The archaeology of the first farmer-herders in Egypt : new insights into the Fayum Epipalaeolithic and Neolithic

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8. The diffusion of material culture and domesticates from the Levant to Egypt

8.1. Introduction

As discussed in chapter 2, the late diffusion of wheat/barley farming and sheep/goat herding from the Levant to Egypt can be explained in terms of the historical contingency of the process of domestication and diffusion within the Levant and the climatic events in the 7th millennium cal.BC. However, it is still not clear exactly how and from where in the Levant domesticates came to Egypt. It has been recognised that domesticated sheep/goats arrived on the Red Sea coast of Egypt in the early 6th millennium cal.BC (Marinova *et al*. 2008; Vermeersch *et al*. 1994; 1996; 2002; 2008), but they were not accompanied by wheat/barley farming. As described in Chapter 3 and Chapter 5, the earliest evidence for wheat/barley farming in Egypt was found in the Fayum Neolithic, and it was accompanied by sheep/goat herding from the beginning. The Fayum wheat/barley and sheep/goat are associated with sites which are radiocarbon-dated to no earlier than 4600 cal.BC, though the Neolithic human habitation began no later than 5700 cal.BC. Research in the Fayum has revealed that there was a hiatus of human habitation in the early 6th millennium cal.BC, and it looks as if domesticated wheat/barley and sheep/goat appeared suddenly in the Fayum at some time between the hiatus and 4600 cal.BC. Therefore, exactly when and how a package of domesticated plants and animals arrived in the Fayum remains unclear. This chapter aims to answer these questions.

8.2. Means of contact

Since domesticates do not move by themselves, humans must have existed behind such a movement. It is necessary to examine how and where Egyptian people could meet farmer-herders who were based in the southern Levant or hunter-herders who wandered in the Negev and Sinai, or could obtain access to Levantine domesticates and technical knowledge of farming and herding. There are two possible means of contact between these people. One is exchange, and another is migration.

Exchange can take place in many different ways. The simplest ways are either that one visits another's residential base or that people meet at a common territorial boundary, and then they exchange information, material items, food resources, and mates that each of them controls. The territorial boundary area is beyond the so-called extended range, which is regularly monitored through logistical moves by individuals who are dispatched from a residential base in the centre of one residential group's economic zone. The nature of contact can be friendly and reciprocal, competitive, or unidirectional, depending on whether one is subordinate to the other or the two are equal. Furthermore, an exchange at a residential base or a territorial boundary can be reduplicated by successive exchanges in different directions, and as a consequence, exchanged things may travel across successive territories. In addition, it is also probable that the two visit, not necessarily simultaneously, a central place, where there is a central person or a market, and exchanges take place with or without direct contact of persons who bring things to be exchanged there (Renfrew and Bahn 2000: 351-384).

Migration is an interregional long distance residential move by a group. Migration does not take place at random, but is usually well-planned on the basis of cost-benefit considerations as well as information about potential destination areas obtained through monitoring trips by scouts. The presence of kinsmen in the destination areas is also very important in the decision for migration.

In short, migrants are not likely to move to areas about which they have no information. Migrants tend to proceed along well-defined routes toward a destination, and significant expanses of less desirable areas may be leapfrogged. Therefore, migrants may move over great distances quickly, without leaving any sign in the middle of the routes. Particularly, farmers who depend on a narrow range of highly productive but localised resources are considered to be more likely to migrate long distances quickly in streams toward a destination, than foragers who depend on a broad array of wild food resources. Moreover, migration is not a single event but a process which is often recurrent and bidirectional. Migration streams can continue to flow in a given direction, in spite of considerable change in the circumstances that prompted the initial residential move of people. Kinship linkages and the reduction of obstacles may attract a secondary flow, that is different in goals and composition from the first migrants, and may also cause a counterstream moving back to the migrants' place of origin (Anthony 1990: 899-905; 1997: 22-27).

Given these two possibilities, it can be assumed either that technical knowledge of farming and herding and domesticates were passed on to Egyptian people somewhere in the border area between Egypt and the Levant, or that farmer-herders undertook long distance residential moves from the Levant to Egypt, due to negative stresses in the place of origin, or due to positive attractions in the destination area. It may be that Levantine people immigrated into Egypt with their domesticates and dominated local people or intermingled with them, or that Egyptian people emigrated into the Levant and learnt farming and herding, whereupon they or their descendants returned to Egypt with Levantine domesticates. A problem is that it is difficult to substantiate how these people have contacted and moved, as long as domesticates are the sole focus of study.

Another way of examining the contacts between Egypt and the Levant in the Early-Middle Holocene is to focus on the material culture in both regions. Archaeology has long discussed, while referring to ethnological data, what kinds of human activities are reflected in the distribution of an archaeological material culture. It has been cautiously argued that the uniformity or uniqueness of a material culture in a region is not necessarily a result of a cultural group's isolation or autonomy, and that interregional similarities in material culture are not necessarily a result of frequent human interaction and intermingling or human migration between the regions, even though the movements and contacts of human groups could certainly bring about change and diffusion of material culture (*e.g.*, Clark 1994; David and Kramer 2001: 360-377; Hegmon 1998; Stark 1998). Therefore, it is necessary to know the characteristics, distribution, and changes of material culture in Egypt and the Levant, in order to reconstruct portions of the possible interregional networks which may have enabled migration and to examine whether the diffusion of knowledge and domesticates or the migration of farmer-herders led to the beginning of farming and herding in Egypt. In the following, Neolithic pottery and stone tools in Egypt and the southern Levant will be overviewed, and the chronological relationship between material items of Egypt and the southern Levant will be considered (**Table 8.1**).

8.3. A brief overview of diagnostic Neolithic material items in Egypt and the southern Levant

8.3.1. Pottery

As for pottery, the Neolithic pottery of Lower Egypt as represented at the Fayum and Merimde Beni Salama is rather different from contemporaneous Levantine pottery in terms of shape, surface treatment, and decoration. The earliest pottery-bearing Neolithic culture in the southern Levant is the Yarmukian, and it is dated to around 6500-5700 cal.BC according to the latest data (Garfinkel 2008). The spatial distribution of the Yarmukian spans all the topographical units of the southern Levant

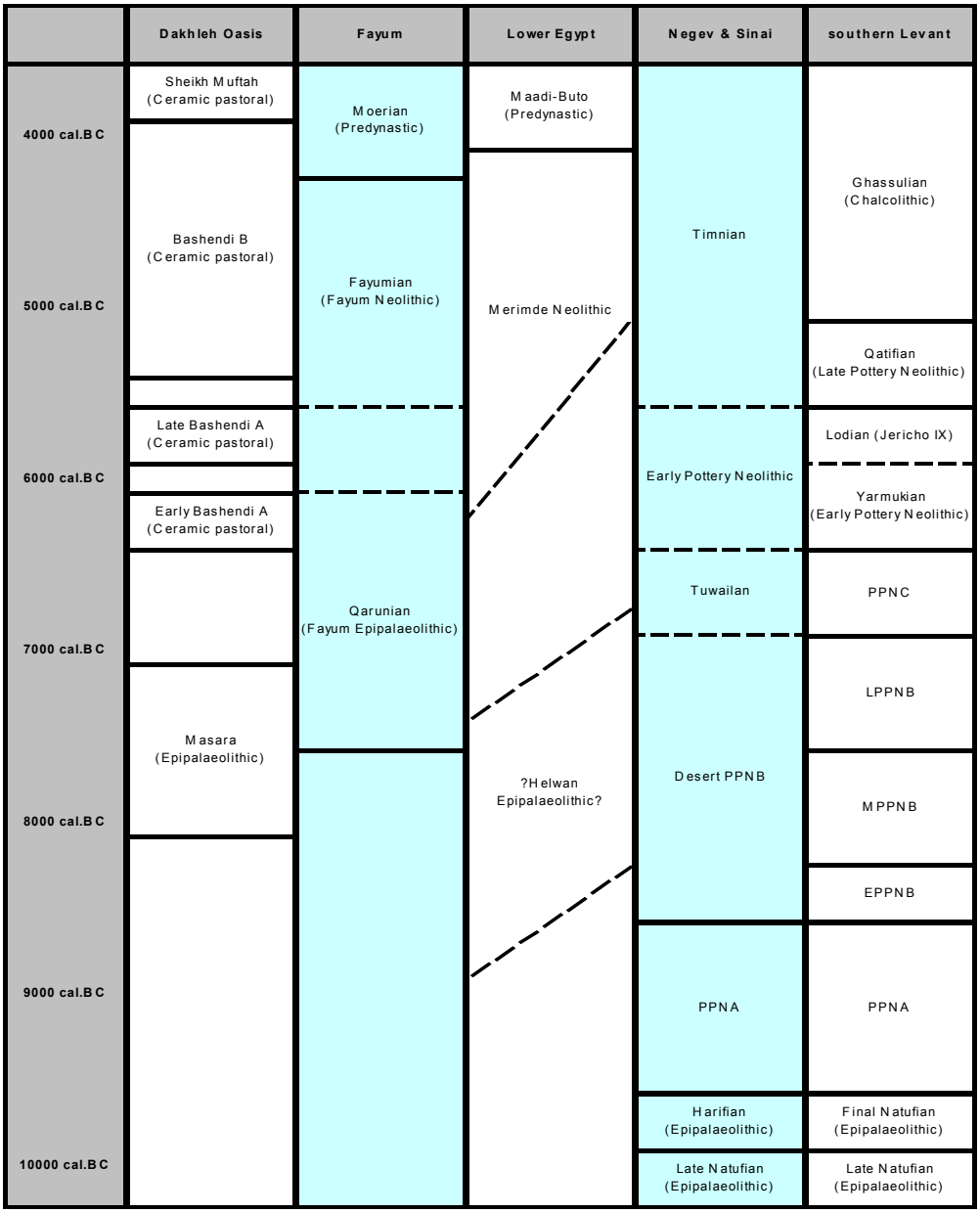

Table 8.1. Chronology of the regions mentioned in this chapter

including the Mediterranean coastal plain, the mountainous ridges and valleys, the Lower and Middle Jordan Valley and the Jordanian Plateau, but there is no evidence for the Yarmukian in the Negev (Gopher 1995; Gopher and Gophna 1993; Kafafi 1993; 1998). Although a considerable number of undecorated pottery vessels are present in the Yarmukian, the most conspicuous vessels are bowls and necked and loop-handled jars of various sizes with red-painted and incised decoration. The incised decoration is composed of horizontal lines, zigzag lines, and herringbone patterns. Parallel horizontal lines forming a frame are incised around the neck of jars and close to the rim of bowls, and parallel zigzag lines forming a frame

are incised beneath the two horizontal lines along the perimeter of the vessel, and then the frames are filled with short incisions of the herringbone pattern, while leaving the incised areas unpainted (Garfinkel 1993: 118-120; 1999: 16-96; Gopher and Gophna 1993: 307-317). In the Neolithic of Lower Egypt, such elaborately decorated pottery vessels are absent and the majority are undecorated and handleless. A limited number of pottery sherds from the earliest level (*Urschicht*) of Merimde Beni Salama do have large incised herringbone pattern decoration, loop handles, and lug handles (Eiwanger 1984: 30-31, 32, 38, and pls.18-21 and 36), suggesting some cultural connection to the Yarmukian. However, due to a problematic radiocarbon date of the earliest level (*Urschicht*) of Merimde Beni Salama as mentioned in Chapter 2, its chronological relationship with the Yarmukian is unclear.

