function, in the shape of a triangle with a truncated top; its cross-section is oval and flattened and 2.75cm long. There is also an arrowhead made of a fish bone, with a worked upper part (Kurzyk 2012).

A particularly interesting bone find is a pear-shaped macehead found in the Lower Egyptian residence (Pl. 14). It was discovered together with a greater and more slender macehead made of basalt (Chłodnicki & Geming 2012: 97, fig. 13).

Other traces of the Lower Egyptian culture include a great number of *Aspatharia* shells, whose analysis is still pending (Abłamowicz *pers. comm.*).

5.7. Tell el-Iswid, Tell Ibrahim Awad

In the materials from Tell el-Iswid published thus far, E.C.M. van den Brink (1989: 61) concentrated mostly on analyzing pottery. As regards artefacts of organic materials, he mentioned only a bone tool, most probably an awl, found near a residential structure in layer 2. Moreover, in Tell el-Iswid researchers found remains of mud-plastered baskets used as lining of storage pits (silos). The report on Predynastic layers from Tell Ibrahim Awad does not contain any references to artefacts of organic materials (van den Brink 1992b: 55).

6. Pigments

The presence of pigments on Lower Egyptian sites is a likely indication of body painting customs, as well as of dying of fabrics or other objects. Archeological materials include green (malachite), red (ochre), yellow and gray (pyrolusite) pigments.

6.1. Heliopolis

In the cemetery of Heliopolis only small pieces of malachite (graves 1, 34, 478, 50, 58, and 65) and ochre were found. They were most probably used for cosmetic purposes (Debono & Mortensen 1988: 36-37).

6.2. Maadi – settlement

In Maadi, fairly large quantities of a red pigment were registered. Finds include not only lumps of ochre or grinding stones fully covered with red dust, but also vessels filled with the pigment. Ochre was most probably used for cosmetic purposes, but in addition it was used by potters to make slip or vessel paints (Rizkana & Seeher 1989: 18-19).

The collection of artefacts from Maadi features several lumps of malachite. They show traces of grinding to powder which was subsequently used as pigment. Traces of malachite were also found on several shells, a palette and two grinding stones.

A pigment of interesting composition is a yellow substance found during season VII in Maadi. Chemical analyses showed that the substance consisted of yellowish mineral powder and vegetable oil. Regrettably, the uniqueness of the find makes it impossible to determine the pigment's actual purpose.

Apart from green and yellow pigment, several pottery vessels from Maadi contained lumps of the manganese ore pyrolusite which – once powdered – was used probably for cosmetic purposes. Traces of this pigment are known from several palettes and grinding stones from Maadi.

The excavation report also contains a laconic mention by O. Menghin and M. Amer (1936: 46) of an unidentified blue pigment.

6.3. Minshat Abu Omar

Pigments, including first of all galena, were registered in 16 of the published graves from the oldest phase of the cemetery. Galena was typically found in the form of small irregular chunks or fragments deposited near the upper part of the body, *e.g.* in front of the head or face (graves 175 and 208), under the head (grave 799), in the neck area (grave 229). Additionally, in the richest of the published graves containing 33 offerings a shapeless mass of galena was accompanied by lumps of ochre and probably malachite. On the two pins from grave 231 traces of unidentified blue pigment were found. Most pigments were placed near the thighs of the deceased (Kroeper & Wildung 1994; 2000).

6.4. Wadi Digla

Two types of pigments were discovered in the cemetery of Wadi Digla. The manganese ore pyrolusite was found in older phase graves WD37, WD48, WD88, WD96, WD203, while the green copper ore was exclusive to younger phase graves (WD12, WD159, WD386, WD388, WD390). According to I. Rizkana and J. Seeher (1990: 93) the said division reflects a change in burial customs followed in this cemetery.

7. Summary

Lower Egyptian craftsmen produced tools and other pieces of equipment relying heavily on locally available materials, sourced first of all from the Delta area and possibly from directly adjacent territories. The said fact is yet another example of Lower Egyptians' adaptation to their local natural environment. Clay, flint, stone and organic materials were relatively easily accessible. The only exception was copper, imported from as far as the southern Sinai via Southern Levant.

Objects of purely functional purpose related to household activities form a clearly dominating group among artefacts left by the Lower Egyptian culture. In households, food was stored, processed and consumed largely in pottery vessels. It is uncertain whether vessels made of more perishable organic materials were equally popular. Stone vessels were sparse and possibly used for specific purposes only. Among a great number of similar forms of bowls, jars and cups attention is drawn by innumerous bird-shaped pottery vessels, whose function continues to be speculated on. Processing and consumption of food could have involved the use of shell and bone spoons and spatulas.

Purely utilitarian function is also attributed to flint tools (endscrapers, backed pieces, knives, burins) used in households for carving meat, processing hides, cutting grass and crops, preparing food, *etc*. Unfortunately, no use-wear analysis has been performed on any of the stone assemblages. Such an analysis would make it possible to determine the function of these objects more precisely. Food was also prepared using quernstones and grinding stones. Discs used as spindle whorls in weaving were made of stone as well (mostly limestone).

Assemblages from Lower Egyptian settlements also contain bone tools used for a variety of household jobs, such as needles and awls. Their copper counterparts exist as well. Furthermore, copper was used to make fishing hooks and axes/adzes.

Apart from tools, another sizeable group are items connected with body, hair and fabric ornamentation. The presence of pigments (red ochre, green malachite, grey manganese ore pyrolusite or unidentified yellow substance of plant origin) stored probably in shells suggests the existence of a body painting tradition, including face painting that continued well into the Dynastic period. Mollusk and ostrich shells, stones, bones and copper were used to make beads for necklaces and bracelets. Drilled-through shells could have been fastened to fabrics or animal skins. Long-toothed bone and horn combs were used to decorate hair. Remains of fabrics were registered only in graves and on vessel necks (plastered with mud they probably formed a kind of a plug). Materials of plant origin were used to make cords.

Apart from purely utilitarian objects, the Lower Egyptian culture also left items that could have played a symbolic role. This group includes anthropomorphic and zoomorphic clay figurines. However, it needs to be remembered that ideological behaviors do not necessarily leave material traces. Furthermore, even if archeologists successfully identify such traces, conclusions on the symbolic culture of ancient societies will always be merely an interpretation made from the perspective of the interpreter's own culture, affected by projections of contemporary symbolic behaviors on prehistoric reality.

PART III

IMPORTS IN THE NILE DELTA AND THE SOUTHERN LEVANT

Chapter 8

Southern Levantine imports and their imitations in the Lower Egyptian culture

Inventories from certain Lower Egyptian sites include Southern Levantine imports: pottery and stone vessels, flint tools and copper objects. Their presence implies the existence of contacts between the Nile Delta and Canaan in the early and middle Predynastic period. Apart from products and materials imported from Southern Levant, researchers have also found items of local origin whose characteristic features, such as decoration or form, are linked to those of Southern Levantine items. This is the case *inter alia* as regards pottery. The aim of this chapter is to present imports and other items connected with Canaanite traditions. Such presentation will help one understand the relationship between the Delta and Southern Levant in the period from Naqada I to beg. Naqada IIIA1 (Tab. 18).

1. Buto – Tell el-Fara'in

Pottery

Southern Levantine pottery is present in the inventories of Buto's phase I and II. In phase I, pottery analogous to Chalcolithic vessels represents approx. 30% of the entire material. It includes thin-wall pottery made of paste containing only sand temper, with either painted or impressed surface decorations. Due to high sand content, the surface is rough, almost sand-paper-like (Faltings 1998b: 367; Watrin 1998: 1215; Faltings *et al.* 2002: 165-170). In phase Ia there are vessels denoting typically Southern Levantine fabric, form and decorations, while in phases Ib and IIa there appear vessels made of local materials, whose forms and decoration types are linked to Southern Levantine pottery. In phases Ib and II, larger admixtures of organic temper became increasingly common. According to D. Faltings (2002), these changes resulted from the presence of a group immigrants from southern Canaan who must have assimilated with the local community and adapted to its cultural traditions, including pottery. As a result of the merger of the Levantine and local ceramic styles, the so-called hybrid vessels began to be made in Buto. In time, technological innovations originally introduced by the comers from Southern Levant (such as the use of the turning device), were discarded, possibly due to the lack of specialized pottery workshops and the household mode of production.

Table 18. Southern Levantine imports and imitations on the sites of the Lower Egyptian culture.

	LOCALLY MADE POTTERY	IMPORTED POTTERY	POTTERY IMITATION	FLINT	STONE	COPPER	OBSIDIAN*	OTHER
Buto	x	x	x	x	x	x	x	
Heliopolis		x	x					malachite
Maadi		x		x	x	x		cedar wood, bone spatulas, shells
Maadi & Wadi Digla			x	x				
Minshat Abu Omar		x				x		malachite, shells
Tell el-Farkha		x				x	x	
Tell el-Iswid/ Tell Ibrahim Awad		x					x	

* Obsidian was transported probably via Levant.

Among vessels imported from the Chalcolithic Southern Levant, there are V-shaped bowls with a painted rim decoration of white stripes, vessels with a pie-crust rim and fenestrated bowl-stands. Typical EB I vessels include holemouth jars (fairly numerous in Buto) and large storage jars with white painted bands on the shoulder or a white strip applied on the upper part (Faltings 1998b: 367; 2002: 165-168; Faltings *et al.* 2000: 135-136). On the basis of fragments of bases, bodies and rims, T. von der Way (1997: 106-107, Taf. 44:16) reconstructed a Levantine jar with a cylindrical neck, simple rim and oval body, with a characteristic cream-colored surface. Due to the high mineral content (quartz), the walls were soft and have a floury feel. Petrographic analysis showed that some fragments of this vessel were made of typical Canaanite marl clay, characteristic for EB I in Southern Levant, found *e.g.* at the Azor site. In terms of morphology the reconstructed jar was reminiscent of Maadi jars, classified by I. Rizkana and J. Seeher (1987: 73) as Southern Levantine imports. Foreign origin is also attributed to two fragments of flat bases made of ceramic paste tempered with crushed bones. Other Southern Levantine elements include characteristic handles, knobs and a fragment of a churn or a bird vessel, again similar to a piece found in Maadi (von der Way 1997: 106; Faltings 1998b: 367; Faltings *et al.* 2000: 135-136).

In Buto, imitations of imported vessels, such as V-shaped bowls and holemouth jars first appeared in phase Ib. Although vessel shapes remained unchanged, their manufacturing technology was gradually adapted to local conditions. Potters began to use locally available clay and replaced mineral temper with increasing amounts of straw and chaff.

V-shaped bowls with spiral reserved decoration are another important element in interpreting the contacts of Buto's residents with Cannan. 13 fragments of at least 10 different bowls have been found here. Although a controversial hypothesis on their Mesopotamian origin had once been presented, the said fragments eventually came to be considered as imports from Chalcolithic Southern Levant, where they are quite common, for instance in the vicinity of Beersheba and the northern Sinai (see Chapter 3; Faltings 1998b: 367-371).