In Egypt, as described in Chapter 2, there had been a long tradition of pottery making in the Saharo-Sudanese culture in the Nabta-Kiseiba region since the 9th millennium cal.BC, and in the Bashendi culture in the Dakhleh Oasis region since the 7th millennium cal.BC. Whereas the pottery in the Nabta-Kiseiba region is generally characterised by dotted wavy line decoration, the pottery in Dakhleh Oasis and adjacent regions in the late 7th - 6th millennia cal.BC includes thin-walled vessels with rocker stamp decoration, red-polished vessels, and red-polished vessels with black rims as well as undecorated simple vessels. Notably, undecorated vessels are a new variety which appeared in these regions in this period, and it is argued that they did not spread to the north of these regions (Hope 2002; Kuper 1995; Riemer and Kindermann 2008; Riemer and Schönfeld 2007). Such wide varieties in surface treatment and decoration are not known in the Neolithic pottery of Lower Egypt. Either red/black-polished or not is the variety which is usually seen in the surface treatment of pottery in the Lower Egyptian Neolithic. Given that the general crudeness of undecorated vessels is a common characteristic, the Neolithic pottery of Lower Egypt may have partially originated from this Egyptian Western Desert tradition, but a variety of body shapes and sizes seen in the Neolithic pottery of Lower Egypt are dissimilar to those in Dakhleh Oasis and adjacent regions (Warfe 2003: 190-191). In terms of a variety of body shapes and sizes, the Neolithic pottery of Lower Egypt resembles that of the Yarmukian in the southern Levant. For instance, flat plates, bowls/jars with flat bases, and miniature vessels with pedestals seen in the Fayum Neolithic are absent in Dakhleh Oasis and adjacent regions but are not uncommon in the Yarmukian (Garfinkel 1999: 16-96).

8.3.2. Stone tools

As for stone tools, bifacially-retouched, concave-based projectile points, which are particular to the Lower Egyptian Neolithic culture, have been found in the contemporaneous Egyptian Western Desert though in limited numbers, and in the Egyptian Nile Valley in the subsequent Predynastic period, but have never been found in the Levant, Negev and Sinai. Therefore, previous scholars have concluded that Levantine influence on the material culture of the earliest Neolithic farming-herding community in the Fayum was very slight, even though a package of Levantine domesticates was attested there. It has been believed that the Fayum Neolithic material culture developed autonomously somewhere in the Nile Valley or the Western Desert and that the indigenous people would have been willing to adopt foreign domesticates (Wenke *et al*. 1988: 47).

However, it is more important to know whether Egyptian and Levantine Neolithic stone tools which are closely related to farming activities share common characteristics. Flint sickle blades in Egypt and the Levant are quite remarkable due to their unique morphology and visible use wear, whereas it is not easy to identify hoes. Hence, hoe-like items have often been described as axes. Some use wear analyses have demonstrated that a considerable number of Neolithic flint axes found at different sites in the southern Levant were indeed for wood working and none of them were used as hoes

(Barkai 2005; Barkai and Yerkes 2008). Therefore, it is possible that flint hoes did not exist at all. Nonetheless, since flint axes appeared in the southern Levant and Egypt when farming began, axes are considered to be related to farming activities like shrub clearance.

Egyptian Neolithic sickle blades, as represented by those found in the Fayum, Merimde Beni Salama, and El Omari, are deeply and densely serrated blades made from bifacially-retouched leaf-shaped points or rectangles. It is not certain exactly when they first appeared in Egypt. In Merimde Beni Salama, bifacially-retouched, serrated sickle blades started to appear in the second earliest level (*Schicht II*) of the stratigraphy (Eiwanger 1988: 37 and pls.37-38), and increased in the subsequent levels (*Schichten III*, *IV* and *V*) (Eiwanger 1992: 48-49, fig.15, and pls.69-73). Since the earliest level (*Urschicht*) is radiocarbon-dated to around 4900-4500 cal.BC and the latest level (*Schicht V*) is radiocarbon-dated to around 4500-4000 cal.BC (Hendrickx 1999: 60), these sickle blades would fall in the 5th millennium cal.BC. El Omari, which produced 13 bifacially-retouched, serrated sickle blades (Debono and Mortensen 1990: 45 and pl.18), is radiocarbon-dated to around 4700-4200 cal.BC (Hendrickx 1999: 61). As mentioned in Chapter 5, now that Kom W and Kom K in the Fayum, which produced the largest number of bifacially-retouched, serrated sickle blades, are radiocarbon-dated to around 4600-4200 cal.BC, these sickle blades should also fall in the middle of the 5th millennium cal.BC at least. It is known that such sickle blades persisted in the Predynastic Maadi culture of Lower Egypt and the Badarian and Naqada cultures of Middle and Upper Egypt until the early 4th millennium cal.BC, though they were not numerous (Holmes 1989; Rizkana and Seeher 1988: 35, 99-100 and pl.73). Besides these sickle blades of the 5th-4th millennia cal.BC, two fragments of bifacially-retouched, serrated sickle blades have been found at a site in Abu Gerara, which is approximately 80 km to the northeast of Dakhleh Oasis and gives no evidence of farming, and the site is radiocarbon-dated to around 5600-5500 cal.BC (Riemer 2003). Therefore, although the dating clues are not sufficient, it may be assumed that the first appearance of bifacially-retouched, serrated sickle blades in the Fayum would be no later than the middle of the 6th millennium cal.BC, which is around the beginning of the Neolithic human occupation in the Fayum.

On the other hand, sickle blades in the southern Levant have a much longer tradition since the Natufian. According to some synthetic studies of the development of sickle blades (Gopher *et al*. 2001; Rosen 1997: 134-140) (**Fig.8.1**), it was not until the PPNC and the Yarmukian in the 7th millennium cal.BC that sickle blades in the southern Levant were coarsely serrated bifacially on one or two lateral edges. It was in the Lodian (Jericho X) culture, which would probably be regarded as the later phase of the Yarmukian and is dated to the early 6th millennium cal.BC (Garfinkel 1999: 101-102; 2008: 15-21; Gopher and Gophna 1993: 339-343), that the body surface of deeply and densely serrated sickle blade was thoroughly retouched bifacially. However, such bifacially-retouched serrated sickle blades disappeared in the subsequent Wadi Raba culture and Qatifian culture of the southern Levant, which are roughly dated to the late 6th - early 5th millennia cal.BC (Gopher 1995; Gopher and Gophna 1993). Considering this trend in sickle blade production in the Pottery Neolithic of the southern Levant and its possible influence on Egypt, it is natural to assume that the first appearance of bifacially-retouched, serrated sickle blades in the Fayum would be no later than the middle of the 6th millennium cal.BC, and that bifacially-retouched, serrated sickle blades or the idea of making such sickle blades would have diffused to Egypt together with Levantine wheat and barley. It follows that such sickle blades persisted for a longer period in Egypt despite the fast disappearance of their Levantine counterparts.

It is not easy to posit a similar sequence of development for Neolithic axes. As described in Chapter 3, Fayum Neolithic bifacial axes are divided into ground and polished ones, polished and flaked ones, and flaked ones. It is assumed on the basis of similar examples in the

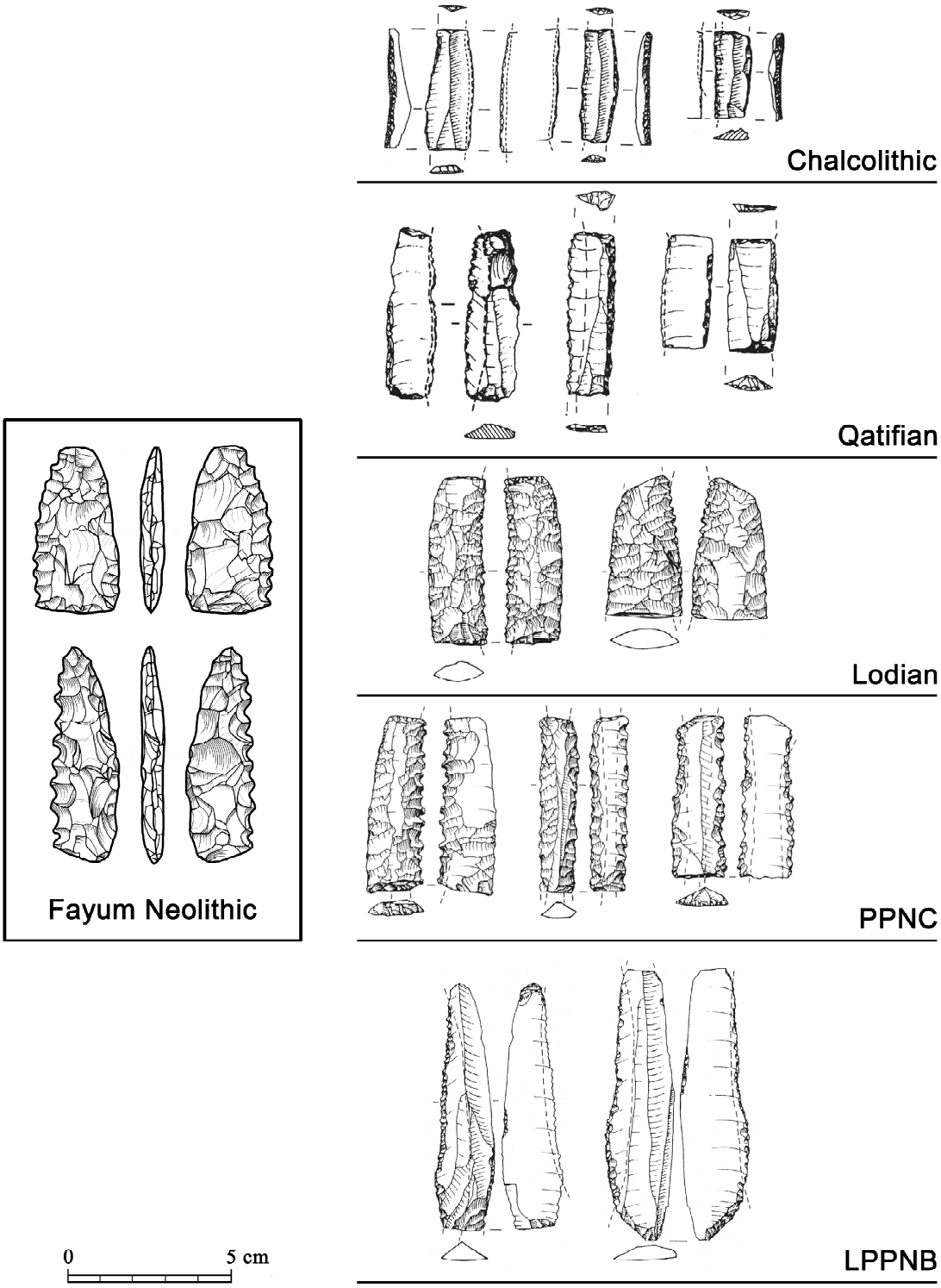

Fig.8.1. Development of sickle blades in the southern Levant (from Gopher *et al*. 2001: figs.4, 6, 7 and 8; Rosen 1997: figs.6.5 and 6.6; Shirai *in press*)

neighbouring region that they would have first appeared in the Fayum in the middle-late 6th millennium cal.BC, even though they were most numerously found at Kom W and Kom K, which are now surely dated to the middle of the 5th millennium cal.BC. In the southern Levant, both bifacially-polished axes and bifacially-flaked axes of rectangular or triangular shape have existed since the 9th millennium cal.BC until the end of the Chalcolithic in the 4th millennium cal.BC (Barkai 2002; 2005; Barkai and Yerkes 2008; Kozlowski and Aurenche 2005: 22-25, figs.1.3.3.1 and 2.2.5.2; Rosen 1997: 93-98). The cutting edges of bifacially-flaked axes in the PPNA period were produced with transverse or tranchet blows, whereas the cutting edges of most axes after the PPNB period were ground and polished, and the tranchet technique was abandoned (Barkai 2002; 2005; Barkai and Yerkes 2008). Therefore, it is not certain exactly when Levantine influence reached Egypt and affected local axe making, if it did. Nonetheless, the bifacially-flaked and partially-polished axes of triangular shape in the Yarmukian/Lodian (*e.g.*, Gopher and Gophna 1993: figs.3 and 7) look particularly similar to Egyptian Neolithic examples.

Even if this possible connection between Egyptian and Levantine sickle blades and axes is really the case, Levantine influence on Egyptian material culture in the period under consideration still looks slight and temporary. Although I have been doubtful about the slight and temporary Levantine influence on the Fayum material culture, I could not clear up my doubt as long as I depended on limited information. The best-known publication about the prehistoric archaeology of the Fayum is Caton-Thompson's report entitled *The Desert Fayum* (Caton-Thompson and Gardner 1934), and most scholars have relied on this report as the most authentic information. However, she did not publish all available data. Another problem is that she was a late visitor to the Fayum, and antiquarians had already collected a large number of prehistoric stone tools. Although parts of such antiquarians' collections were published a long time ago (Currelly 1913; Seton-Karr 1904), they have scarcely drawn the attention of serious scholars, despite the existence of peculiar types of stone tools which were not thoroughly reported by Caton-Thompson.

Re-reading such old publications and my study not only of unpublished Fayum lithic artefacts which were collected by Seton-Karr and Caton-Thompson and presently housed in museums in Egypt and Britain but also of new lithic artefacts collected during my fieldwork in the Fayum revealed that a considerable number of small projectile points, which were comparable to Pre-Pottery Neolithic and Pottery Neolithic small projectile points of the southern Levant, Negev and Sinai, existed in the Fayum. In addition, as already described in Chapter 4, recent research has revealed that the distribution of such small projectile points was not confined to the Fayum alone, although they were not very widespread in the Egyptian Western Desert and Nile Valley. In the following, these unique varieties of projectile points will be described in more detail, and the overall form of contacts between Egypt and the southern Levant, Negev and Sinai in the Early-Middle Holocene will be discussed. There seem to have been two successive waves of diffusion of Levantine projectile points since no later than the 7th millennium cal.BC. The first one is represented by the Helwan points of the Pre-Pottery Neolithic, and the second one is represented by the Nizzanim point, the Haparsa point, and the Herzliya point of the Pottery Neolithic. They are dealt with separately.

8.4. The first wave of diffusion of Levantine material culture to Egypt: The Helwan point

8.4.1. Introduction

The so-called Helwan point is a type of stone projectile point which has been roughly defined by the presence of side notches and a tang. It is assumed that side notches would not only prevent the ligature from interfering with the penetration power of the projectile point but also ensure the projectile point to be firmly attached to the shaft. In so doing, the projectile point

would penetrate deeper and could be retrieved without being detached for reuse. However, since experiments suggest that notching itself would interfere with penetration, notching may possibly be intended to cause easy breakage at the point of the notch and to cause severe wounds (Christenson 1997). The Helwan point was named after the site of Helwan on the east bank of the Nile near modern Cairo, but such projectile points are not numerous in northeastern Africa. Many Helwan points have actually been found in the Levant. Consequently, the Helwan points have been a focus of study in Near Eastern archaeology and have played an important role as cultural and chronological markers in the Levant. In contrast, the study of such projectile points has been neglected in the archaeology of northeastern Africa.

From the African side, Eiwanger has shown that several side-notched and tanged projectile points found at Helwan as well as a side-notched and tanged projectile point found at his excavation site in Merimde Beni Salama in the western Nile Delta were similar to those of the Pre-Pottery Neolithic in the Levant. However, he did not present a clear chronological relationship between northeastern Africa and the Levant (Eiwanger 1983: 63-64). From the Levantine side, Gopher has analysed the geographical and chronological distribution of the Helwan points in the Levant, and argued that the Helwan points first appeared in the northern Levant in the PPNA period and thereafter dispersed southwards to the Negev in the Early PPNB period, eventually diffusing into northeastern Africa across Sinai (Gopher 1994: fig.8.2). However, when and which types of Helwan points appeared in northeastern Africa, and whether Levantine Helwan points actually diffused to northeastern Africa or were somehow imitated there by local people using local raw materials, have not been made clear, because Gopher's quest for the Helwan points stopped in the Negev in the Early PPNB period (Gopher 1989; 1994). No Helwan point has ever been found in northern Sinai, where the route of diffusion is posited.

Therefore, it is significant to re-study information about side-notched and tanged projectile points found in northeastern Africa, in order to complete Gopher's quest and to answer remaining questions. This part of the chapter will present some new data and ideas regarding such projectile points found in northeastern Africa including the Fayum, and will consider whether the diffusion of Levantine Helwan points to northeastern Africa really took place.

8.4.2. Definition and division of Helwan points

As already mentioned, the so-called Helwan point has been defined as the projectile point bearing side notches and a tang (Bar-Yosef 1981: 559; Brézillon 1968: 252), but it actually occurs in a variety of body forms and sizes, and the extent of the retouch on the body surface varies (Gopher 1994: 34-36). Because of this variability, it was argued as early as the 1970s that a single name like the Helwan point to represent so many variants had better be abandoned (Cauvin 1974: 316).

It is presently understood that the variations of the so-called Helwan points depend on time period and region. While middle-sized and elongated Helwan points made on blades or bladelets were prevalent around the middle reaches of the Euphrates in earlier periods, small-sized and wide Helwan points made on blades or flakes were prevalent on the Mediterranean coastal plain and around the Dead Sea later (Gopher 1994: 190*ff*). For this reason, the Helwan point has been divided into the earlier Sheikh Hassan type and the later Nahal Lavan type, named after the centres of their distribution (Adachi 1997). Alternatively, it has recently been argued that the former type, which is regarded as the northern variant of the Helwan point and is roughly dated to the 10th-9th millennia cal.BC, should be named the Sheikh Hassan point, and that the latter type, which is regarded as the southern variant of the Helwan point and is roughly dated to the 9th-8th millennia cal.BC, should be named the Abu Salem point (Kozlowski and Aurenche 2005: 110 and 117). Furthermore, the geographically and

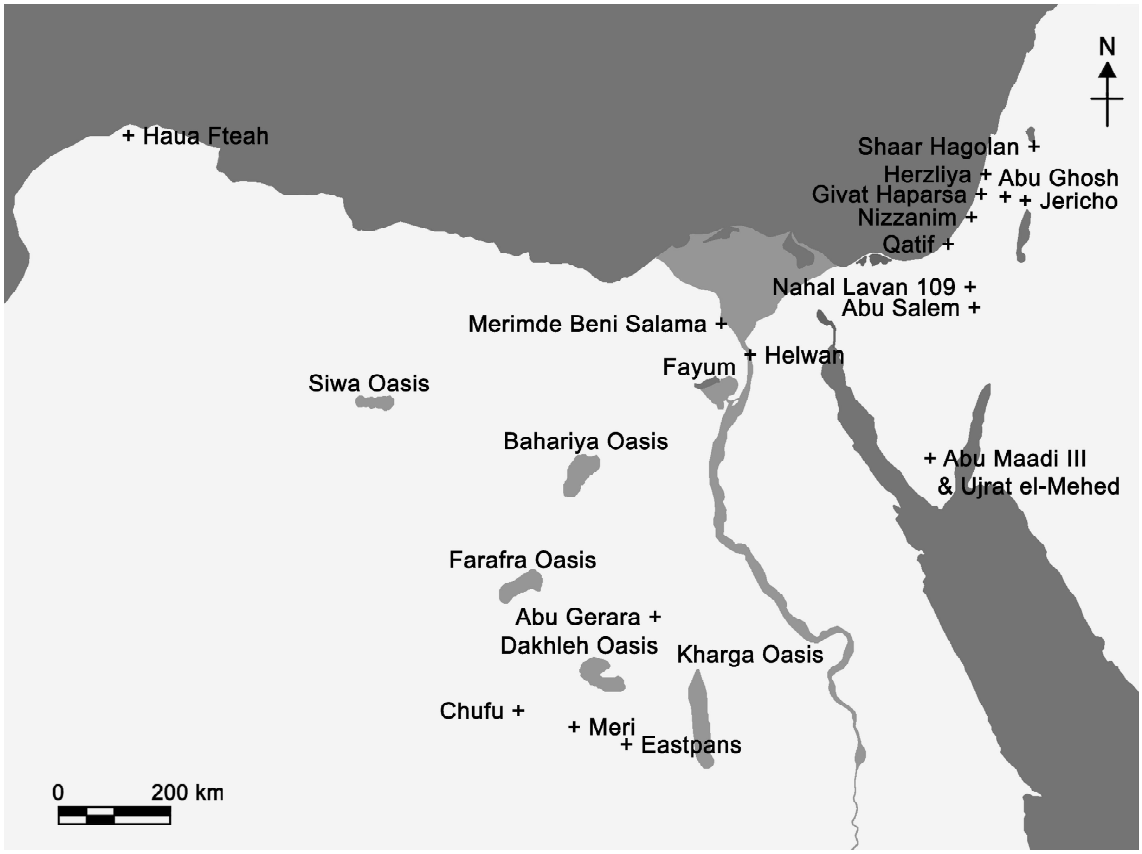

Fig.8.2. Map of the sites mentioned in this chapter

chronologically transitional type between the Sheikh Hassan point and the Abu Salem point is called the Aswad point (Kozlowski and Aurenche 2005: 113). A clear difference between the Sheikh Hassan point and the Aswad point is the presence of barbs in the latter.

This division of the so-called Helwan points is useful to describe apparent variations, but abandoning and re-naming the Helwan point may cause some confusion for those who prefer the conventional name. Therefore, in the following, the name Helwan point remains unchanged and is referred to as the side-notched and tanged projectile point which persisted in the 10th-8th millennia cal.BC in the Levant and Negev, but is divided into the Sheikh Hassan type, the Aswad type, and the Abu Salem type, which correspond to the Sheikh Hassan point, the Aswad point, and the Abu Salem point respectively as described above. On the other hand, side-notched and tanged projectile points found in northeastern Africa will not be called the Helwan point but will merely be described in comparison with these three types. This is because the name Helwan point carries a connotation for Near Eastern archaeologists that it *should* have existed in the 10th-8th millennia cal.BC in the Levant and Negev.

8.4.3. The present state of knowledge regarding the spatial and chronological distribution of side-notched projectile points in northeastern Africa

In northeastern Africa, the findspots of side-notched and tanged projectile points are confined to a few regions (**Fig.8.2**). Merimde Beni Salama is located on the western edge of the Nile Delta, whereas Helwan is located on the east bank of the Nile, and both of these two sites are within a

20 km radius of modern Cairo. The Fayum is a large depression containing Lake Qarun which is fed by the nearby Nile, and is approximately 60 km to the southwest of Cairo. Dakhleh Oasis, Abu Gerara, Chufu, and Eastpans are located in the middle of the desert far to the west of the Nile Valley and are approximately 500-600 km to the southwest of Cairo. No side-notched and tanged projectile points have so far been found to the south of the latitude of Chufu and Eastpans despite extensive research. Haua Fteah is located on the Mediterranean coast of Cyrenaica, and is approximately 1000 km to the northwest of Cairo. It is not certain whether such projectile points have spread further westwards.