T. von der Way's hypothesis (1992b: 217-220; 1997: 113-114) on Mesopotamian origin of so-called clay nails found in the layers of the Lower Egyptian culture (phase IIb) as well as in Proto- and Early Dynastic layers (phases III and IV) also proved incorrect. D. Faltings (1998b: 374-375) concluded that the nails should be linked to unusual ceramic forms – cornets, known from nearly all Beersheba sites. Clay nails have also been found in inventories at other archeological sites in Egypt, both in the Delta (*e.g.* Tell el-Farkha), and in Upper Egypt (*e.g.* Hierakonpolis Locality 11) (Friedman 2000: 13).

The presence of Levantine pottery imports in Buto was confirmed by petrographic and chemical analyses. N. Porat (1997: 223-231) divided the analyzed samples into several groups. The first one included vessel fragments made of local Nile clay; another one consisted of marl clay pottery. The third group contained pottery made of Beach Rock clay, currently known from Alexandria. Local pottery showing typological similarities to Southern Levantine vessels formed the fourth group. Petrographic analysis showed that in this group clay was tempered with phosphorite and had high concentrations of P and Ca. This type of pottery was unknown in the early and middle Predynastic period, either in Egypt or in the area of today's Israel. Buto was thus the only place where this technology was used. According to N. Porat (1997: 229), phosphorites could have been added to clay in order to preserve the bright surface color. As a result, vessels were similar to Levantine pottery not only in terms of shape, but in terms of color as well. The fact that on the basis of microscopic analysis Buto pottery was classified as Levantine shows that the local potters were quite successful.

As a result of the research by N. Porat, only five samples were classified as Canaanite imports. It turned out that the pottery was made of calcareous clay tempered with well sorted sand and quartz, and in some cases with calcite. Precise identification of the origin of this clay proved impossible, because sources of calcareous clay can be found all over Canaan. Similar petrographic and chemical features have been observed *e.g.* in the pottery from Azor. According to N. Porat (1997: 231), it goes beyond reasonable doubt that the analyzed samples came from vessels manufactured in Southern Levant.

Flint artefacts

As far as flint inventories are concerned, the links between Buto and the Southern Levant are rather unimpressive. K. Schmidt (1987: 253; Abb. 5:6-7, 10-11) mentions two bifacial sickle blades with flat surface retouch. He sees the genesis of the sickle blades in the Chalcolithic

Canaan, where such artefacts are fairly common. Another finding associated with the Chalcolithic period in Canaan are microlithic endscrapers, with distinctive little retouch on their working edges (Schmidt 1986: 204; 1993: 275).

Eastern origins can also be attributed to flat tabular scrapers made of characteristic flat flint nodules. The scrapers were oval and had cortex on the dorsal surface. According to K. Schmidt (1988: 297-306, Abb. 9.1-3; 1996: 270), they should be considered to have been imported from Levant, where their manufacturing traditions are dated from the Chalcolithic to EB III (Rosen 1983: 79-86; 1997:75; *in press*).

During explorations held from 1996 to 1999 at Buto, an obsidian core was found in phase IIa layers. According to K. Schmidt the material was imported from the east (Faltings *et al.* 2000: 138). Its provenance was confirmed by analysis made by L. Bavay *et al.* (2004), who indicates the Nemrut Dag volcano as the place of origin of the raw material.

Stone artefacts

From among a number of basalt vessels T. von der Way (1997: 109, Taf. 48-51, 54) distinguished a fragment of a bowl with a characteristic swelling of the walls between the rim and the base. The origin of the basalt material has not been fully confirmed, even after petrographic analyses. In terms of shape, the bowl is reminiscent of those found in EB I contexts in Southern Levant (von der Way 1997: 110, footnote 623).

Copper artefacts

Lower Egyptian culture materials from Buto contained three copper artefacts: a fishing hook, a copper wire and a piece of unknown function. Just like copper items found in Maadi, they were made of copper from Araba in the area of Feinan and Timna in the Sinai (Pernicka & Schleiter 1997: 219-222).

2. Heliopolis

Pottery

Among all pottery items found at the Heliopolis necropolis, only three jars may have come from Southern Levant. However, they cannot be verified because all of them have been lost. According to F. Debono and B. Mortensen (1988: 30-31), their fabric was reminiscent of those of Southern Levantine vessels from Maadi. Most probably they were made of calcareous clay with numerous limestone inclusions, becoming cream or pink after firing. The clay was tempered with crushed limestone. The presence of crushed pottery, typical for Canaan, has not been confirmed in Heliopolis. Occasional red or reddish-to-brown inclusions had the same structure as the paste and could have been fine fragments of either pottery or ochre.

In terms of shape, there is not much differentiation among Heliopolis vessels. One jar has a round body, a wide and high conical neck with a straight rim and a wide, flat base (Debono & Mortensen 1988: pl. 8/13:1). Similar Levantine vessels are known from Maadi, although their necks are longer. In addition, jars of this kind have lug handles or plastic knobs.

Another jar is incomplete – only the base part has been preserved. It features a plastic knob, typical for Canaanite pottery. The third vessel probably from Southern Levant found in Heliopolis is a round jar with a wide base, a high neck and a straight rim. Similar jars with handles are known from Maadi. Verification being impossible, it has not been determined whether the Heliopolis jar was originally fitted with handles. According to F. Debono and B. Mortensen (1988: 34), while Southern Levantine vessels from Heliopolis are characteristic for the beginning of EB IA, they show more similarity to Chalcolithic, rather than to EB I pottery.

Other eastern influence observed in Heliopolis pottery may be the coating of light, beige or cream wash that could have been applied in order to make local vessels like Southern Levantine cream ware (Debono & Mortensen 1988: 34). Apart from pottery, small fragments of malachite were also found in Heliopolis (Debono & Mortensen 1988: 36).

3. Maadi – settlement

Pottery

In the material from Maadi settlement, Southern Levantine pottery represents less than 3% of the entire collection described by I. Rizkana and J. Seeher (1987: 31). Its origin was confirmed by petrographic analyses carried out by N. Porat (Porat & Seeher 1988: 215-228), who concluded that Levantine pottery differed from local pottery in terms of fabric, surface treatment and forms with typically Canaanite elements: wide, flat base, distinguished neck as well as lug handles and ledge handles.

Paste of imported pottery was tempered with crushed calcite or limestone and sand. Sometimes crushed pottery was also added. It seems however that it was merely an addition to the mineral admixture and did not play an important role in pottery making. The diameter of admixture grains was typically below 2mm, although in the case of crushed stones 5mm particles are not uncommon. Vessels were hand made from clay coils. Surface color after firing ranged from yellow to bright red. The break zone was homogenous in most cases, and its color matched the surface color. Darker areas were uncommon, which implies low temperatures and short times of firing. Prior to firing the surface of wet vessels was smoothed with a soft object either vertically or diagonally. Due to the high content of coarse temper the surface usually remained uneven (Rizkana & Seeher 1987: 31-32; Porat & Seeher 1988: 215-228).

The dominating form of Levantine pottery from Maadi are round jars with wide, flat bases, high and well discernible shoulders and more or less distinguished tabular or conical necks constituting approx. 1/3 of the vessel's height. The bottom part of

the vessel is usually V-shaped, and the greatest diameter is just under the neck. Jars of this kind were most probably used for storing goods brought in from Southern Levant (Rizkana & Seeher 1987: 53, pls. 72-77).

Nearly all imported jars had lug or ledge handles (Rizkana & Seeher 1987: 53, pls. 72-77). Plastic knobs were fitted to jar handles as decoration. In Maadi, imported pottery further includes a fragment of a jar decorated with rows of short, incised strokes and a fragment with more or less vertical, parallel painted lines (Rizkana & Seeher 1987: 52-54, pls. 39:2, 77:5,7; Tutundžić 1993: 33-55; Watrin 1999).

While the presence of Canaanite pottery in Maadi is unquestionable, its dating is much more challenging. Jars with cylindrical necks and ledge/lug handles are poor chronological markers, because they are present in Canaan from the Neolithic for the entire EB until as late as MB. A comparison of Maadi chronology with Southern Levantine chronology shows that the settlement was active in the Chalcolithic and in EB IA (Tab. 5). Analogies to lug handle jars from Maadi in the Chalcolithic Southern Levant are innumerous and can be found *e.g.* in Teleilat Ghassul. In EB IA, cylindrical neck jars are fairly common. Similar lug and ledge handle jars were found in Megiddo, level XX, XIX (Shipton 1939; Loud 1948), Beth-Shan, level XVII, XVIII (Fitzgerald 1934: 125), Meser, level I, II (Dothan 1959). Painted pottery (parallel vertical lines) similar to that from Maadi was registered in Megiddo, level XX and Meser, level I. At Tell el-Farah North, another important site from the period, no pottery forms similar to those known from Maadi have been identified (de Vaux 1951). However, the graves from that site contain a very high number of shells of *Aspatharia rubens*, which could have been bartered between Egypt and Southern Levant in the period in question.

All the sites listed above are located in northern Southern Levant, approx. 600km from Maadi. According to I. Rizkana and J. Seeher (1987: 73-77), contacts with those areas must have been via southern Canaanite sites, such as Lachish, 50 km west off the Dead Sea (Tufnell 1957). The inventories from that site featured artefacts analogous to those known from Maadi (lug and ledge handle jars, plastic knobs, pottery with parallel vertical painted lines) and via Bab edh-Dhra (Schaub 1979: 45-68) on the eastern coast of the Dead Sea (jars with lug handles, ledge handles, round bodies and cylindrical necks), as well as via En Besor H (McDonald 1932) (jars with ledge handles, lug handles and the presence of Egyptian black topped ware). All those sites could have served as stopovers at the trade route to Maadi. On the basis of the aforementioned facts, I. Rizkana and J. Seeher (1987: 73-77) concluded that imports in Maadi do not come from EB IA proper, but from a vaguely defined transition phase between the Chalcolithic and EB.

In a discussion at a conference on the changes in the Delta area in the 4th and 3rd millennium BC held in 1990, J. Seheer once again spoke on Maadi chronology and hinted at a certain discrepancy (van den Brink 1992b: 483) resulting from the unsynchronized chronology between Southern Levant and Egypt. He linked that discrepancy to the dating of Levantine artefacts from EB IA found at the sites in the Nile Delta. In Maadi, EB I

imports were dated to Naqada IC-IIAB, whereas Egyptian materials found in Southern Levant in the context of the local EB IA belonged to Naqada IIC-D. J. Seeher was of the opinion that the resulting discrepancy could be explained either by extending the lifetime of Maadi settlement, or by shifting the beginning of EB IA in Southern Levant. The said issue was subsequently tackled by D. Faltings (1998a: 35-45; 1998b: 365-375), who once again analyzed the chronology of the sites in the Delta. Relying on the presence of ledge handles on the vessels from Maadi and phase II of the Wadi Digla necropolis, she shifted the lifetime of Maadi settlement to Naqada IIC and moved the beginning of EB IA to NIIC as well. According to D. Faltings, the beginning of phase I in Buto would occur in the Chalcolithic period in Southern Levant, contemporary to Naqada IC and IIA-B in Egypt, while phase II in Buto would be dated to EB I in Canaan and to Naqada IIC-D1 in Egypt. The problem of correlation of the Maadi findings with Levantine chronology is still open (Tab. 5; *cf.* Braun 2011: 122; Czarnowicz 2012b: tab. 1).