Only one side-notched and tanged projectile point has been reported in Merimde Beni Salama (Eiwanger 1983; 1984), and at least eight side-notched projectile points are known in Helwan (Debono and Mortensen 1990; de Morgan 1896; Schmidt 1996). It is presently not certain how many side-notched and tanged projectile points in total have been collected in the Fayum. According to some publications and my museum research (Currelly 1913; Seton-Karr 1904), at least ten side-notched and tanged projectile points have been collected in the Fayum by Seton-Karr and Caton-Thompson. In addition, during my recent field survey in the Fayum, two more side-notched and tanged projectile points were found. A side-notched projectile point has been reported in Dakhleh Oasis (McDonald 1991a), and a side-notched and tanged projectile point has been reported in the vicinities of Dakhleh Oasis, such as Abu Gerara, Chufu, and Eastpans respectively (Gehlen *et al*. 2002; Reimer 2003; 2007). Haua Fteah in Cyrenaica also yielded only one side-notched and tanged projectile point (McBurney 1967).

There are many uncertainties about the context of discovery and possible date of individual artefacts. The site of Helwan has been visited and plundered by antiquarians since the late 19th century, and the site itself has been destroyed by the expansion of the modern town and roads. Many lithic artefacts have been collected on the surface, and the majority of artefacts are microlithic bladelets, dominated by arch-backed and scalene forms. On the basis of this technological feature, the Helwan industry has been approximately related to the Epipalaeolithic Mushabian/Ramonian of the Negev and Sinai, and the so-called Helwan points have been argued as resembling those of the Sinai PPNB (Schmidt 1996). However, no radiocarbon dates which support these arguments have been obtained in Helwan. Moreover, it is not certain whether more types of projectile points other than the side-notched projectile points existed in Helwan.

The side-notched and tanged projectile point at Merimde Beni Salama has been obtained through trench excavation. The layer in which the projectile point was found was dated to approximately 4900-4500 cal.BC by radiocarbon dating, but the excavator has argued that this radiocarbon date was unacceptably young because the majority of artefacts from this layer were microlithic, which is not consistent with the lithic industries of the 5th millennium cal.BC known in other parts of northeastern Africa. Accordingly, it has been suggested that the layer in question should be dated to the 6th millennium cal.BC (Eiwanger 1988: 53-54). Besides this radiocarbon dating problem, it seems odd that the layer in question does not contain any other formal projectile points at all despite the presence of thousands of lithic artefacts. Therefore, one must wonder if the only one side-notched and tanged projectile point in this layer was a stray artefact which was accidentally included in this layer.

As far as I know, the Fayum has produced the largest number of side-notched and tanged projectile points in northeastern Africa. As described in previous chapters, two distinct cultures in the Early-Middle Holocene are known in the Fayum. The earlier is the Epipalaeolithic (*ca.* 7500-6100 cal.BC), which is characterised by the predominance of backed bladelets, and the later is the Neolithic (*ca.* 5700-4200 cal.BC), which is characterised by the presence of various unifacially/bifacially-retouched, formal tools. Some diagnostic artefact types of each culture found by excavations have been securely dated. On the other hand, many

types of lithic artefacts remain undated, because they have been collected only on the deflated desert surface, and because it is common in the Fayum that artefacts from different periods are found mixed up on the surface. Therefore, it is difficult to determine whether such undated surface artefacts belong to the Epipalaeolithic or Neolithic industry. All side-notched and tanged projectile points found in the Fayum are also such undated types of artefacts. Undated small projectile points which are similar in body size and body surface retouch to the side-notched and tanged ones are generally abundant in the Fayum (Currelly 1913: pl.XXVIII), and are particularly numerous at some sites in the Fayum like Site V and Camp II (Caton-Thompson and Gardner 1934: 75-77 and pl.LI), and actually, side-notched and tanged projectile points have been found at these sites. The rarity of side-notched and tanged projectile points in contrast to the general abundance of other types of small formal projectile points in the Fayum is quite remarkable.

A side-notched projectile point reported in Dakhleh Oasis is approximately dated to the Bashendi A period (ca.6400-5700 cal.BC) (McDonald 1991a). A side-notched and tanged projectile point reported at Abu Gerara may be dated to around 5600-5500 cal.BC (Riemer 2003: 86-88), and a side-notched and tanged projectile point reported at Chufu may be dated to the first half of the 6th millennium cal.BC (Riemer 2007a: 521-522). A side-notched and tanged projectile point reported at Eastpans may be dated to approximately 5100-4950 cal.BC, but some associated artefacts seem to suggest that the assemblage can be dated slightly earlier (Gehlen *et al*. 2002: 96-97). The rarity of side-notched and tanged projectile points in contrast to the abundance of other types of small formal projectile points is also the case in this region.

A side-notched and tanged projectile point from Haua Fteah in Cyrenaica may probably be dated to as late as 5800-5400 cal.BC by radiocarbon dating of the layer in which it was found (McBurney 1967: 274). The rarity of side-notched and tanged projectile point in the lithic assemblage of the layer is noted there as well.

8.4.4. The manufacture and form of the side-notched projectile points in northeastern Africa

As for the manufacture and form of the side-notched and tanged projectile points found in northeastern Africa, there is some variation between sites.

Among the eight complete or nearly-complete side-notched projectile points in Helwan (**Fig.8.3**) (originally Schmidt 1996: fig.2), six of eight (points 2, 3, 4, 6, 7, and 8 in **Fig.8.3**) are apparently made on bladelets, and apart from notches on lateral edges, there is few or no facial retouch. These are the features of the Sheikh Hassan type and the Aswad type. On the contrary, two of the eight points (points 1 and 5 in **Fig.8.3**) look different in terms of the extent of facial retouch. They are thoroughly retouched on at least one face of the body. Such facial retouch is unusual in the Sheikh Hassan type and the Aswad type. One of the eight (point 3 in **Fig.8.3**) seems to lack a tang and has side notches close to its base. Hence it looks more like the El-Khiam point, which is defined as the projectile point with side notches close to its concave- or straight-retouched base (Bar-Yosef 1981: 559; Brézillon 1968: 319-320; Gopher 1994: 32-34).

The Merimde specimen [I.1106] (**Fig.8.4**) (originally Eiwanger 1984: 111 and pl.57) shows the characteristics of the Abu Salem type. The body is well retouched not only on one face but also around the projectile edge and tang, and has pointed barbs fashioned by a pair of notches that form the tang. A long tang of the Merimde specimen is the only unusual thing in comparison with the Abu Salem type. Despite this difference, as the excavator of Merimde has shown (Eiwanger 1983: fig.2), the Merimde specimen is certainly comparable to those found at Nahal Lavan 109 and Abu Ghosh.

Concerning the Fayum specimens, among the four side-notched and tanged projectile points (**Fig.8.5**-1: UC 3264 from Site V, **Fig.8.5**-3: UC3265 from Site V, **Fig.8.5**-4: UC3781 from Dimai and **Fig.8.5**-6: UC3759 from Site N) which were collected by Caton-Thompson and are presently housed in the Petrie Museum of

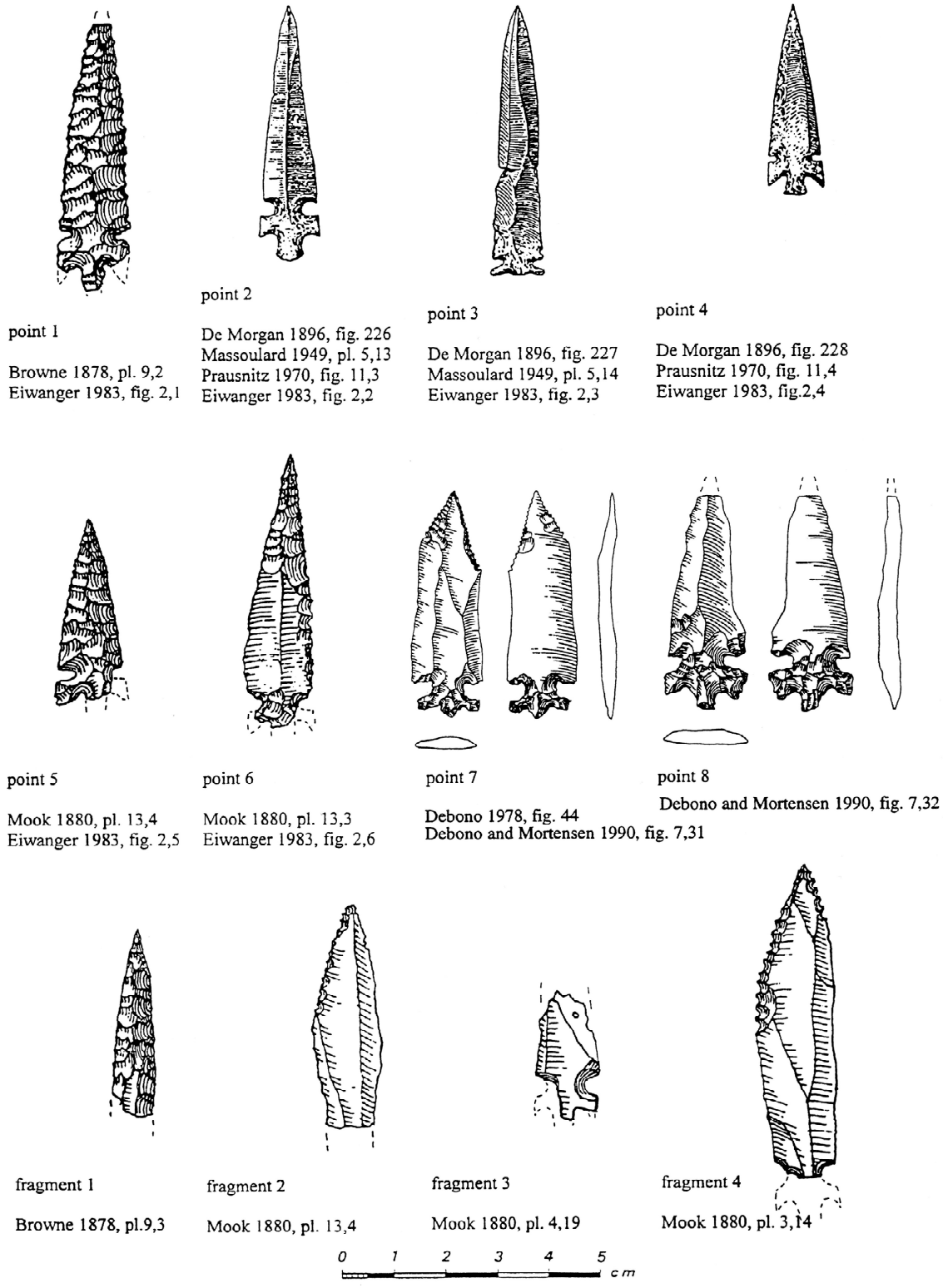

Fig.8.3. Side-notched projectile points from Helwan (from Schmidt 1996: fig.2)

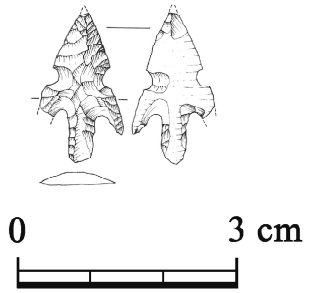

Fig.8.4. A side-notched and tanged projectile point from Merimde Beni Salama (from Eiwanger 1984: pl.57)

Egyptian Archaeology in University College London, two (**Fig.8.5**-4 and -6) are thoroughly retouched on both faces, and the rest (**Fig.8.5**-1 and -3) are well retouched on lateral edges. Poorly-made barbs and well-made tang of two elongated points (**Fig.8.5**-3 and -4) give an impression that they are similar to the Sheikh Hassan type. In contrast, one (**Fig.8.5**-6) is close to the Aswad type in terms of body form and barbs fashioned by a pair of notches that form the tang, and resembles Helwan specimens (points 1 and 5 in **Fig.8.3**). It also seems to resemble two side-notched projectile points (CG63875 and CG63876) which were collected by Seton-Karr and are presently housed in the Egyptian Museum in Cairo (Currelly 1913: pl.XXVIII), though CG63875 has a long tang.

A side-notched and tanged projectile point found at Caton-Thompson's Camp II during my recent field survey in the Fayum (**Fig.8.5**-2) closely resembles the Merimde specimen in terms of manufacture, body form, and the extent of surface retouch. Another side-notched and tanged projectile point found at Site XA during the recent survey in the X Basin area (**Fig.8.5**-5) closely resembles one of Caton-Thompson's Fayum specimens mentioned above (**Fig.8.5**-6). It is closer to the Aswad type in terms of body form, but is different from the Aswad type in terms of thorough bifacial retouch.

Most of the Fayum specimens are made on local flint. Its colour ranges from dark brown to

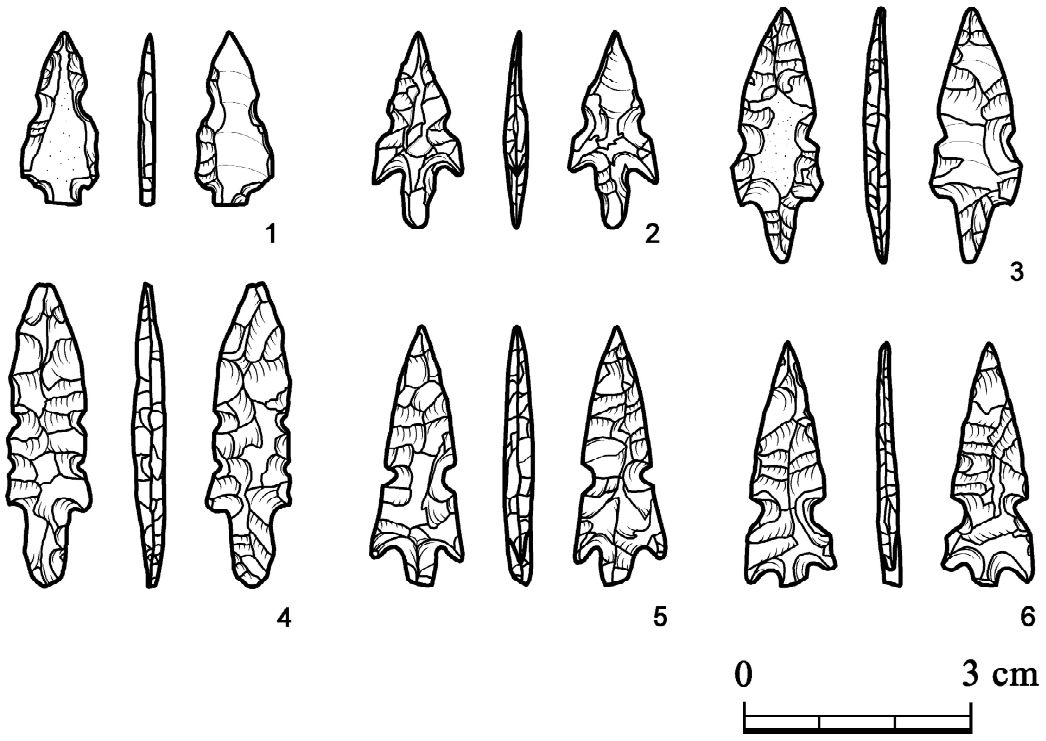

Fig.8.5. Side-notched and tanged projectile points from the Fayum

light brown. In the Fayum, such flint is found scattered in the form of elongated pebbles of approximately 5-7 cm long in Pleistocene gravels on rocky escarpments which are within an easy walking distance from Epipalaeolithic and Neolithic habitats. Only one of the Fayum specimens (**Fig.8.5**-5) is made on white chalky flint, and its source area is still unknown.

It is not certain that a side-notched projectile point reported in Dakhleh Oasis (McDonald 1991a: fig.3-e) had a tang, but another side-notched and tanged projectile point reported at Abu Gerara (Riemer 2003: fig.8-no.8) resemble the Dakhleh specimen in terms of body form and thorough facial retouch, and they are very similar to the Abu Salem type. On the other hand, a side-notched and tanged projectile point reported at Chufu (Riemer 2007a: fig.9-no.3) and another side-notched and tanged projectile point reported at Eastpans (Gehlen *et al*. 2002: fig.7-no.3) resemble each other in terms of body form, thorough facial retouch, and presence of barbs. Their elongated body form is closer to that of the Aswad type. A side-notched and tanged projectile point found at Haua Fteah (McBurney 1967: fig.IX.15-no.10) also has an elongated body and well-made barbs, and thus resembles the Chufu and Eastpans specimens.

In summary, although the sample size is very small, it seems that the Aswad type and Abu Salem type of side-notched projectile point are more widely spread in northeastern Africa than the Sheikh Hassan type. As mentioned earlier, given that the Abu Salem type was widespread in the southern Levant and the Aswad type was widespread in the central Levant, whereas the Sheikh Hassan type was distributed mainly in the northern Levant, it is no surprise that the Aswad type and the Abu Salem type spread farther in northeastern Africa.

8.4.5. The time gap between Levantine Helwan points and African side-notched projectile points

The dates of the side-notched and tanged projectile points found in northeastern Africa and their sporadic occurrence are really problematic, if their cultural connection to those of the southern Levant and Negev is assumed. Many of the side-notched and tanged projectile points in northeastern Africa have been surface-collected and undated. The side-notched projectile points found in isolation in remote places like Dakhleh Oasis and its vicinities and Haua Fteah are all roughly dated to the first half of the 6th millennium cal.BC. This seems to be rather later in date than those found in the Levant and Negev, even if the long distances to be traversed for the diffusion of artefact or technique/knowledge between the Levant/Negev and the lower latitude of northeastern Africa and between the Levant/Negev and Cyrenaica are taken into account. Therefore, a considerable time gap between the Helwan points of the Levant/Negev and some dated African side-notched and tanged projectile points must be explained, while considering undated side-notched and tanged projectile points found in Helwan and the Fayum.

It is probable that the undated side-notched and tanged projectile points found in Helwan and the Fayum are relatively earlier than the first half of the 6th millennium cal.BC, if they originated from the southern Levant and Negev. Indeed, some of the side-notched and tanged projectile points with few or no facial retouch found in Helwan (points 2 and 4 in **Fig.8.3**) have no comparable example at other sites in northeastern Africa. A side-notched projectile point in Helwan (point 2 in **Fig.8.3**) resembles the El-Khiam point, which is considered to be earlier in date than the Helwan point in the southern Levant (Bar-Yosef 1981: fig.3; Gopher 1994: fig.6.6). These facts may suggest that the Helwan specimens are earlier in date than most other bifacially-retouched ones. Furthermore, as mentioned earlier, the time span of the Fayum occupation is known to be between 7500 cal.BC and 4200 cal.BC, and hence it is possible that the undated Fayum side-notched and tanged projectile points fall in the late 8th or early 7th millennium cal.BC. If these assumptions regarding the dates of side-notched projectile points found in Helwan and the Fayum are right, then a time gap between the side-notched and tanged projectile points of the Levant/Negev and

some dated African side-notched and tanged projectile points found at other sites in northeastern Africa can be filled.

The timing of the disappearance of the Helwan points in the southern Levant and Negev may also have to be reconsidered. It has been argued that the Helwan point disappeared from the southern Levant and Negev during the Middle PPNB and did not persist until the Late PPNB (Gopher 1994: 190*ff*), and this argument seems to be widely accepted at present. However, there are still ambiguities in the argument on the spatial and chronological distribution of the Helwan points. Many sites in the southern Levant and Negev which have produced the Helwan points have not been securely radiocarbon-dated (Gopher 1994: 231-232). Moreover, sites like Abu Maadi III and Ujrat el-Mehed in Sinai, which are most likely to be dated to the Late PPNB, have yielded side-notched and tanged projectile points, but they have been treated as a derivative of the Helwan point or the Jericho point and given a different type name (Gopher 1994: 57-62, 133-135, and 202-204). These facts may allow another proposition that the Helwan points possibly persisted well into the Late PPNB in the Negev and Sinai, and this proposition sounds more reasonable in the light of the situation in northeastern Africa.

8.5. The Ounan points and unifacially/bifacially-retouched projectile points in northeastern Africa, Sinai, the Negev and southern Levant

In order to better understand the appearance and development of side-notched and tanged projectile points in northeastern Africa, the presence of other types of projectile points in northeastern Africa and their possible connection to Levantine projectile points must be mentioned here. As described in Chapter 6, tanged projectile points made on bladelets in the Epipalaeolithic cultures of North Africa in the Early Holocene have been defined as the Ounan points (Tixier 1963). According to the latest research, the chronological distribution of the Ounan points in northeastern Africa is between 8000 cal.BC and 6500 cal.BC or somewhat later (McDonald 2003: 57*ff*; Riemer *et al*. 2004: 14).

On the other hand, the southern Levant, Negev and Sinai had a longer tradition of making projectile points on blades or bladelets. Tanged projectile points similar to the African Ounan points existed in the Epipalaeolithic Harifian industry of the Negev and Sinai in the 10th millennium cal.BC, and these points were also named the Ounan points by an archaeologist who had worked in the Sudanese Nile Valley and hence had good knowledge of the Epipalaeolithic of north Africa (Marks and Scott 1976), even though there is a considerable time gap between the African examples and the Harifian ones. Despite this problem, the name Ounan point was adopted by other Near Eastern archaeologists when the Harifian industry was dealt with (Goring-Morris 1987; 1991; Kozlowski and Aurenche 2005: 106). Such Ounan point-like projectile points existed in the PPNA of the southern Levant, and they were named the Jordan Valley point (Kozlowski and Aurenche 2005: 112; Nadel *et al.* 1991). From the end of the 9th millennium cal.BC onwards, projectile points made on blades or bladelets became morphologically more elaborate by the application of further edge retouch. The projectile points of the PPNB include the Jericho point, which is characterised by a pair of down-turned barbs and a tang of a triangular, trapezoid, or elliptical form, the Byblos point, which is characterised by a tang set off from the body by two shoulders at an obtuse angle, and the Amuq point, which is characterised by its elongated leaf-shape. Their smaller variants, which have been named the Haparsa point, the Nizzanim point and the Herzliya point respectively, appeared in the subsequent Pottery Neolithic from the late 7th millennium cal.BC onwards. These small projectile points are often unifacially or bifacially retouched (Baird 2001: 320*ff*; Bar-Yosef 1981: 559-561 and fig.3; Gopher 1994: 36-41 and fig.4.9).

There seem to be few morphological differences between the Byblos point and the

contemporaneous African Ounan point. Furthermore, in the late 7th - early 6th millennia cal.BC, the region to the north of Dakhleh and Kharga Oases saw the appearance of unifacially/bifacially retouched small projectile points (*e.g.*, Barich and Lucarini 2002; 2005; Kindermann 2002; 2004), which are reminiscent of the Levantine Pottery Neolithic small projectile points, and they are collectively called the '(bi)facial techno-complex' (Riemer 2007a; 2007b). Therefore, it is probable that the development of tanged projectile points since the 10th-9th millennia cal.BC were actually almost synchronous across the southern Levant, Negev, Sinai, and northeastern Africa, and that the barbs seen in the Jericho point and the side-notches seen in the Helwan points as well as the bifacial retouch commonly seen in small projectile points of the Pottery Neolithic were major technological innovations in the course of the 8th and 7th millennia cal.BC.