Flint artefacts

Flint tools registered in Maadi included items closely linked to Southern Levantine territories, such as tabular scrapers and Canaanean sickle blades (Rizkana & Seeher 1985: figs. 7, 10). Both sets of tools were made of high quality raw material in specialized workshops. The origin of the material was identified only for scrapers: it came from the western part of the Negev Desert. Analogous flint items were fairly common in the Chalcolithic Levant and Lebanon and on sites located more to the north-east, such as Habuba Kebira in Syria. In its turn, the manufacturing technology of Canaanean blades was much more widespread in terms of territorial range. They were found not only on EB sites in Southern Levant and Lebanon, but also in Syria, Iraq and Kazakhstan (Rizkana & Seeher 1985: 237-254).

Stone artefacts

The most remarkable stone items imported from Canaan to Maadi include fragments of basalt V-shaped bowls and discs (Rizkana & Seeher 1985: fig. 11; 1988: pl. 95). N. Porat carried out a petrographic analysis of material sampled from those artefacts. It showed that basalt used for manufacturing the bowls is not available on the territory of today's Israel and clearly differs from locally available materials. According to N. Porat, this type of basalt may have come from the eastern Delta or from the Black Desert in Jordan. In their turn, analyses of stone discs showed that their material is similar to basalt from the Negev Desert, used in the Chalcolithic and EB I in Southern Levant. However, she remarked that similar material is also available on the Golan Heights, in Galilee and in Jordan, and it is thus not impossible that the material came from one of those locations.

A turquoise bead is another artefact considered to be an eastern import. Its material could have been mined by Canaanites in the southern Sinai in the late Chalcolithic (Rizkana & Seeher 1988: 109).

Copper artefacts

In Maadi copper is available in a variety of forms, including finished tools, semi-finished products and ore (see Chapter 7; Rizkana & Seeher 1989: pls. 3-4). In their first report, O. Menghin and M. Amer (1932: 48) mention the presence of a large amount of copper. That remark gave rise to a number of speculations about the nature of the settlement. According to E. Baumgartel (1955: 122), the existence of Maadi settlement should be interpreted from the perspective of commercial exchange of copper and other goods between Southern Levant and Upper Egypt. In her opinion Maadi was apparently an en-route trade station for caravans traveling between the two destinations.

Bearing in mind the results of studies held recently, E. Baumgartel's theory should be assessed with a sound dose of skepticism. Copper was a very rare metal at Predynastic sites, both in the Delta and in Upper Egypt. In graves dated to Naqada I and early Naqada II, copper items are uncommon. Had there existed developed copper trade between Southern Levant and Upper Egypt, one should expect greater amounts of copper in the south. It is more justifiable to exclude copper from so defined long distance exchange. A.M. Hoffman (1979: 207-208) rightly pointed that metal items known from southern Egyptian cultures of Badarin and Naqada I differed in terms of technology from Maadi items, as the former were hammered from locally available natural copper, rather than smelted from ore. Copper was shipped to the Delta from the Sinai via Southern Levant. Mineralogical analysis showed that copper from Maadi originates from the deposits in Timna and Feinan in Wadi Araba in the Sinai (Rizkana & Seeher 1989: 78-79). Despite the use of imported material and eastern manufacturing technology, copper items from Maadi are a local product in terms of style.

Architecture

Levantine influences are visible also in the architecture of Maadi settlement. Well-known, traditional above-ground structures are accompanied by innumerous, oval subterranean dwellings, discovered in the northern part of the explored area (Rizkana & Seeher 1989: figs. 15-18). In the 1990s an expedition from the El-Azhar University headed by F.A. Badawi discovered a pit house, differing from the earlier ones by the use of stone (Watrin 2000: fig. 6). In the years 1999 to 2002, an excavation project of the German Archaeological Institute (DAI) led to the discovery of a subterranean dwelling similar to those known from the publication of I. Rizkana and J. Seeher (Hartung 2004). According to U. Hartung, all known subteranean structures from Maadi denote gradual development of the settlement's architecture, linked to increasingly vast experience of builders and inclusion of a new building material (stone) in constructing residential structures.

Prior to the discovery of the first pit houses in Maadi, no similar structures had been known all over the Near East. The situation changed 20 years afterwards, when J. Perrot (1955) published a paper on Chalcolithic studies held at the sites in the area of Beersheba in the northern part of the Negev Desert. Further studies and ensuing publications made it possible to compare both types of structures (Perrot 1984). As a result, pit houses have been

considered to be a typical dwelling in the Beersheba Valley in the Chalcolithic period (see Chapter 3). However, in the recent years it has been claimed that the structures from Maadi seem far remote from the Beersheba sites (Commenge & Alon 2002: note 14). E. Braun & E.C.M. van den Brink (2008: 649-650) suggest even that their chronology is later – EB I.

A comparison of the subterranean structures from Levant and from Maadi allowed I. Rizkana and J. Seeher (1989: 55) to conclude that they were analogous in terms of construction. The researchers interpret this similarity as a confirmation of the presence of Levantine merchants or metallurgists in Maadi. This assertion could be supported by the existence of a cluster of pit houses in the northern part of the settlement, isolated from the remaining buildings (Rizkana & Seeher 1989: 80; Faltings 1998b: 374; Watrin 1998: 1218).

Miscellanea

Cedar wood artefacts are yet another group of items most likely to have been imported from Levant. The artefacts found in Maadi include a cedar vessel lid and several small cedar sticks rods, most probably used as incense. It has not been determined whether they were manufactured locally or imported to the Delta as ready-made products (Rizkana & Seeher 1989: 25).

Also, nine bone spatulas found in a cache come from Southern Levant (Rizkana & Seeher 1989: 22, pl. 8:4-15). Similar spatulas made of calf ribs are known from Chalcolithic sites such as Teleilat Ghassul, where they were commonly used as weaving tools (Mallon *et al.* 1934: 77).

Giant shells of *Tridacna maxima* and *Tridacna squamos* were also imported from Levant. In Maadi they were used as a kind of containers. In nature they can be found in the Bay of Suez and in the Red Sea (Rizkana & Seeher 1989: 21).

4. Maadi, Wadi Digla – cemeteries

Pottery

Maadi graves did not contain vessels either linked to Southern Levantine traditions or imported from Southern Levant (Rizkana & Seeher 1990: 26). Vessels found in the graves of the necropolis in Wadi Digla contained only vessels whose decorations or fabric follow eastern traditions. They were found in graves from the younger stage of the cemetery, in its central and south-eastern parts. The paste used for manufacturing those vessels was tempered with crushed limestone, in some cases added in great amounts. However, petrographic analysis showed that the key component of the paste was local Nile clay.

Wadi Digla vessels with Levantine features include three Ware II red burnished jars with lug-handles on the neck (graves WD 257, 260) (Rizkana & Seeher 1990: pls. 4; 34, 47). According to I. Rizkana and J. Seeher (1990: 87), they most probably imitate stone vessels that were fairly common in Southern Levant. Also, this group further includes five jars whose technology is reminiscent of Ware II, although they contain too much crushed stone

and are not covered with red slip. These include: a jar with two plastic knobs on the opposite sides and a row of impressed dots at the neck, found in grave WD 11; another similar jar with three knobs and two rows of impressed dots, found in grave WD377; a jar with two rows of impressed dots and four pierced knobs, found in grave WD XIX; a partially preserved jar with most probably one row of impressed dots on the neck and knobs below the neck, found in grave WD XIX; and finally one more jar from grave WD XIX with only three knobs on the shoulders. Similar vessels are known from Southern Levant. The jar from grave WD XIX is reminiscent of one from Lachish, featuring four lug handles and a row of impressed dots and strokes (Tufnell 1957: pls. 56, 21), as well as of a jar from Bab edh-Dhra with three knobs symmetrically arranged on the shoulders (Schaub 1979: figs. 18.4).

Flint artefacts

Flint items are a very uncommon type of grave goods in Lower Egyptian culture cemeteries. In Wadi Digla a single tabular scraper was recorded (grave WD401), whose material and form are reminiscent of scrapers well known from Maadi, interpreted as Canaanite imports (Rizkana & Seeher 1990: 90).

5. Minshat Abu Omar

Pottery

Grave offerings from the necropolis at Minshat Abu Omar yielded 20 Southern Levantine vessels. Most of them were found in the oldest graves, dated to Naqada IIc-d (Kroeper 1989a). One of the most intriguing artefacts is a jar with ledge handles used as a coffin for a fetal burial (grave 316). The jar was made of yellowish clay tempered with ceramic and mineral temper. It had a flat bottom, wide body, rounded shoulders, concave neck and rounded, overhanging rim. The surface showed traces of red paint and also a diagonal strip decorated in a rope-like pattern. Vessels similar in terms of form and fabric are known from Maadi (Kroeper 1989a: 407-410, fig. 2a). In grave 840 the bottom part of a similar vessel with ledge handles was found; however, in the upper part of the body a fragment of a loop handle was preserved. Due to the vessel's incompleteness, one cannot preclude that on the opposite side of the vessel there was another loop handle (Kroeper 1989a: 410, fig. 3). Loop handles are also present on a fully preserved vessel from grave 799. In addition, there is a horizontal strip of clay between the handles, deeply scored vertically. Both vessels represent one of the most frequent vessel types known from EB I sites in Southern Levant, *e.g.* in Arad, Ai and Jericho (Kroeper 1989a: 411).

Another interesting group of vessels consists of 2 spouted jars. The first of them, found in grave 303, had a broad, flat base, round body and probably a conical neck. The spout was located in the upper part of the vessel, at the body-to-neck transition. At the same height two loop handles were attached. The other jar was smaller, had a round body,

a very short neck and a simple rim slightly everted to the outside. The spout was located in the upper part of the body. K. Kroeper (1989a: 416) mentions Southern Levantine parallels from Fâr'ah and Jericho for both of those jars.

Vessels known as churns come from graves 787 and 313. The first one is a small oval vessel with a spout at the top, flanked by two upright loop handles. The other vessel had an oval body and an asymmetrical spout flanked by two loop handles. Its top was decorated with impressed parallel rows of small circles. Both vessels had remarkable fabric – brittle and flaky (Kroeper 1989: 416-417, figs. 8a, 9a). Churns similar to vessels from Minshat Abu Omar have been found in Southern Levant, but even there they are considered rare. Thus far, 11 such specimens have been collected, *e.g.* in Azor, Gezer, Jericho, Palmahim Quarry, Tel Erani and Horvat Ilin Tahtit (Braun & van den Brink 1998: 82; Czarnowicz 2012b: 248-249). Other eastern imports include a small jar with two lugs from the grave 221 (Kroeper 1989a: 412, fig. 5a).

All the vessels presented above were classified as imports by K. Kroeper (1989a). However, detailed studies showed that in two cases – the churn from grave 313 and the ledge handles jar from grave 840 – the clay is more similar to normal Egyptian Nile clay rather than to Canaanite clay. According to K. Kroeper (1992: 30) both these vessels were made locally, but by means of a new technology involving the use of crushed limestone and calcite as tempers. J. Riederer (1992) linked the calcite temper from these two vessels to the Eocene Theban formation extending between Cairo and Esna. K. Kroeper is of the opinion that this new technology may have been shown to the local population by foreign potters, but did not gain popularity due to the low firing temperature required for the process.