As described, the side-notched and tanged projectile points in northeastern Africa certainly share some features with the Aswad type and the Abu Salem type in the southern Levant and Negev, but the African side-notched and tanged projectile points are not precise copies of the Aswad type and the Abu Salem type. Bifacial retouch is generally more common in the African side-notched and tanged projectile points, and their appearance was much later in date. Side-notched and tanged projectile points in the region around Dakhleh Oasis seem to belong to the assemblage of the unifacially/bifacially-retouched, tanged or leaf-shaped small projectile points that appeared and developed in the same region in the late 7th - early 6th millennia cal.BC. The sequence of the appearance of individual innovations suggests that northeastern Africa has always been slow to adopt these innovations but has developed unique variants autonomously by adopting and combining these innovations. In other words, it is suggested that technological innovations and the production of unique variants in northeastern Africa have been realised or stimulated by indirect, slightly delayed influences from the southern Levant, Negev and Sinai.

8.6. The second wave of diffusion of Levantine material culture to Egypt: The Pottery Neolithic projectile points

8.6.1. Introduction

As mentioned not only in this chapter but also in Chapter 3 and Chapter 4, in the late 7th - early 6th millennia cal.BC, the regions to the north of Dakhleh and Kharga Oases saw the appearance of unifacially/bifacially retouched, leaf-shaped or tanged small projectile points, which replaced the African Ounan points, and this new technological tradition is named the (bi)facial techno-complex. Such small projectile points are extremely abundant at some sites in the Fayum like Site V, Camp II and the Z Basin slopes (Caton-Thompson and Gardner 1934: 75-79 and pl.LI), but it has been difficult to date them to either the Fayum Epipalaeolithic or Neolithic, because they were collected on the desert surface. As a consequence, they have not drawn much attention from scholars. However, considering the increasing information about the appearance of such small projectile points in the surrounding regions of the Fayum, numerous Fayum examples must be put in this wider geographical context, and their possible date should also be deduced from the sequence of technical and morphological development across these regions.

This part of the chapter will present some new data and will re-evaluate the importance of unifacially/bifacially retouched, leaf-shaped or tanged small projectile points found in the Fayum, which are comparable to those of the Levantine Pottery Neolithic and those of the Egyptian Western Desert (bi)facial techno-complex. Then it will be considered that the (bi)facial techno-complex of the Egyptian Western Desert may actually have spread from the Fayum to the west and the south rather than from the west and the south to the Fayum. It will further be argued that the southward and westward spread of the small projectile points could indicate the dispersal of domesticated sheep and goats from the Fayum in the early 6th

millennia cal.BC.

8.6.2. The study of small projectile points in the Levantine Pottery Neolithic and the Egyptian Western Desert (bi)facial techno-complex

Small projectile points in the Levantine Pottery Neolithic have often been collectively called 'the Late Neolithic points', including the Haparsa point, the Nizzanim point, and the Herzliya point. As already mentioned, they have been defined as the smaller variants of the Jericho point, the Byblos point and the Amuq point, and are usually less than 4 cm in length (**Fig.8.6**). The Haparsa point is characterised by pointed barbs fashioned by a pair of notches that also form a tang, and the shape and length of the tang vary considerably. The Nizzanim point has a tang set off from the body by two shoulders, but the tang is not much narrower than the body and forms a natural continuation of its contour. The Herzliya point is leaf-shaped and has no conspicuous tang (Bar-Yosef 1981: 561; Gopher 1994: 41). The relative frequencies of these three types of projectile points in the lithic assemblages between different sites in the Levant are difficult to understand, but it has been suggested that the Haparsa point tends to increase whereas the Nizzanim point tends to decrease through the Pottery Neolithic period, though the Herzliya point does not seem to follow any clear course (Gopher 1994: 211-220).

Small projectile points similar to these three types certainly existed in the northern half of the Egyptian Western Desert. However, since there are not much quantitative data about the relative frequencies of these three types, it is difficult to know the trend in their appearance in Egypt. For instance, some reports with illustrations of representative artefacts show that the Siwa Oasis region, which is almost on the same latitude of the Fayum, yielded these three types of small projectile points, but no quantitative data have been presented (Cziesla 1989: fig.1; Hassan and Gross 1987: fig.5.4). This is also the case with other regions like Farafra Oasis, Dakhleh Oasis, Kharga Oasis, and Djara (Barich and Lucarini 2002; 2005; Caton-Thompson 1952; Gehlen *et al.* 2002; Kindermann 2002; 2003; 2004; McDonald 2008), which are considered to belong to the (bi)facial techno-complex.

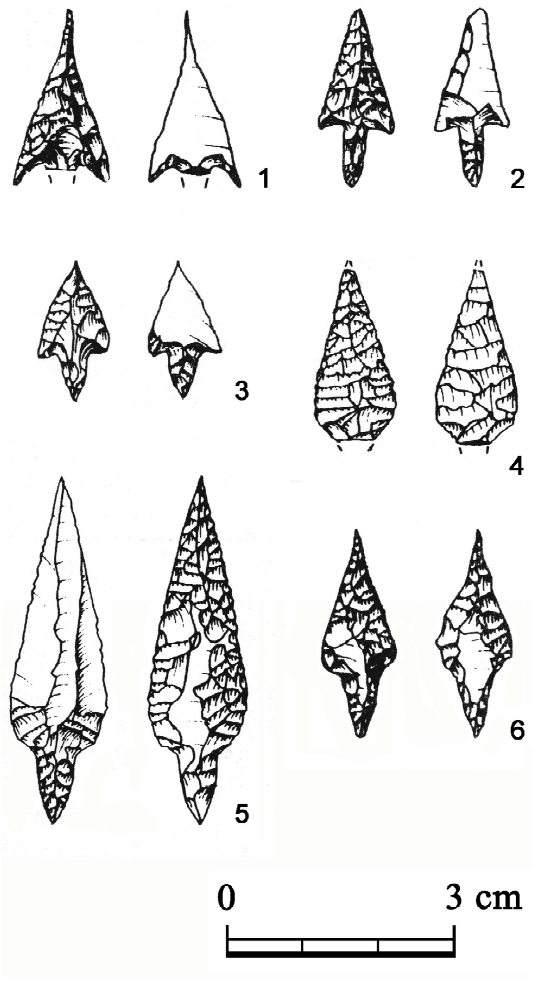

Fig.8.6. Small projectile points of the Pottery Neolithic collected at Nahal Issaron in the Negev. 1-3: Haparsa points, 4-6: Nizzanim points (from Gopher *et al.* 1994: fig.6)

As for the small projectile points which were selectively collected by Caton-Thompson in extremely large numbers at Site V, Camp II and the Z Basin slopes in the Fayum but have remained to be published and dated, there are some quantitative data (Caton-Thompson and Gardner 1934: 75-77 and 84-85). Among 343 small projectile points in her collection, tanged

ones, which are not subdivided into the barbed variety and the shouldered variety in her description, predominate, whereas leaf-shaped ones are apparently very few (**Table 8.2**). I studied parts of Caton-Thompson's collection of the Fayum small projectile points which are distributed to the Egyptian Museum in Cairo, the Petrie Museum in London, the Ashmolean Museum in Oxford, and the Allard Pierson Museum in Amsterdam. Although the projectile points which I studied amount to only one quarter of 343 projectile points, they show that the tanged and barbed variety is slightly outnumbered by the tanged and shouldered variety (**Table 8.3**). The variety of the small projectile points which I collected at Site V, Camp II, Camp II Basin and the Z Basin slopes (**Fig.8.7**-4, 5 and 6, **Fig.8.8** and **Fig.8.9**) as well as those which I studied in the unpublished Caton-Thompson's collection in the Petrie Museum (**Fig.8.7**-1: UC3262 from Site V, **Fig.8.7**-2: UC3407 from Camp II, and **Fig.8.7**-3: UC3412 from Camp II) is comparable to that illustrated by Caton-Thompson (Caton-Thompson and Gardner 1934: pl.LI).

In contrast, in the so-called Bedouin Microlithic assemblages of Kharga Oasis, although the sample is small and surface-collected, leaf-shaped points are predominant, whereas tanged and barbed projectile points are few (Caton-Thompson 1952: 159-164). In addition, in Chufu and Meri to the south of Dakhleh Oasis, although the sample size is very small, leaf-shaped projectile points predominate, whereas tanged projectile points are rare to absent (Riemer 2007a: fig.8).

Therefore, it is understandable that because of the inconsistency in datasets, previous studies have had no other way but to focus on the common technique of unifacial/bifacial retouch on small flakes or bladelets, rather than the detailed morphology of projectile points. Nonetheless, the extreme predominance of tanged projectile points in the Fayum assemblage can be noted as a unique regional feature within the Egyptian Western Desert (bi)facial techno-complex.

	Site V	Camp II	Z Basin slopes	total
tanged	52	189	53	294
leaf-shaped	7	38	4	49

Table.8.2. Number of small projectile points found in three Fayum sites

Site V	those found in museum collection
tanged and barbed	6
tanged and shouldered	8
Camp II	those found in museum collection
tanged and barbed	34
tanged and shouldered	36
Z Basin slopes	those found in museum collection
tanged and barbed	2
tanged and shouldered	8

Table.8.3. Number of small projectile points found in Caton-Thompson's collection in several museums

8.6.3. The possible date of unifacially/bifacially retouched, tanged or leaf-shaped small projectile points in the Fayum

Given the dates of small projectile points in the Egyptian Western Desert (bi)facial techno-complex, the question is whether the Fayum small projectile points are earlier or later in date than the Western Desert examples. One possibility is that the small projectile points under consideration appeared in the Fayum as early as the second half of the Fayum Epipalaeolithic period, which is contemporaneous with the Pottery Neolithic of the southern Levant and the Negev as well as the earliest period of the (bi)facial techno-complex of the Egyptian Western Desert. Another possibility is that they appeared in the Fayum around the beginning of Neolithic human habitation, and hence are later in date than the Western Desert examples.

One negative fact affecting the first possibility is that such small projectile points

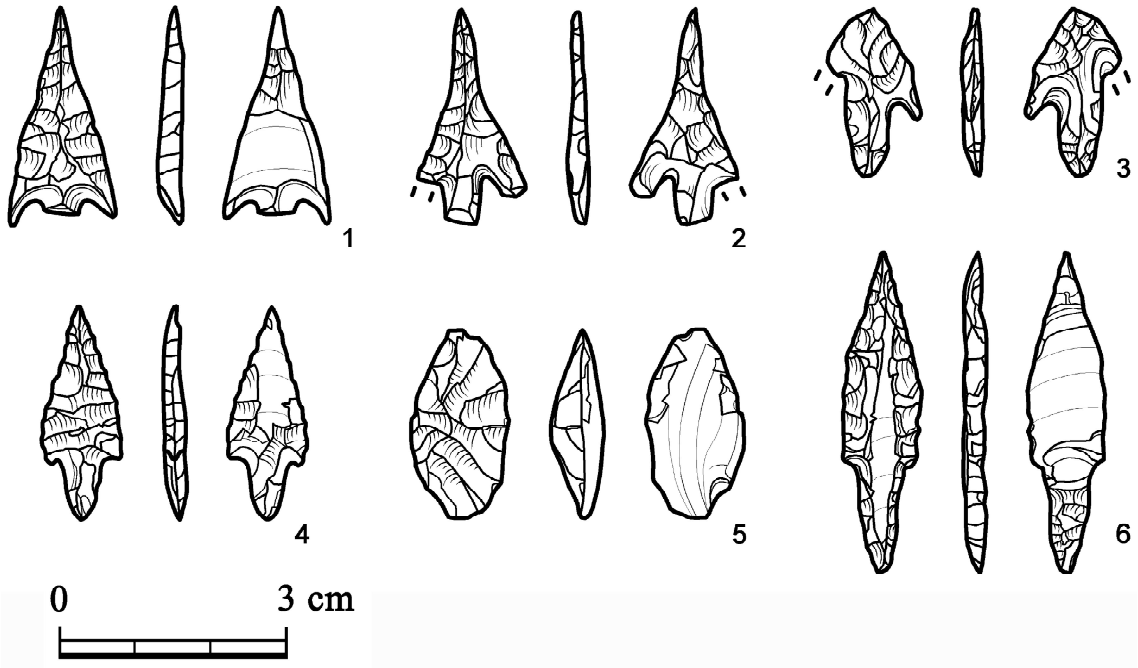

Fig.8.7. Small projectile points from the Fayum (1 from Site V, 2-5 from Camp II, 6 from the Camp II Basin)

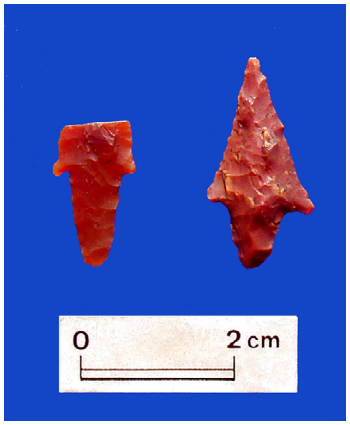

Fig.8.8. Small projectile points from Site V

Fig.8.9. Small projectile points from the Z Basin slopes

have not been found in the Epipalaeolithic sites of Helwan, which are located on the east bank of the Nile to the northeast of the Fayum and thus closer to Sinai. However, as mentioned earlier, the sites of Helwan have not been radiocarbon-dated, and the presence of a projectile point which is comparable to the El-Khiam point suggests that Helwan should be much earlier in date than the Epipalaeolithic sites of the Fayum. Therefore, it may be no surprise if the small projectile points have not been found in Helwan. In the light of the trend in the appearance and disappearance of the three types of small projectile points in the Levantine Pottery Neolithic mentioned above, the predominance of tanged and barbed projectile points in the

Fayum suggests that the Fayum assemblage certainly reflects its geographical and chronological proximity to the southern Levant rather than the Egyptian Western Desert, which has not yielded tanged and barbed projectile points in large numbers. It is probable that the Fayum assemblage is earlier in date than the other assemblages in the Western Desert.

As for the second possibility, it must be noted that only one small tanged projectile point has been found *in situ* at Kom K and Kom W respectively (Caton-Thomson and Gardner 1934: 22, 29 and 39), which are surely dated to the second half of the Fayum Neolithic in the middle 5th millennium cal.BC, and that such projectile points have not been found in any layers of Merimde Beni Salama, which are contemporaneous with Kom K and Kom W. It should be assumed that those projectile points are dated much earlier than the second half of the Fayum Neolithic.

On the whole, it is natural to conclude that the Fayum small projectile points under consideration could be dated between the second half of the Fayum Epipalaeolithic and the first half of the Fayum Neolithic in the late 7th and early 6th millennia cal.BC. This conclusion is significant when the circumstances behind the diffusion of Levantine domesticates to the Fayum are considered, because without this material clue, the discussion would keep going around the problem that Levantine domesticates appear suddenly at Kom K and Kom W in the Fayum in the middle 5th millennium cal.BC. Given this material clue, the diffusion of Levantine domesticates to the Fayum can be reconsidered in the context of possibly almost synchronous developments of peculiar projectile points across the southern Levant, Negev, Sinai and northeastern Africa in the late 7th and early 6th millennia cal.BC.

8.7. The spread of Levantine influence to northeastern Africa in the 7th - 6th millennia cal.BC

In that there may have been almost synchronous developments of similar projectile points across the southern Levant, Negev, Sinai and northeastern Africa since no later than the 7th millennium cal.BC, some considerations must be given to the questions as to how and for what reasons these synchronous developments took place and what kind of human behaviour caused the current distribution of the projectile points under consideration.

8.7.1. The timing of the spread of Levantine influence to northeastern Africa

Regarding the timing of the spread of Levantine influence to northeastern Africa, climatic and environmental changes and demographic changes in the southern Levant in the 7th millennium cal.BC may have played a great role. The 7th millennium cal.BC in the Levant has been known as the time of turmoil called 'the PPNB collapse', and this collapse is said to have started around 6900 cal.BC, which marks the end of the Late PPNB period (Rollefson and Köhler-Rollefson 1989). It has been argued that overaggregation of population and overexploitation of natural resources in the central and southern Levant may have caused unprecedented social stress and environmental degradation, leading to the fission and subsequent restructuring of Neolithic communities (Kuijt 2000; Simmons 2000; Bar-Yosef 2003). As mentioned in Chapter 3, it has also been revealed on the basis of various climatic data in the Eastern Mediterranean that there was a remarkable cooling and drying event in the Levant between 6700 cal.BC and 5900 cal.BC, centring around 6200 cal.BC (Robinson *et al.* 2006; Rohling *et al.* 2002; Rohling and Pälike 2005; Rossignol-Strick 1999). The water level of the Dead Sea dropped and fluctuated radically (Migowski *et al.* 2006), and precipitation in the Negev seems to have

decreased around this period (Goodfriend 1991). Therefore, it is probable that this cooling and drying event drove people in the southern Levant and adjacent regions to better places like the Nile Delta.

In contrast, such dramatic changes in the size and distribution of occupation sites have not been seen in the archaeological record of northeastern Africa in this period. The sites in the Fayum are actually the only well-studied places which are in close proximity to the southern Levant and are surely dated to the 7th millennium cal.BC, but the Fayum sites are not as large nor as sedentary as contemporaneous southern Levantine sites. Therefore, Bar-Yosef's suggestion that the PPNB collapse could have triggered the dispersal of Levantine people and their subsequent colonisation of the Nile Delta (Bar-Yosef 2003: 122) is presently an unsubstantiated assumption, because no site of the 7th millennium cal.BC has been found there.

If the undated side-notched and tanged projectile points found in Helwan and the Fayum can be dated to the 7th millennium cal.BC, and if they were not locally made in Helwan and the Fayum, then it is possible to argue that Levantine farmer-herders, armed with the Helwan points, came to colonise the Nile Delta and Nile Valley in order to obtain more arable lands or pastures. However, this colonisation assumption is very difficult to support, firstly because no evidence for wheat/barley farming and sheep/goat herding has been found in Merimde Beni Salama and the Fayum before the 6th millennium cal.BC, and secondly because no evidence of conflict and violent death has been found in any part of northeastern Africa in the 7th millennium cal.BC, though such evidence may be buried deeply in the alluvium plain of the Nile Delta and Nile Valley.

Furthermore, as described earlier, the side-notched and tanged projectile points in northeastern Africa are not precise copies of those of the southern Levant and Negev, and are extremely rare at most known sites in northeastern Africa. In the case of the southern Levant and Negev, where both side-notched and unnotched projectile points existed, the reason for their existence may be attributed to a difference in function. In the case of northeastern Africa, by contrast, side-notched and tanged projectile points had never become prevalent despite the assumed assets of side notches, and do not seem to have been an option for functionally different uses. It is suggested that the side-notched and tanged projectile points in northeastern Africa were foreign in origin, and that they were not necessarily selected and evolved because of their functional assets, in comparison with other types of projectile points, but rather were made and used as a kind of novelty item.

8.7.2. The stylistic behaviour of foragers

It is difficult to say why side-notched projectile points were so special unless they were functionally superior. Therefore, stylistic and symbolic aspects of projectile points must be considered for a better understanding of the background to the appearance and development of new types of projectile points in northeastern Africa. An observation that the Helwan points in the southern Levant tended to be made by using translucent chalcedony or other fine-grained materials, which might reflect aesthetic and symbolic concerns (Goring-Morris and Belfer-Cohen 2001: 259), is of particular interest in this context. In addition, based on the fact that about 1000 nearly identical, high quality Helwan points of the Abu Salem type were found at Nahal Lavan 109 in the Negev, it has been argued that there was a workshop of a small group of persons or a single craftsman for the production of the Helwan points (Gopher 1994: 159 and 193). Such an extraordinary concentration of the Helwan points suggests that they were in great demand and something special. It sounds likely that this site may have served as an aggregation locality for exchange and redistribution (Kuijt and Goring-Morris 2002: 385). It is possible that some unknown stylistic properties or symbolic meanings which the Helwan points bore were appreciated in northeastern Africa.

As described in Chapter 4, an ethnological

study has demonstrated that it was not uncommon for projectile points to move over 100 km by exchange as well as through movement of the owner (Wiessner 1983). Although the physical distance between the Negev and Lower Egypt is far more than 100 km, it is possible that projectile points travelled these areas in prehistoric times. Using Wiessner's terms, while the projectile points of the emblemic style would disperse in a limited area in order to solidify the ties between kin groups, the projectile points of the assertive style may possibly disperse beyond the territorial boundary independently of the maker, or the style itself could be adopted in different places as a fashion. Hunters' desire to obtain skilled makers' projectile points, which are believed to enable good hunting, can be regarded as a kind of assertive stylistic behaviour. Therefore, it should be considered that the existence of side-notched and tanged projectile points in northeastern Africa does not necessarily indicate the intrusion of Levantine people, but rather suggests the advent of a new assertive style. In other words, the highly appreciated Helwan points or their style may have somehow been adopted, and thereafter the modified imitation of the Helwan points would have been made and spread sporadically across northeastern Africa.

A similar consideration can be given to the spread of small bifacially-retouched projectile points in northeastern Africa, which would have most likely derived from Levantine Pottery Neolithic projectile points. The much wider spread of the small bifacially-retouched projectile points in larger numbers in northeastern Africa in the late 7th - early 6th millennia cal.BC may suggest that this part of the continent was more densely occupied than before. The so-called extended range of one residential group's economic zone would have overlapped others' extended range more often than before, and the flows of material items as well as technical knowledge, stylistic information and symbolic beliefs could have increased, diverged and became faster, though it is not certain whether interregional residential moves of people were behind such flows.

8.7.3. The territories of Levantine farmer-herders and the boundaries between Levantine farmer-herders and Egyptian foragers

The suggestion regarding the wide spread of common types of small projectile points across the southern Levant, Negev, Sinai and northeastern Africa in the late 7th - early 6th millennia cal.BC still does not answer the questions concerning the territories of southern Levantine farmer-herders and the social boundaries between them and the people in the Negev, Sinai, Nile Delta, and Nile Valley. In other words, the remaining questions are whether and to what extent southern Levantine farmer-herders penetrated into the territories of foragers in these regions, and at which point Levantine domesticates were passed on to local foragers.