Copper artefacts

Copper items were found in several of the oldest graves of the necropolis. Attention should be drawn to a harpoon with a single barb (length: 12.7cm, diameter: 1cm, barb width: 2.7cm), found in grave 761 (Kroeper & Wildung 1994: 151, Taf. 41) and to a bracelet made of thin twisted copper wire, found in grave 806 (Kroeper & Wildung 2000: 30). Copper beads were found in two graves: grave 755, containing 2 cylindrical beads made of copper sheet (2.3cm and 1.9cm long, 0.6cm in diameter) (Kroeper & Wildung 1994: Taf. 8:17) and grave 663, containing a small round bead (2mm in diameter, 4mm high) (Kroeper & Wildung 1994: 49). In grave 224 a strongly corroded needle (7.2 long, 0.9cm in diameter) was found. Grave 231 contained a strongly corroded needle-shaped object with a swelling on one end, no eye, 8.5cm long. In grave 323 a small item was found. It is similar to a copper needle, 8mm long, 3mm in diameter (Kroeper & Wildung 1994). Thus far no information about the origin of the copper material used to manufacture the items from Minshat has been published. Due to the necropolis's vicinity to the Sinai it is reasonable to assume that copper came from the deposits in the region. In some graves malachite was found. Its origin is strongly linked to copper.

6. Tell el-Farkha

Pottery

Thus far, the exploration of Lower Egyptian layers at Tell el-Farkha has yielded only a handful of Levantine imports, mostly vessel fragments with characteristic ledge handles. In the oldest Lower Egyptian layers a single fragment made of yellowish-to-brown paste was found (10YR6/4 on the Munsell scale) (Pl. 10). Due to the fact that clay was tempered with considerable amounts (approx. 20%) of medium-sized round grains of sand, the surface of the handle is coarse and fragile. This type of handles, commonly referred to as "folded" ledge handles, first appeared in Southern Levant in EB IA (Braun 1996: 93). Handles of this kind are well known from numerous locations at Site H (Roschwalb 1981: fig. H.7:5) Taur Ikhbeineh III-IV (Oren & Yekutieli 1992: 337, fig. 12:11) and Azor (Golani & van den Brink 1999: fig. 12.9).

Pottery imported from Levant was recorded also during explorations of phase 2 layers. Attention should be drawn to a large jar, almost completely preserved, made of light, creamy clay with coarse mineral temper making the walls rough (Pls. 22-23). In terms of form – a broad, oval body, narrow, slightly everted rim, two ledge handles in the lower part of the body and a narrow base – it is reminiscent of jars known from EB I sites in southern Israel, such as Site H, Afridar Quarter of Ashqelon (Mączyńska 2003a; Czarnowicz 2012b: 246-247).

Stone artefacts

Among materials of the Lower Egyptian culture an obsidian bifacial knife was found. In terms of technology, the knife is linked to Upper Egyptian knives. However, the raw material probably came from Anatolia, like the obsidian from Buto and Tell el-Iswid (Kabaciński 2003a: fig. 26).

Copper artefacts

During exploration of the Lower Egyptian residence a copper knife was registered (Pl. 17; Chłodnicki & Geming 2012: 98). Although only its triangular, rounded-tip blade was preserved, no analogous findings from other Lower Egyptian sites are known. Similar finds are known from the Ashqelon site in Israel dated to the EB IA2 period, corresponding to the period when Tell el-Farkha's Lower Egyptian residence was developed (Czarnowicz 2012a: 351).

An analysis of the chemical composition confirmed that the knife was made of arsenic copper with elevated nickel contents, and stable lead isotope analyses indicated Feinan as the probable place of origin of copper used to manufacture the knife (Rehren 2013).

Table 19. Groups of Southern Levantine imports or items linked to the Levantine tradition in Lower Egypt in first part of the 4th millennium BC.

1	EXCHANGED GOODS		cooper as a raw material, copper tools, obsidian as a raw material, cedar wood, food, ceramic vessels as containers, ceramic vessels
2	EQUIPMENT OF COMERS/TRADERS		ceramic vessels, flint tools, bone tools, new ideas (metallurgy, building technique), obsidian
3	LOCALLY MADE	BY COMERS	ceramic vessels, flints
		BY LOCALS	ceramic vessels (fabric, form or decoration)

7. Tell el-Iswid, Tell Ibrahim Awad

Pottery

Lower Egyptian layers at Tell el-Iswid yielded 95 fragments of vessels believed to have been imported from Southern Levant and Upper Egypt. No detailed information about those imports is available (van den Brink 1989: 67).

Similarly, no details have been published so far about pottery imported from Canaan, found in phase 7 layers at the site in Tell Ibrahim Awad (van den Brink 1988: 65-114; 1992b: 43-68).

Explorations carried out at Tell el-Iswid by the French Institute of Oriental Archaeology in Cairo (IFAO) revealed fragments of Southern Levantine vessels. They were made of loess clay tempered with coarse quartz and sand mixed with crushed calcite. Most imported vessel fragments were damaged beyond recognition. Only in one case (a ledge handle) identification was possible (Guyot *in press*: 2-3, 17, fig. 11.5).

Flint artefacts

Flint inventory from phase A in Tell el-Iswid bears all the characteristics of the Lower Egyptian culture. Apart from local blades and blade tools (knives) there are also imports from Upper Egypt (Schmidt 1996: 279-285). Traces of contacts with the east are very scarce. The only foreign, non-Egyptian item in the flint inventory is an obsidian bifacial knife found in layer IV. In terms of technology, the knife is linked to Upper Egyptian knives. However, the raw material used came from Nemrut Dag in Anatolia (Pernicka 1996: 286). It is likely that the material reached southern Egypt via Levant. In the form of a finished product it was traded between the Naqada culture centers and the settlement in Tell el-Iswid (Schmidt 1989: 90-91; 1992: 34).

8. Summary

Three groups of items linked to Southern Levant can be identified in Lower Egyptian sites (Tab. 19). The first group consists of merchandise exchanged on a purely commercial basis. It includes various types of pottery vessels, used as containers for imported goods and materials – copper, cedar wood and probably food which has not been preserved in archeological materials. Another group is represented by objects from Canaan that were not bartered, but were brought to the Delta area by their owners, *i.e.* representatives of either Chalcolithic or Early Bronze community. These objects include Canaanean sickle blades, bone spatulas, clay vessels and ideas *e.g.* the construction method of subterranean houses. The third group originated under the influence of Canaanite traditions adapted by local, Lower Egyptian communities. It includes first of all vessels made of local clay, yet linked to Canaanite traditions in terms of technology (use of crushed limestone), form (holemouth jars) or decorations (knobs, handles, wavy rims). The division presented above reflects a complex nature of Egyptian and Levantine relationships, reaching beyond commercial exchange to include the exchange of information and intertwining of cultures spurred by the coexistence of their members.

Chapter 9

Egyptian imports on the Chalcolithic and Early Bronze Age I sites in the Southern Levant

Trade exchange between Lower Egyptian and Southern Canaanite communities resulted in bilateral flow of goods and information. Assemblages from Chalcolithic and EB I sites in the Levant contain Egyptian items and implements. In return for copper, pigments, stone and pottery vessels (usually serving as containers for other goods), small basalt discs, flint implements and probably a whole array of organic products that left no traces in archeological material such as asphalt, resins, olive, cedar wood, skins of animals, domestic animals and other agricultural produce, Egyptians could offer to Southern Levantines basalt vessels, flint implements, meat, fish, Nile shells, probably beer and materials unavailable in the east, such as gold. Egyptian pottery vessels were also sent to the Southern Levant, but again usually as containers for other goods.

1. Pottery

Egyptian pottery dated to Naqada I and IIB(C) is known from a number of sites in the Southern Levant (Fig. 2): Site H in En Besor, Tel Erani D, Azor, Zeita, Taur Ikhbeineh, Nizzannim, Lachish (NW), Gilat and in the Atlit Bay (Hartung 1994: 108; Watrin 1998: 1220).

Chalcolithic and Early Bronze layers from Site H in En Besor contain Egyptian pottery dated to Naqada IIB-C. It is represented first of all by undiagnostic fragments of black and redish-brown ware known from the Delta sites, *e.g.* at Maadi, Wadi Digla II, Tell el-Farkha 1-2 and Buto I-II. Similarly, pottery covered with red slip (P-ware) with distinctive zigzag pattern is believed to be of Egyptian origin (Gophna 1992: 388-390; 1995a: 267-268; Andelković 1995: fig. 12; Tutundžić 1997: 9-11). However, it needs to be remembered that in Lower Egypt the zigzag motive is found usually on rough ware with no slip. Only one P-ware fragment decorated with a zigzag has been found so far, in Buto (von der Way 1997: 97).

Inventories from the settlement of Taur Ikhbeineh, located 17km to the south east of En Besor, contained Egyptian pottery dated to the second half of Naqada II (Hartung 2001: Abb. 70). The more interesting finds include mid-size jars with burnished surface covered with red slip (Petrie's P40) as well as small rough ware jars (Petrie's R33) (Oren & Yekutiel: 1992: 368-369). Pottery with analogous or very similar features was found in Buto II (von der Way 1993: 36, fig. 4:6) and Tell el-Iswid A (van den Brink 1989: 70-71, fig. 11:15).

The presence of Egyptian pottery in the Southern Levant was also confirmed by petrographic analyses of ceramic samples from EB IA layers on the following 4 sites: Tel Erani, Ma'ahaz, Taur Ikhbeineh oraz En Besor (Porat 1986/87: 109-129; Oren & Yekutiel 1992: 366).

Most recent archeological explorations in today's Israel revealed Egyptian pottery also on the sites in Gilat and Gat Guvrin/Zeita (Commenge & Alon 2002: 144). In Gilat, a few sherds of Naqada I burnished ware were discovered among a total of 10000 vessels found there. Importantly, the number of Egyptian pottery registered on Israeli territory is still very low when compared to pottery manufactured locally. More intensive archeological research and the ensuing greater understanding of Chalcolithic communities in the Southern Levant have not contributed significantly to new discoveries. E. Braun and E.C.M. van den Brink (2008: 650) list major Chalcolithic sites in today's Israel, *i.e.* Modi'in, Shoham, Horbat Govit, where no Egyptian imports have been recorded.

The amount of Egyptian pottery is greater on sites dated to EB I. Particularly interesting are vessels described by Israeli archeologists as drop-shaped jars, known from EB I context in Afridar Area F, Site H, Gat Guvrin/Zeita and Lachish (Braun & van den Brink 2008: 654-655). According to some researchers, such as Y. Baumgarten (2004: 169) and A. Golani (2004: 46), in terms of shape, these vessels resemble similar vessels known from Maadi (Rizkana & Seeher 1987: pl. 7.2-4) and must have been introduced to the Southern Levant from Egypt. However, in the opinion of E. Braun & E.C.M. van den Brink (2008: 654) the prevalence of these vessels in EB I contexts suggests that they were manufactured locally. Nonetheless, both researchers admit that the form itself could have been adapted from the Delta.

Apart from imported pottery, EB I sites also revealed local imitations of Egyptian vessels. An interesting find was discovered in En Besor, where imported pottery was accompanied by locally made pottery bearing many Egyptian features. Most researchers believe that their production involved typically Egyptian techniques and local clay. To describe this phenomenon, S.P. Tutundžić (1997: 11) coined the phrase "Egyptianization of pottery". R. Gophna (1992: 390) identified two varieties of vessels of this kind in En Besor: vessels with typically Egyptian shapes made of local clay, and vessels of Levantine typology and technology manufactured using typically Egyptian techniques. The first of those two groups included hole-mouth jars, drop-shaped jars and bag-shaped jars. The other group contained semi-spherical bowls, hole-mouth jars and jars with characteristic lug- and ledge-handles (*e.g.* jars with cylindrical necks known from Maadi). All of those items were found in EB IA layers.

Local origin of this pottery was confirmed by means of petrographic analyses. On that basis N. Porat (1986/87: 117-119) concluded that paste used to manufacture quasi Egyptian vessels differed from paste used with typically Levantine pottery. While local ware was made from clay coming from various sedimentary rocks, imitations of Egyptian ware were made

of loess clay. Local pottery and imitations of foreign forms differed not only in terms of the choice of material, but also as regards the choice of temper and firing temperature. Local clay was tempered with mineral filler made of crushed stones, and loess clay was tempered with organic materials, such as straw, chaff and dung. Egyptianized pottery was fired at temperatures exceeding 800ºC, while the average temperature used for local pottery was 700ºC. A number of typological differences existed too. Locally manufactured pottery was used for preparing and consuming food, while Egyptian imports were used for storage and transportation of goods.

According to R. Gophna (1992: 392), pottery analysis suggests the existence of a pottery workshop on Site H in En Besor, employing Egyptian potters possessing skills acquired in their homeland. They manufactured both Egyptian vessels and their Southern Levantine imitations. According to that researcher, the settlement in En Besor oasis was supposedly established in EB IA by a group of immigrants from the Delta, representing the Lower Egyptian culture. The underlying reasons for their migration included obtaining access to materials and products unavailable in the Delta and subsequent orchestration of a system for supplying them to the Delta. This interpretation is opposed by S.P. Tutundžić (1997: 11), according to whom the presence of Egyptianized pottery was not necessarily related to Lower Egyptian presence in En Besor. He is of the opinion that the emergence of Egyptian techniques and shapes among EB IA pottery in En Besor resulted from their adaptation by local potters. The proximity of both regions was apparently conducive to mutual contacts and exchanging technical novelties. For talented potters, diversifying their professional repertoire by adding innovative manufacturing techniques, surface finishes or vessel forms was not prohibitively difficult. Motivation for such choices is explained by the nature of the contemporary communities. The inhabitants of Site H lived at the turn of two periods (Chalcolithic and Early Bronze). Sudden changes in settlement patterns and in culture encouraged flexibility and acceptance of the new. Shifting conditions coupled with a semi-nomadic subsistence strategy made Levantine communities more open to change, as compared to more conservative farming communities (Tutundžić 1997: 14). On the basis of source materials available, the hypothesis by R. Gophna seems more plausible, particularly because the presence of Egyptians in En Besor was also confirmed in the later period, when the site hosted an important Egyptian administration center controlling the trade exchange. The presence of an Egyptian group in EB IA could have resulted from a greater interest in Levantine territories in general, and materials available there in particular. The process initiated in the said period continued into the period to come. References to specific mentality and way of thinking of Early Bronze community are unwarranted from the perspective of the results of last years' studies. The turn of the Chalcolithic and EB I involved important social and economic changes (see Chapter 3). It is difficult to make any conclusions on the influence of those processes on people's everyday lives and ways of thinking. S. Tutundžić interprets the behaviors of an Early Bronze society by applying a template developed on the basis of ethnographic

studies involving modern pastoral communities affected by crisis. Furthermore, it is difficult to accept a view that Levantine potters, whose own tradition of pottery making was in many ways superior to that from the Predynastic Delta, would begin to make their vessels in a totally different way, for odd and rather irrational reasons (as seen from our perspective). One should remember that while adaptation of new forms and techniques is possible, ethnoarcheological studies show that its completion takes 2 to 3 generations of potters (Arnold 1979: 753). Therefore, given the current state of research, Egyptianized pottery should be interpreted through the presence of migrants from the Delta in En Besor.

An interesting discovery was made several years ago at Atlit, which could have been a stopover port for ships on the route along the coast of today's Israel. During construction works carried out under water, a storage jar filled with 18 *Aspatharia rubens* shells was found. In terms of form, the vessel is reminiscent of jars with a short neck, globular body and narrow mouth, known from Maadi (Ware III). Petrographic analyses showed that the jar from Atlit was made of alluvial Nile clay tempered with crushed limestone, typical for Levantine pottery. Small knobs in the upper part of the jar are another eastern feature. On that basis it was concluded that the Atlit jar is a crossover of Egyptian and Levantine features, dated by analogy to Naqada IIB-C. The relative chronology was confirmed by radiocarbon dating of the shells, which – after calibration – indicated a period between 3720 and 3380 BC (Sharvit *et al.* 2002: 159-166).

2. Stone and flint items

Apart from pottery, Levantine sites also contain Egyptian stone items, such as fragments of greywacke palettes and marble maceheads, found in the Chalcolithic Yotvata (Watrin 1998: 1220) and in Teleilat Ghassul (Bourke 2002: 155-156). Travertine was registered in Gilat, Teleilat Ghassul and En Gedi (Watrin 1998: 1220). Attention is drawn to the bottom of a cylindrical travertine vessel (commonly found in Egypt during Naqada I), discovered in the so-called Ghassulian shrine in En Gedi (Ussishkin 1971: 32-33; 1980: 21, 24-25; Hartung 2001: Abb. 68). A fragment of a travertine bowl and a travertine palette were found in the Chalcolithic settlement in En Besor (Tutundžić 1997: 10). Other imports from Egypt included semi-precious stones, such as carnelian, found *e.g.* in Nahal-Qanah and Ghassul (Watrin 1998: 1220). It also seems likely that two disc-shaped maceheads from the Chalcolithic site in Wadi Rayyan in Jordan came from Egypt as well (Lowell 2008: fig. 5). Furthermore, on the site in Gat Guvrin/Zeita a lentoid macehead made of Egyptian gabrro was discovered (Braun & van den Brink 2008: 646, fig. 1).

Site H in En Besor yielded a number of Egyptian flint tools, *e.g.* a Hemamija knife and a leaf-shaped point. The flint assemblage also features semi-finished products, such as blades and bladelets, typical for Lower Egyptian flint-making industry. They are particularly numerous *e.g.* in Buto I, Tell el-Iswid A (Schmidt 1992: 32-33) and Tell Ibrahim Awad 7 (van den Brink 1992b: 53; Tutundžić 1997: 10; Watrin 1998: 1220).

3. Miscellanea

Other noteworthy materials imported from Egypt include ivory known from the Safadi site in the Beersheba Valley (Watrin 1998: 1217). Chalcolithic layers from Tel Aviv yielded a cylindrical ivory vessel known from Egypt, characteristic for Naqada I (Amiran 1970: 9). Similarly, faience disc beads found in Teleilat Ghassul came from Egypt as well (Bourke 2002: 156). To satisfy the demand of Levantine elites, precious metals (gold and electrum) were imported too. Excavations of Chalcolithic layers in Nahal Qanah yielded eight rings made of gold and electrum, of a total weight of approx. 1 kilogram. Egyptian origin of the material has not been fully confirmed yet. Gold and electrum could have also come from the Eastern Desert, from Anatolia and from Iran (Gopher & Tusk 1991: XXV; 1996: 169, fig. 4.25; Watrin 1998: 1217). Egyptian origin of the material is also possible in the case of a bracelet in the form of snake or spiral from a Chalcolithic burial context at Giv'atayim near Tel Aviv (Braun & van den Brink 2008: 646, fig. 2).

Another interesting discovery from the Southern Levant are shells of *Aspatharia rubens*, sometimes referred to as *Chabardia rubens acurata* (after Braun & van den Brink 2008: 646), coming from the Nile and discovered on Chalcolithic sites in Teleilat Ghassul (approx. 65 items made of this material), Ben-Shemen, Abu-Matar, Horvat-Beter, Arad V, Nahal Mishmar, Shiqmim, Gilat, Grar, Gat Guvrin/Zeita, Yehud and on Early Bronze sites in Site H, Azor and Tell el'Farah, (Rizkana & Seeher 1989: 79; Watrin 1998:1217; Bar-Yosef Mayer 2002: 129-130; Braun & van den Brink 2008: 646-649, fig. 4). The shells could have been used either as containers for cosmetics or as a material used in manufacturing various items, such as spoons, pendants, or fish knives. They could have also been offered as grave goods (Andelković 1995: 24; Bar-Yosef Mayer 2002: 130). E. Braun and E.C.M.van den Brink (2008: 649) noted that the Nile shells were not always accompanied by other artefacts of Egyptian origin or inspiration. Both researchers believe that the shells were distributed throughout the Southern Levant over an extensive trade network used for distributing items or goods other than those coming from Egypt.

Apart from shells, other probable imports from Egypt included *Synodontis* fish, whose bones were discovered on Levantine sites, *e.g.* in En-Besor, Tel Katif, Namir Road, Tel Aviv (Braun & van den Brink 2008: 649). Due to their unusual shape, first fin rays of *Synodontis* could have also been used as arrow heads and harpoon barbs (McDonald 1932: pl. 26; Harrison 1993: 87; Tutundžić 1997: 10; Watrin 1998: 1220).

It seems that meat could have been exported as well. Analysis of materials recovered from the site in Tell el-Farkha showed a surpluses of pig bones from less valuable carcass parts and shortages of bones from good quality parts (*e.g.* ham). This fact suggests that good quality meat may have been traded (Abłamowicz 2012: 420).

4. Summary

The number of Egyptian imports on Chalcolithic and EB IA sites in the Southern Levant is low. In general, those imports can be divided into two groups. Goods imported from Egypt were first of all luxury items: vessels and implements made of stone, flint, ivory and possibly gold and electrum, as well as food: fish and bivalves, accompanied by pottery vessels used as containers. The other group of items is related to the controversial presence of Lower Egyptians in En Besor and includes pottery vessels with various degrees of Egyptianization. If one assumes that the presence of Egyptians in En Besor in EB IA is probable, then all theories assuming merely occasional nature of Egyptian and Canaanite contacts in the early and middle Predynastic period need to be revised. It seems that Egyptian and Levantine relations were indeed more elaborate. The interest of Egyptians in Canaan in general and its resources in particular must have been so great that they decided to send their representatives to the east. Possibly, their intention was to open a new phase in mutual contacts and exchange. The number of Egyptian items grows on sites dated to EB IB. Elliot Braun (2003: 34-35) grouped Egyptian materials from EB sites into several types based on their character and quantity. The division proposed by him reflects the growth of Egyptian activities and interest in areas east of the Delta. The differentiation results from far more complex nature of contacts, already taking place on a number of different levels.