Defining sociocultural boundaries between different people by looking at the spatial distribution of diagnostic material cultures is common in ethnology as well as archaeology (*e.g.*, David and Kramer 2001: 168-224). Ethnological studies have also revealed that physical and sociocultural boundaries certainly exist between mobile foragers and sedentary farmer-herders, but that the long physical distance between them is not necessarily the reason for foragers' not introducing farming and herding. In some cases, occasional or frequent contacts between foragers and farmer-herders have resulted in the foragers' adoption of farming-herding products by exchange or introduction of farming and herding, whereas in other cases, such contacts did not lead to the diffusion of farming and herding even though foragers knew such a way of subsistence very well (*e.g.*, Bellwood 2005: 28-42; Headland and Reid 1989; Spielmann and Eder 1994). In addition, as mentioned in Chapter 2, archaeological studies have also revealed that the diffusion of farming and herding across sociocultural boundaries was not always fast and straightforward, like a wave of advance sweeping across large regions. The rates of advance varied in different frontier situations, and a phase of foragers' encounter with a new

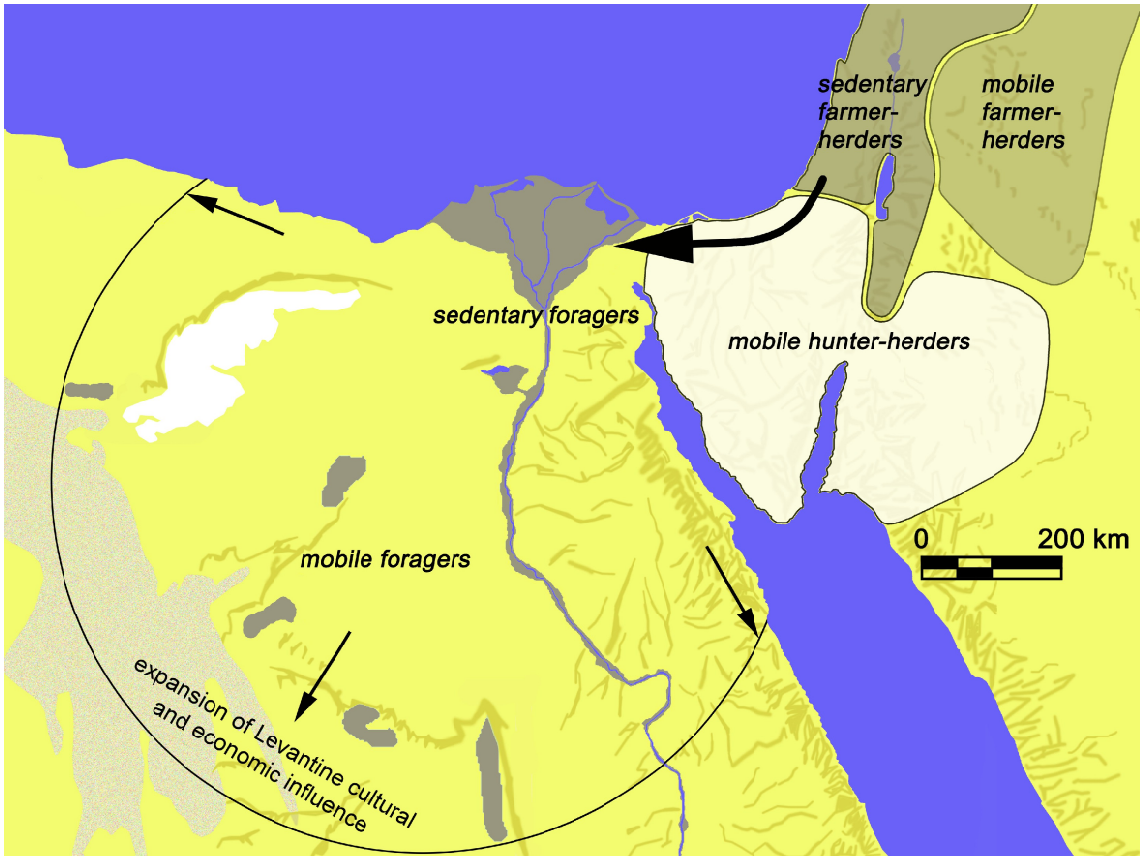

Fig.8.10. The situation of Egypt, Sinai, the Negev and southern Levant in the late 7th - early 6th millennia cal.BC

subsistence before it started to substitute for the existing subsistence tended to last for many centuries or even a millennium (Zvelebil 1986a; 1986b; Zvelebil and Rowley-Conwy 1984).

Based on various archaeological and ecological data, it has been attempted to delineate the territories of farmer-herders, hunter-herders, and foragers in the Levant and adjacent regions during the Pre-Pottery Neolithic and Pottery Neolithic, and to model how they interacted over territorial boundaries (Bar-Yosef 2001; 2003; Bar-Yosef and Meadow 1995; Bar-Yosef and Bar-Yosef Mayer 2002). According to this attempt, during the PPNB, the Negev and northern Sinai are defined as one territory of mobile foragers, whereas southern Jordan and southern Sinai are defined as another territory of mobile foragers, and these foragers actively contacted farmer-herders of the southern Levant in the border areas which are termed interaction zones. The large territories of foragers in the Negev and Sinai intervene between the territory of farmer-herders in the southern Levant and the territory of sedentary foragers in Lower Egypt, but there is no mention of an interaction zone between Sinai and Lower Egypt.

I suggested in Chapter 2 that people in the Negev and Sinai who started sheep/goat herding after the PPNC or Tuwailan may have played an important role as mediators in the diffusion of Levantine wheat and barley as well as sheep and goat to Lower Egypt. However, given the almost synchronous development of similar projectile points across these wide regions for millennia as well as the appearance of peculiar sickle blades in a particular period of the 6th millennium cal.BC in the southern Levant which are comparable to Lower Egyptian Neolithic

ones, a further interpretation can be proposed (**Fig.8.10**). That is, even if hunter-herders in the Negev and Sinai played a role not only in relaying the latest information about potential migration destinations in Lower Egypt to farmer-herders in the southern Levant but also in passing on sheep and goat to people on the Red Sea coast of the Egyptian Eastern Desert, it is more probable that a certain groups of the farmer-herders depended on kin linkages outside their territory and migrated to somewhere in Lower Egypt in the early 6th millennium cal.BC, while leapfrogging the Negev and northern Sinai and leaving no sign of their moves there.

The appearance of bifacially-retouched serrated sickle blades in the Neolithic of Lower Egypt and their persistence in the Predynastic of Lower and Middle Egypt, despite their fast disappearance in the southern Levant, can be regarded as a founder's effect, which constrained the subsequent morphological change from what had been a narrowly defined pool of variability in their place of origin. Those Neolithic sickle blades in Lower Egypt seem to suggest that Levantine domesticates and technical knowledge of farming were soon passed onto local foragers in Lower Egypt by the migrants of the Lodian culture in the southern Levant during the first half of the 6th millennium cal.BC. More importantly, the long persistence of such peculiar sickle blades in Lower Egypt suggests that after the middle 6th millennium cal.BC, further inflows of migrants, who should have brought new types of sickle blades or new ideas about making sickle blades from the southern Levant, stopped.

Little evidence for cultural contacts with the southern Levant is known in Lower Egypt in the 5th millennium cal.BC, and it was not until the beginning of the 4th millennium cal.BC that apparent southern Levantine cultural influence started to appear in Lower Egypt (Braun and Van den Brink 2008; Guyot 2008; Levy and Van den Brink 2002; Maczynska 2008; Watrin 1998). In Buto in the western Nile Delta, diagnostic pottery of the Chalcolithic Beersheba-Ghassulian culture in the southern Levant/northern Negev appeared in the early 4th millennium cal.BC, and made up approximately one third of the total pottery assemblage there. The fact that the pottery under consideration was made of local Nile clay but with remarkable techniques unknown in Egypt suggests that a group of Levantine potters immigrated to Buto (Faltings 2002). Furthermore, unique dwelling structures, which are not known anywhere else in Egypt but are comparable to those of the Chalcolithic Beersheba-Ghassulian culture in the southern Levant/northern Negev, appeared in Maadi, and these suggest that Levantine immigrants settled there (Haltung 2004; Rizkana and Seeher 1989: 49-56). Slightly later, not only the pottery and copper artefacts but also the lithic artefacts like the Canaanean blades of the Early Bronze Age Ia in the southern Levant appeared in Maadi, and bifacially-retouched serrated sickle blades declined there (Rizkana and Seeher 1988: 35-36, 99-101 and pls.73-76). In turn, a limited number of Egyptian products started to appear in many sites in the southern Levant (Braun and Van den Brink 2008; Guyot 2008; Levy and Van den Brink 2002; Maczynska 2008; Watrin 1998). It is interesting to note that the contacts between Lower Egypt and the southern Levant in the 4th millennium cal.BC started from the migration of Levantine people to the habitats of indigenous people in Lower Egypt, and it was followed by the establishment of an exchange relationship. In other words, the contacts were initially not induced by a mutual interest in the acquisition of exotic products.

It is not certain whether such a development of contacts was also the case in the 6th millennium cal.BC, but it is probable that the relationship between the people of Lower Egypt and the southern Levant have not been hostile, and that Levantine people have been allowed to cross the geographical boundaries and to intermingle with people in Lower Egypt in times of some kind of emergency. In the light of the sedimentary record of the Dead Sea, which demonstrates the lowest water level between 6200 and 5600 cal.BC (Migowski *et al*. 2006), it is possible that some people of the Lodian culture resorted to migration at the driest time but stopped migration after the climate in their

region became wet again, as suggested by the rapid rise of the Dead Sea water level around 5600 cal.BC onward.

8.8. Concluding remarks

The southward diffusion of the Helwan points from the Levant to northeastern Africa and the colonisation of the Nile Delta by Levantine immigrants in the 8th-7th millennia cal.BC have been argued by Near Eastern archaeologists but have not been demonstrated with sound archaeological evidence. Even in the light of some new finds in northeastern Africa, it is still difficult to argue the direct diffusion of Levantine Helwan points to northeastern Africa and the population movement from the southern Levant to northeastern Africa in this period.

It is certainly surprising that there is no clear evidence of contacts between the southern Levant and the Nile Valley during the Pre-Pottery Neolithic period, given the distance which could easily have been traversed in a matter of days (Kuijt and Goring-Morris 2002: 428). This is one reason why it has been argued that the diffusion of barley farming and sheep herding from the northern Levant to the Nile Delta might have taken place by sea and not by land (Bar-Yosef 2002a: 54-55). However, the sporadic occurrence of the side-notched and tanged projectile points in northeastern Africa seems to indicate that there were some contacts by land but that these contacts were definitely other than colonisation. No matter what kind of contacts, it is probable that some Levantine cultural influence reached at least Helwan no later than the 7th millennium cal.BC. Continual contacts must have become the basis of the diffusion of domesticated wheat/barley and sheep/goat to Lower Egypt, because it is unlikely that the diffusion was realised by only a single contact event in the 6th millennium cal.BC. It is suggested by the side-notched, tanged and often unifacially/bifacially-retouched projectile points found in northeastern Africa that there would probably have been a steady flow of technical knowledge, stylistic information or symbolic beliefs from the southern Levant to northeastern Africa, long before the advent of wheat/barley and sheep/goat in Lower Egypt.

The widespread appearance of small projectile points comparable to Levantine Pottery Neolithic ones in the northern half of the Egyptian Western Desert including the Fayum suggests that socioeconomic contacts across the southern Levant, Negev, Sinai and northeastern Africa became frequent and fast in the late 7th - early 6th millennia cal.BC. Through these contacts and probably the establishment of dense kin networks during this period, information about arable land in Egypt would have accumulated sufficiently on the side of Levantine farmer-herders, and an idea about wheat/barley farming and sheep/goat herding would have been acquired on the side of Egyptian foragers. Levantine farmer-herders would have had little reluctance to migrate, once the information about potential destinations was acquired, and routes were defined following kinship connections. It may be concluded that the diffusion of farming and herding to Egypt was not so unreasonably late and slow as previously discussed, but was probably a consequence of increasing population and expanding kin networks across regions through the 8th - 6th millennia cal.BC, as well as of a contingent cooling and drying event in the 7th millennium cal.BC. It is difficult to know how fast was the diffusion of wheat/barley and sheep/goat to the Fayum after their first arrival somewhere in Lower Egypt, but it can be said that they were within the reach of the Fayum inhabitants no later than the early 6th millennium cal.BC.