Chapter 10

Lower Egyptian communities and their interactions with Southern Levant in the 4th millennium BC. Summary

In the 5th millennium BC the Delta saw the emergence of the first communities whose cultural traditions differed from those of Epipaleolithic hunter-gatherers. The said groups settled in rich ecological niches, such as the areas near the Qarun Lake or the boundaries of the Delta (Merimde Beni-Salame and Wadi Hof), and adapted a new economy model based on agriculture and animal breeding. The research held thus far in the Delta area revealed the presence of three such groups: the Faiyumian, the Merimde and the el-Omari cultures. Their most important common feature was the new subsistence strategy (agriculture and animal breeding), as well as semi-permanent or sedentary lifestyle.

Most probably the new economy model and the related lifestyle were introduced to Lower Egypt from the east. The concept of growing plants and breeding animals may have reached the Delta between the 6th and the 5th millennium BC. It resulted either from the influx of a group of immigrants or from economic exchange with the Levant. Nevertheless, it must be remembered that the process of adaptation of agriculture and animal breeding has not been explained yet. The diet of Epipaleolithic hunter-gatherer communities was mostly based on semiaquatic animals and fish meat, as well as on grains and roots of wild plants. The availability of those foods depended *inter alia* on the level of the Nile. In the Holocene there were both wet and dry periods. Research in the Delta area has shown that in the 5th millennium BC the Nile level was very low (Wetterström 1993: 225). As a result, Delta communities might have been forced to search for new means of subsistence, less dependent the river. Farming and animal breeding were originally merely an addition to hunting and gathering. They were probably treated as a protective measure to fall back on during draught or famine. The first Neolithic communities from the Delta continued to hunt and gather food for the next 1000 years. The emergence of the first agricultural communities is not the only unexplained issue. Similarly unknown are the relationships between the early agricultural communities. Although absolute datings sometimes indicate temporal coexistence of the three cultural units discovered so far, all of them is treated as a separate entity.

The Lower Egyptian culture is an archeological unit whose reach most probably covered the entire Lower Egypt. Its first groups appeared approximately in the beginning of 4th millennium BC in such places as Maadi and Buto. However, the genesis of this culture

remains unknown (Mączyńska 2011). One may hope that a research project currently held in Sais, where materials of the Merimde and Lower Egyptian cultures have been discovered in adjacent layers, will shed more light on this issue (Wilson *in press*).

Unlike the Faiyumian culture, the Merimde and the el-Omari cultures represented only by findings from eponymic sites, Lower Egyptian settlements and cemeteries are scattered all over the Delta area along water courses. The southernmost Lower Egyptian site is Sedment, located some 500km south of the Mediterranean coast. Even though our knowledge of this culture continues to be based on materials from 24 archeological sites (Tab. 1), it is incomparably greater than our knowledge of early Predynastic cultures from the Lower Egypt.

The vastness of the area occupied by the Lower Egyptian culture contributed to its internal diversity. In some way, each of the sites constitutes a separate unit, some of its features being typical for the entire culture and some being quite unique, possibly as a result of the group's adaptation to local conditions. Such a situation most probably occurred in Buto. The analysis of flint inventories showed that Buto's community used a set of implements that differed from the repertoire of tools found on other Lower Egyptian sites. Backed pieces, truncated blades and retouched blades were useful first of all in exploring aquatic environments. On the other hand, sickle blades, a basic tool used in agriculture well known *e.g.* from Tell el-Farkha, have never been found in Buto.

The diversity of the Lower Egyptian culture is not only geographical, but also chronological. The three phases in the culture's development were identified first of all on the basis of pottery and changes in the social and ideological system (Tab. 3).

Lower Egyptian communities were the first ones in the Delta to rely on agriculture and animal breeding. Hunting, gathering and fishing played a marginal role in their subsistence strategies. In the 4th millennium BC the Nile Delta offered highly favorable conditions for agriculture and animal breeding. Periodical inundations of the Nile irrigated and fertilized the soil, and warm and humid climate was conducive to vegetation. The growing cycle of the two main crops (wheat and barley) was determined by the inundations. Grains were sown most probably between October and November (when high water receded) and harvest took place in March, before flooding began. High soil salinity in the Delta made barley the crop of choice, due to its resistance to salt. Between October and March, areas not used for growing plants served as pastures for cattle, sheep, goats and pigs. The diet of Lower Egyptian communities was mostly based on products made of wheat and barley (flour, beer), papilionaceous plants (lentils, peas) and flax (oil), as well as on the meat of domesticated animals (mostly pigs) and milk products (cattle, goat and sheep breeding). Despite the fact that the Nile and riverside vegetation in the Delta offered great amounts of fish and fowl, Lower Egyptians used those resources only occasionally. Osteological analyses showed that quality was the decisive factor in selecting foods offered by nature. Out of the high number of fish species available in the Nile, fishermen would only catch catfish (*Synodontis*), due to its great amount of meat tissue. Reliance on agriculture could

have been caused by the fact that food obtained in this way fully satisfied the nutrition needs of Lower Egyptian communities. Meat of domesticated animals must have been highly valued, which is confirmed *inter alia* by the high degree of bone fragmentation, well visible in Tell el-Farkha. Hunting, gathering and fishing may have been treated as a form of supplementing the diet and as a backup solution used in the case of excessively high (or low) inundations of the Nile, affecting the yields from agriculture. The differences in the percentages of remains of various plant species on the one hand, and bones of various animal, fish and clam species on the other on different Lower Egyptian sites may be caused by diverse natural conditions affecting the choice of grown and bred species and/or by individual preferences of a given group.

Agriculture and animal breeding provided not only large amounts of food, but also made it possible to plan future resources and to stay in the same place for a long period of time, without the need to relocate in search for food. Growing of wheat and barley required constant presence of farmers. Sedentary lifestyle affected the settlements' nature and internal organization. In the Delta, the choice of the settlement's location was determined by the river's level. Lower Egyptian settlements were founded on sandy prominences, or geziras, remaining above the water level in all seasons, thus offering protection against flooding. Cemeteries were located near settlements, also on prominences. Residential buildings of the Lower Egyptian culture typically had a light structure made of organic materials. Since furrows are their only remains, one can only assume that houses took the form of rectangular buildings supported by posts, with walls made of mats additionally plastered with mud. Internal walls forming smaller rooms were identified in some cases as well. Numerous animal enclosures and pits used for household purposes were also found inside settlements (Tab. 14).

Important information about settlement structures was obtained during excavation in Tell el-Farkha, where two buildings significantly different from those known previously were discovered. One of them, the so-called Lower Egyptian residence from the Central Kom, was a large building made of organic materials, originally surrounded by a double wooden fence, subsequently replaced with a mudbrick wall (Pls. 6-7). It is the oldest structure of this type discovered so far in Egypt. The structure's size and method of construction as well as items found inside it denote its unusual character, most probably linked to the exchange with neighboring areas (Upper Egypt and Southern Levant). Another remarkably sizeable structure was located in the central part of the Western Kom (Fig. 7). It was built exclusively from organic materials. It is not impossible that this other structure played a special role in the social life of the settlement and its inhabitants.

The Lower Egyptian culture was the first of the Predynastic cultures to bury their dead in enclosed cemeteries. Only infants and young children were buried within settlements, either in pottery vessels or in shallow pits. The dead were laid in pits in embryonic positions. It seems that there were no clear rules regarding body orientation at the time (Tab. 15).

Grave goods were scarce, although their number grows visibly in the younger phases of the culture. The most common grave goods type was pottery, followed by flint implements, stone vessels, palettes and shells. There are clearly more goods in younger graves. The youngest Lower Egyptian graves recorded in Minshat Abu Omar are strongly diversified in terms of the quantity of goods. Although no goods at all were found in some graves (9.02%), over a half of group I graves contained 2 to 5 offerings. Some graves stand out not only for the number of goods, but also for their quality, which seems to denote a particular social status of persons buried in such graves.

Internal diversification of the Lower Egyptian culture is further confirmed by clearly observable areas of specialization. Beer production, manufacturing of certain items (basal bowls, imitations of blacktopped vessels, copper objects, beer), as well as commercial exchange required the presence of specialists possessing knowledge and skills in a given field. It is not impossible that such specialists enjoyed a special social position in their communities. Other important factors could be one's age or social rank within one's clan or lineage. While the earliest Lower Egyptian communities paid little attention to the method of interment, special burial procedures for certain individuals became increasingly important over time, possibly as a result of accumulation of precious items in the hands of certain Lower Egyptians. Since the diversification of grave offerings and the emergence of large, "public" buildings took place in Naqada II, it could have been one of the aspects of the stratification process observed in the Lower Egyptian society, which began in the same period. To some extent the said stratification resulted from the trade exchange with the Southern Levant, which made it possible to import prestige items used to legitimize one's social status.

Specialization in Lower Egypt is observed only with regard to selected areas of manufacturing where particular skills were required, whereas simple objects and implements were made on a household basis. Pottery, flint and bone processing were all based on locally available materials and did not involve any sophisticated techniques. Manufacturing of implements and other objects used on a daily basis could have been one's additional occupation, reflecting the actual needs of the household. As far as pottery is concerned, the shape could be influenced not only by functionality, but also by stylistic preferences and fashions followed by the maker. The form of simple flint implements (scrapers, burins, knives) and stone items (quernstones, grinding stones and hammerstones) reflected their respective functions.

The Lower Egyptian society was well adapted to the conditions prevailing in the Nile Delta in the 4th millennium BC. However, this adaptation was not equivalent to total dependence on the forces of nature, as it allowed humans to choose those solutions that best suited their current needs. Concentration on manufacturing and very limited reliance on the natural potential of the Nile Delta seem to confirm the above assertion.

The Lower Egyptian culture was developing in the Delta area for approximately 600/700 years. Its cultural and social system evolved over that period. The changes might have been caused by a number of underlying cultural and environmental factors which from time to time could have distorted the system's equilibrium. However, no traces of changes in the

economic system of the Lower Egyptian culture have been found. Subsistence strategies and techniques of pottery, flint and stone production did not change from the beginning to the end of the Lower Egyptian culture in most cases. Some minor changes can only be seen in the stylistic aspects of manufactured goods, *e.g.* pottery and in the specialized production of certain items. In Naqada II, older forms (such as T-shaped profile bowls) gradually disappeared and newer forms (*e.g.* lemon shaped jars) and ornamentations (impressed zigzag and crescent motives) emerged. Some of those new elements were adapted from foreign, Levantine pottery traditions (thumb-intended rim, hole-mouthed jars). The pottery inventory of the youngest Lower Egyptian phase also included vessels known from southern Egypt. On the basis of the raw material used, some of them are classified as imports (*e.g.* W-ware vessels), but others could have been manufactured in the north. The similarity of forms between the Upper and Lower Egypt may indicate a parallel development of pottery traditions in both regions, as well as frequent contacts and the ensuing exchange of information (Mączyńska *in press* a; b). At the current stage there is no archeological evidence for the so-called Naqadian expansion, involving the arrival of Naqadians to the north towards the end of Naqada II, or for the absorption and elimination of the local culture. Pottery, flint and stone inventories from Lower Egyptian sites do not show any sudden changes that would surely accompany a cultural change. In Tell el-Farkha and in Buto a steady and uninterrupted development of the local communities is observed.

One characteristic feature of the Lower Egyptian culture are its relations with the Southern Levant, resulting in the exchange of goods between the two areas. The said exchange is visible in archeological materials from both regions, in the form of imports and local imitations of foreign items. It seems that the origins of the relationships between the Lower Egypt and the Southern Levant cannot be analyzed solely from the perspective of the conflict between the community's objectives and its capability to pursue them. A glance at the repertoire of goods imported from the east reveals that only some of those goods were not available in the Delta (copper, pigments, cedar wood, turquoise). Other foreign items had their local counterparts (flint and stone implements: tabular scrapers?, sickle blades, stone discs), which means that they were imported because of certain quality features (raw material, shape, *etc.*), rather than for the purpose of satisfying local needs. Items of this kind could have also been brought to Lower Egypt by groups of immigrants comers from the Southern Levant. Other products imported from the east, *i.e.* asphalt, resins, olive, animal skins, domestic animals and other agricultural produce, are known only from later written sources. Imports from the Canaan most probably included olive and wine. There is no evidence of olive trees and grapevine being grown in the Delta in the first half of the 4th millennium BC. From this perspective, the Southern Levant was completely different, since climatic conditions in northern littoral areas were favorable for the above plants, particularly towards the end of the Chalcolithic and in EB I, allowing the region to specialize in their production. EB IA saw a significant growth in olive production as compared to the Chalcolithic (see Chapter 3). It thus seems very likely that both products were exchanged already in that period (see Lovell 2008).

Table 20. Comparison of the Lower Egyptian and Levantine communities in the 4th millennium BC.

		LOWER EGYPT	SOUTHERN LEVANT
social system		low degree of social complexity; first traces of social differentiation	low degree of social complexity; some traces of hierarchical social organization (Shiqmim)
burial custome		separated cemeteries; children buries inside settlements	in some cases graves inside settlements; separated cemeteries;
production of	pottery	household (mostly)	specialization?
	copper items	specialization (?)	specialization
	stone items	specialization (basalt vessels)	specialization
	ivory items	?	specialization
subsistence system		farming and animals breeding	farming and animals breeding; pastoralism
lifestyle		sedentary lifestyle	nomadic to sedentary lifestyle
settlement system		autonomic settlements with cemeteries	large principal settlements with satellite campsites and cemeteries
ideological system		figurines	cult centers, figurines

Assuming that commercial exchange was just one of multiple forms of contacts between Egypt and the Southern Levant, the underlying reasons for those contacts could have been linked to non-material aspects of the two social and cultural systems, which by nature are not preserved in archeological material.

The first contacts between the Nile Delta and Canaan are related to the adaptation of agriculture and animal breeding in Lower Egypt. However, evidence confirming the existence of Egyptian and Levantine link at such an early stage are very scarce. Materials from the Faiyumian culture found at the Qarun Lake include a single turquoise bead that could suggest exchange with the Sinai, where outcrops of this material are located. Other items found in Faiyumian inventories include clam shells and a shark tooth from the Red Sea. In the Merimde culture, the only eastern element is the herringbone motive on pottery, typically used as a decoration by Canaanite potters in the Chalcolithic. As far as the el-Omari culture is concerned, Levantine influences are observed in flint processing and pottery making (the use of two types of clay). Some similarities between el-Omari and Jericho vessels could be mentioned as well.

The Lower Egyptian culture is the first one where imports from Chalcolithic and Early Bronze Levant were found, thus confirming direct contacts between the two regions. Due to the scarcity of source materials, this early stage of Egyptian and Levantine relations is frequ-

ently ignored by authors investigating the issue. However, it seems reasonable to include that stage in further deliberations. One can assume that the first encounter between the inhabitants of both regions took place in the 5th millennium BC or even earlier (*cf.* Shirai 2010), but the contacts initiated in that period did not involve commercial exchange. Materials unearthed thus far show only certain cultural influences on the Delta's local tradition, which could have resulted from the exchange of ideas (such as adaptation of agriculture and animal breeding). Commercial exchange is but one aspect of relations between different communities. The appearance of a larger number of eastern imports on Lower Egyptian sites may suggest that the relation in question gained a new dimension. Since the material needs of the Lower Egyptian society were satisfied by resources available locally, it is rather unlikely that the origins of the trade exchange between the Delta and the Southern Levant could be explained by the gap between social objectives and the capability to pursue them. The soil, the climate and the periodical inundations of the Nile were all conducive to agriculture and animal breeding and provided food that supplemented the diet of farmers and breeders. For the most part, raw materials used for manufacturing pottery, implements and other items were available locally (Nile clay, flint, stone, *Aspatharia rubens* shells). Items made from imported materials (stone and pottery vessels, basalt discs, Red Sea shells) were rare and did not play an important functional role. The presence of Levantine pottery in Lower Egyptian sites was due to the fact that they were used as containers for imported products (olive, wine or other agricultural products). Considering well developed local production of pottery in Lower Egypt, importing such items for functional purposes alone was economically unreasonable. Despite simple techniques, Lower Egyptian potters manufactured a wide variety of forms (bowls and jars) that probably satisfied most of the local needs (see Chapter 6).

Copper was a special type of import, as it is not available as ore in the Delta area. The material was highly valuable and thus recycled, which is confirmed by the small number of copper artefacts on Lower Egyptian sites (see Chapter 7). In the 5th and early 4th millennium BC copper was still unknown to Lower Egyptian communities. Their first encounter with this material must have taken place after the emergence of Lower Egyptian culture in the Delta. Possibly, incomers from east arrived to the Delta in the beginning of the 4th millennium BC and brought their own copper implements. The new material with its unusual physical properties is likely to have aroused interest for (and then the need to possess) it, which eventually led to its import from the Sinai via the Southern Levant which back then still controlled the copper mines in Feinan and Timna in Wadi Araba. The role of the eastern incomers could have been limited to importing copper and explaining the principles of its processing. The forms of copper items had a local character and were rooted in the Lower Egyptian cultural tradition. The presence of Levantines in the Delta area in the early 4th millennium BC seems to be confirmed by some of the vessels found in Buto, whose form and ornamentation imitated Chalcolithic and Early Bronze Levantine pottery. This author follows the hypothesis proposed by E.Ch. Köhler (1993) and D. Faltings (2002: 166-169), assuming that a group of Levantine immigrants arrived to Buto towards the end of the Chalcolithic (layer Ia) and

settled among the local community. Originally they cultivated their own separate identity and traditions, but over time (layer Ib) the "strangers" assimilated with the locals and adopted Lower Egyptian cultural traditions. The assimilation process was so powerful that materials dated to phase II show no traces indicating the presence of foreign settlers in Buto. The discontinuation of their own cultural tradition by foreigners in Buto resulted in a peculiar social situation in the Delta, particularly visible in abandoning of the sophisticated turning technique originally used by Levantine potters, making mass production possible. The underlying reason could be Lower Egypt's typically household mode of pottery production. Another significant factor could be the humid climate which made production of high quality vessels more difficult and season-dependent. Furthermore, agriculture was a laborious livelihood, possibly reducing the amount of time available for other occupations (see Chapter 6).

The presence of Canaanite migrants was also confirmed in Maadi, where semi-subterranean dwellings were discovered. On the basis of their similarity to Chalcolithic and/or Early Bronze structures in Southern Levantine settlements they are interpreted as home for a small group of eastern settlers. The cluster of those dwellings in the northern part of the settlement could suggest their isolation, possibly intended to preserve cultural identity. It is probable that – as proposed by I. Rizkana and J. Seeher (1989: 80) – the presence of eastern migrants was seasonal and was caused by transportation difficulties caused by Nile floodings.

Apart from Levantine pottery imported from the source or made locally in the Delta area, inventories from Lower Egyptian sites contain a number of hybrid vessels, combining the features of both traditions. In Maadi and in graves from Heliopolis and Wadi Digla II Lower Egyptian vessels with Levantine ledge handles, lug handles and plastic knobs were found. Buto's hybrid vessels include hole-mouthed jars and V-shaped bowls. The ceramic paste of some vessels from Buto contained intentional additions of phosphorite, giving the vessel a light color after burning. As a result, the vessels were reminiscent of Levantine pottery also in terms of surface coloration. The reason for manufacturing hybrid vessels could be the assimilation of foreign settlers, but also the borrowing of foreign pottery techniques in appreciation of their functional or aesthetic features.

The arrival of Canaanite settlers to the Nile Delta in the middle of the 4th millennium BC could have been caused by the cultural and political situation in the contemporary Canaan. Possibly the migration was linked to economic recession. The first Levantine findings in the Delta are dated to the end of the Chalcolithic, when Southern Levantine cultural systems became unstable. The period in question saw a profound change in the settlement and economic systems. The underlying reasons are believed to include natural disasters (draughts, epidemics, earthquakes) and cultural factors (waves of migrants, economic changes) (see Chapter 3). Some Chalcolithic settlements were deserted and their inhabitants moved to higher regions. Human migrations were further intensified, and certain groups could have reached as far as to the Delta. Migration routes went through the northern Sinai, culturally linked to the Southern Levant at the time (Fig. 4). The distance between the Delta and the Southern Levant is approximately 200km, which was not prohibitively great considering

the use of donkeys as means of transportation and the presence of pastoral campsites in the Sinai, serving as stop-over sites for caravans. It took a caravan 3 to 4 days to travel a distance equal to 100km. Additionally, natural canals in the Nile's catchment area could be used for transportation purposes as well. Another possible connection between the Delta and the Canaan could be the naval route along the Mediterranean coast, allegedly connecting Egypt and Lebanon, from where such goods as cedar wood were imported via Levant. Small ports for ships are believed to have existed along the coast, *e.g.* in Atlit. Restocking stopovers offered a good opportunity for contacts and trade exchange with the inhabitants of adjacent settlements.

In the beginning of EB I the presence of Lower Egyptian culture in the Southern Levant (most probably in En Besor H) became probably permanent. Although there is no conclusive evidence, their presence can be interpreted from the perspective of trade exchange between the two regions. The existence of such a center was confirmed only in EB IB, but already in EB IA the demand for Levantine goods in Egypt could be so great that it could have given rise to the establishment of a "trade agency" in the Canaan, which subsequently evolved into the center of Egyptian administration.

Thus far, the majority of scholarly publications on Egyptian and Levantine contacts proposed the core-periphery model, thus assuming an unequal social, political and economic status of both communities (Levy & van den Brink 2002: 5-6; Czarnowicz 2011). In accordance with this model, the Southern Levantine culture is believed to have been less developed when compared to the contemporary Delta culture. However, if one takes a closer look at the social and cultural relations between both regions towards the end of the Chalcolithic, one will realize that the use of the core-periphery may be questionable (Tab. 20). The social structures of both communities were very similar. In both cases internal divisions based on family lineage or social functions were possible. While in the Lower Egyptian culture the remains of ideology or cult are very scarce (incense burners, traces of funeral rituals, animal graves in cemeteries, zoomorphic and anthropomorphic figurines), the pastoral communities of the Chalcolithic Canaan had a sophisticated ideological system in the so-called shrine in En Gedi and showed certain symbolic behaviors resulting *inter alia* in unusual murals from Teleilat Ghassul. As regards manufacturing, the Chalcolithic culture was superior to the Lower Egyptian culture, which is exemplified *e.g.* by the high degree of specialization in pottery production (turning, variety of forms and ornaments, burning), well developed metallurgy and production of bone implements of high artistic value. Significant differences in system organization could have resulted from the respective economic models and their effect on lifestyles and settlement systems. It seems however that the said differences were caused by the adaptation of both societies to their local natural conditions, *i.e.* Lower Egypt's fertile Delta and Southern Levant's semiarid regions along wadis.

This author is of the opinion that until the end of Naqada II the contacts between the societies of Lower Egypt and the Southern Levant formed a reciprocity model of exchange (Renfrew & Bahn 2000: 368), whereby both parties hold mutually symmetrical positions.

Originally, in the 5th millennium BC, their contacts were only ideological and/or social, based on the exchange of ideas (agriculture, animal breeding). Only in the beginning of the 4th millennium BC, the exchange of information became accompanied by the exchange of a limited repertoire of goods, the most important of which was copper (Renfrew & Bahn 2000: 368).

The beginnings of commercial exchange between the Delta and the Southern Levant in the middle of the 4th millennium BC took the form of "private" expeditions, organized to cater for the needs of individual centers in the Delta. In early Naqada I the contacts could have been organized in accordance with the reciprocity – home base model (Fig. 3), which means that the exchange of goods between the Delta and the Southern Levant physically took place in the Delta area. The trade probably involved middlemen, traces of whom were found in Maadi. Over time the relative roles of both parties in the trade exchange may have equalized, particularly because it was not only goods but also concepts that were exchanged (ideas, inventions, ambitions and aspirations), thus leading to the development of both communities (*e.g.* introduction of copper to the Delta). Apart from Levantine merchants, there also appeared Egyptians, who allegedly reached as far as to En Besor H where typical Lower Egyptian pottery made of local materials was found. C. Renrew's third model of exchange (reciprocity – boundary) is not impossible either (Renfrew & Bahn 2000: 352). In accordance with this model, the bilateral exchange between Egypt and Southern Levant took place at the boundary of both territories. This view was proposed *inter alia* by I. Rizkana and J. Seeher (1989: 80). Towards the end of Naqada I and in Naqada II, the exchange allegedly became down-the-line-trade and involved a number of territories and their representatives. The number of Egyptian artefacts in sites dated to EB IA grew significantly as compared to the Chalcolithic, which may confirm an intensification of trade exchange between Lower Egypt and the Southern Levant. A thorough knowledge of the resources available in both regions, gained at the earlier stage, was another favorable factor.

In the beginning of EB I, the quantitative change in Egyptian and Levantine relations was not accompanied by any qualitative changes. Thus far no traces of any central organization of trade contacts (or a central place where such exchange would concentrate) have been found. It seems that import and export were a reflection of actual demand for given types of goods or materials. The lack of centrally organized trade resulted from a specific organizational structure of the Lower Egyptian culture on the one hand, and Southern Levantine culture in the Chalcolithic and in EB I (EB IA, early EB IB) on the other. In the Delta area there existed self-sufficient centers – settlements, *e.g.* Maadi, Buto, Tell el-Farkha, whereas in the Southern Levant there was an autonomous central settlement supervising a number of subordinate pastoral settlements/campsites. In a certain way, imported goods reflected the needs of the settlements' inhabitants and were not redistributed to other areas. The role of eastern imports could have been linked to the diversification of the Lower Egyptian society. Imported goods could have been treated as so-called prestigious goods, used to legitimize the status of an individual or a group. Possession of items made of foreign materials (copper, flint, stone, pottery) may have denoted the importance of their owners, and the

control over importation of those goods influenced the development of social and political hierarchy of the society in question (Renfrew 1975: 22). It is not impossible that import of prestigious goods triggered social stratification processes in the Lower Egyptian culture. A good example here are the oldest graves from Minshat Abu Omar, standing out for the presence of Southern Levantine and Upper Egyptian imports, deposited as grave offerings together with local pottery.

The relations between Lower Egypt and the Southern Levant drew the attention of Naqadian communities from the south. Originally, the contacts between both regions were rare. Southern imports are present in Lower Egyptian inventories as isolated finds only. They include blacktopped ware (Maadi), rhomboidal greywacke palettes (Wadi Digla), obsidian flint knives (Tell el-Iswid, Tell el-Farkha), fish tail knives, mace heads and bone combs (Maadi). Accordingly, in Naqadian sites only isolated Lower Egyptian vessels were found (Hemamieh, Naqada/Ballas, Armant, Hierakonpolis, Adaima) (Adams & Friedman 1992: 323; van den Brink 1989: 71). The low frequency of contacts between the Delta and Upper Egypt reduced the possibility to import eastern goods directly to the south. In Naqadian graves, the first eastern imports (lapis lazuli and turquoise beads, cylindrical seals) appeared in Naqada IB. Since no such artefacts were registered among imports to the Lower Egypt, they must have reached the south via an alternative trade route. According to U. Hartung (2002: 445-446) and D.E. Bar-Yosef Mayer (2002: 129-135), the trade route contemporary to the Badari culture, leading from the Red Sea to Upper Egypt, was reopened in the middle of Naqada II.

The interest of Naqadian groups in the Nile Delta grew in Naqada II. A greater number of southern imports in general and pottery in particular appeared on the sites in the Delta. The underlying reason was the process of social stratification, leading to the formation of social elites in the south. Legitimization of their position required prestigious goods, such as those coming from Nubia and Southern Levant. Thus far, access to prestigious goods imported from the Southern Levant has been quoted as one of the key causes of the so--called Naqadian expansion. As a result, the Lower Egyptian culture was allegedly absorbed and replaced by the southern culture. Meanwhile, archeological materials do not contain any evidence supporting the above assumption (Köhler 2008; Mączyńska *in press* a; b). In the Naqada I and II periods Lower Egyptians controlled the exchange with the Southern Levant and most probably acted as intermediaries between Upper Egyptians and Southern Levantines. The Nile was probably the main trade route along which the transport of goods was organized. Actual exchange could have taken places in major settlements in the eastern Delta, such as Tell el-Farkha or Minshat Abu Omar.

In the opinion of the excavators of the Tell el-Farkha site, the settlement was a center responsible for long-distance contacts and exchange with Upper Egypt and the Southern Levant (Chłodnicki & Geming 2012; Ciałowicz 2012a). The settlement was probably situated on a trade route and its position in the center of the eastern Nile Delta facilitated the transfer of goods further to the east and south (Fig. 4). It could have been a meeting place

for people of different origins: Naqadians, Southern Levantines, Lower Egyptians, who probably were partners in exchange. The local societies took part in, and probably organized, the exchange of goods and ideas in an active way. Moreover the local societies benefited from these contacts and adapted new techniques and raw materials: mudbrick architecture, beer production, copper and gold (Mączyńska *in press* d).

In the case of the site in Minshat Abu Omar, the scarcity of data does not allow one to make conclusions similar to those from Tell el-Farkha. However, southern and eastern imports deposited in local graves could indirectly confirm the settlement's participation in the exchange between Upper Egypt and the Southern Levant. Minshat Abu Omar lies very close to the boundary between the Delta and the Sinai, not far from the place where caravans must have entered the Delta area (Fig. 4). It would thus be only natural for the inhabitants of Minshat Abu Omar to take part in the exchange.

Late Naqada II and early Naqada III saw major changes in Egyptian societies, both in the north and in the south. Their social, economic and ideological systems were remodeled. It is generally accepted that a uniform Naqada culture encompassing the entire Nile Valley and Delta emerged in early Naqada III. Meanwhile, analyses of archeological data show that a homogenous culture as such did not exist. Instead, there probably were up to twenty centers which – apart from certain common features – differed from one another in a number of aspects. Social and economic processes commenced in Naqada II in the north and the south (*e.g.* specialization, social stratification) still continued. The demand for prestigious goods (including imports) did not diminish. In Naqada IIIa the presence of a larger group of Egyptians in the Southern Levant became constant, although they were still connected with their mother state administration. In Naqada IIIB Egyptians took full control over bilateral trade probably by establishing their own colony in southern Canaan. Egypt's control over trade exchange is also visible in the northern Sinai, where Egyptian pottery represents the greatest share (sometimes as high as 80%) of inventories found stopover sites for caravans.

Egyptian presence in the Southern Levant was peaceful and intertwining of both cultural traditions is noticeable. The key Egyptian centers in the Canaan were Tell es-Sakan, En Besor and Tel Ma'ahaz, where apart from common appliances (Egyptian vessels, flint implements) explorations revealed a number of items linked to Egyptian administration and even typically Egyptian mudbrick architecture (En Besor). However, discussions on the colony's nature and its status vis-a-vis the mother territory still continue (Braun 2002: 182-183). It seems that Egyptian and Canaanite contacts were fairly complex at the time, which seems to be illustrated by considerable differences in the number of Egyptian items in various Canaanite sites, as well as by the presence of Egyptian style artefacts manufactured on Early Bronze sites in Southern Levant (Braun 2003).

The number of Levantine artefacts in Egypt grows dramatically on Protodynastic sites, particularly in rich graves. Attention is drawn to grave U-j in Abydos on the U cemetery, dated to Naqada IIIA2 (mid EB IB), where over 400 Palestinian wine jars were found (Hartung 2001). Petrographic analyses of the material used to manufacture those vessels

showed that while most of them were not made of Canaanite clays, all of them were made in accordance with Levantine cultural traditions, thus denoting well developed commercial exchange (Porat & Goren 2002: 252-270). The use of an alternative material may be linked to a different function of those vessels. The jars may have been made especially for a foreign ruler. Canaanite imports dated to late EB IB are also known from the Delta area, *e.g.* from the graves in Minshat Abu Omar (Kroeper 1989a: 407-422) and from the settlements in Buto and Tell el-Farkha (Köhler 1998; Mączyńska 2003a; Czarnowicz 2012b).

In EB II the role of the Egyptian colony in the Canaan was reduced due to the urbanization process in the Southern Levant and the growing importance of city-states. Egypt's attention was directed to Syria and Lebanon, accessible via naval routes. While some isolated goods from the Palestinian colony were recorded on Egyptian sites dated to late EB II, the contacts between the two regions became very infrequent by then.

Abbreviations:

AAR: African Archaeological Review

BA: Biblical Archaeologist

BASOR: Bulletin of American Schools of Oriental Research, New Haven.

BES: Bulletin of Egyptological Seminar

BIFAO: Bulletin de l'Institut Français d'Archéologie Orientale

CA: Current Anthropology

CCE: Cahier de la Céramic Égyptienne

CdE: Chronique d'Égypte

CRIPEL: Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille

GM: Göttinger Miszellen, Göttingen.

IEJ: Israel Exploration Journal

JAOS: Journal of the American Oriental Society

JARCE: Journal of the American Research Center in Egypt

JEA: Journal of Egyptian Archaeology

JESHO: Journal of the Economic and Social History of the Orient

JNES: Journal of Near Eastern Studies

MDAIK: Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo

OMRO: Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden

PAM: Polish Archaeology in the Mediterranean

TA: Tel Aviv

ZÄS: Zeitschrift für Ägyptische Sprache und Altertumskunde

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