The Nile's Early Stone Architecture: New Data from Ma'adi West

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REPAL

As the Egyptian village of Ma'adi presents links to the Levantine cultures on many levels, it is worthwhile to first present some observations concerning the architecture developed by the neighboring cultures, notably those of Palestine's Chalcolithic period and of the Early Bronze Age I.

During the second half of the fifth millennium, the migrating populations to the Palestinian areas adapted to different environmental conditions notably by developing specific recognizable architectural techniques and styles. In the Golan sector,[1] several villages of 30 to 50 rectangular houses made out of local volcanic stone are aggregated in continuous linear structures of five or six successive communicating dwellings situated parallel to each other. In the northeast of the Dead-Sea basin, the major village of Teleilât Ghassûl (Jordan)[2] shows another pattern. It has no surrounding wall and features rectangular dwellings of mud brick on stone foundations. The richest dwellings among them show wall paintings. In Cisjordan, groups of Palestinian migrants occupied the natural caves more or less permanently (Nahal Mishmar, Nahal Qanah).[3] In the south of Palestine, along the natural valley of Wadi-Sheva, there is an original dwelling type consisting of subterranean spaces carved into the loess river banks with one or more communicating chambers. That type of troglodyte dwelling, discovered on the twin sites of Abu-Matar and of Safadi by J. Perrot in 1955 is the most remarkable of the Levantine Chalcolithic architectures and has often been compared to the semi-subterranean architecture of Ma'adi.

The best-known village of the Beersheva network is that of Safadi. It contains a dwelling in two parts (pl. 1:1)[4]: a semi-underground court, more or less circular (4 to 6m in diameter), which served as an entryway to a subrectangular underground room measuring 7 m x 3 m. The presence of hearths, silos, and basins in these dwellings confirms their domestic function.

These earliest dwellings were first replaced by monocellular shelters of circular or oval shape, which had walls of mud brick and stone on a foundation of large pebbles (pl. 1:2).[5] In that array of communicating rooms, each one had on the average a surface of about 15 m^2. The remaining walls are 1.5–2m high, and bear indentions designed to receive the ends of horizontal rafters,

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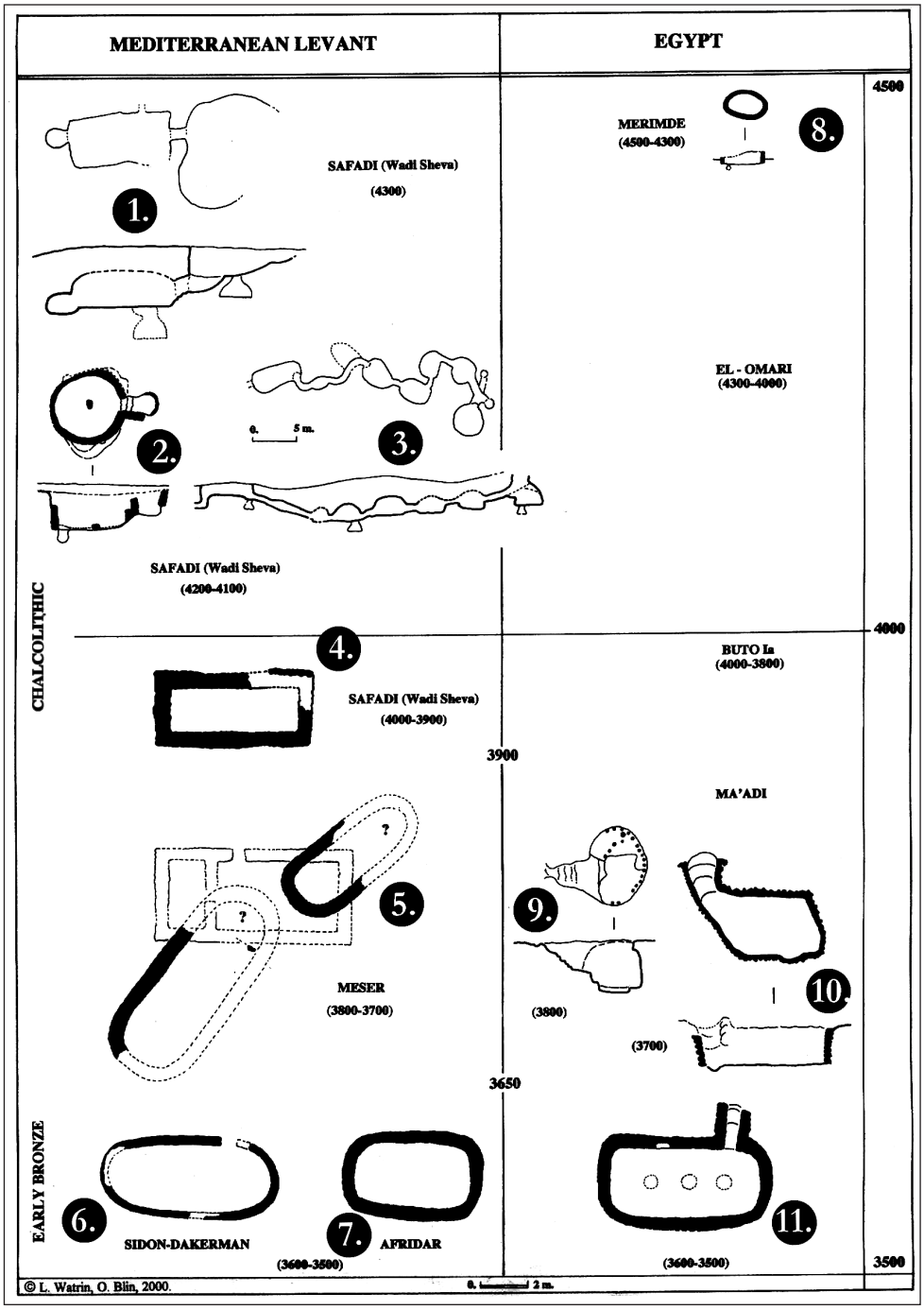
MEDITERRANEAN LEVANT
EGYPT
4500
SAFADI (Wadi Sheva)
(4300)
1.
MERIMDE
(4500-4300)
8.
EL - OMARI
(4300-4000)
0. 5 m.
2.
3.
SAFADI (Wadi Sheva)
(4200-4100)
CHALCOLITHIC
4000
4.
BUTO Ia
(4000-3800)
SAFADI (Wadi Sheva)
(4000-3900)
3900
MA'ADI
5.
9.
MESER
(3800-3700)
(3800)
10.
(3700)
3650
EARLY BRONZE
6.
7.
SIDON-DAKERMAN
(3600-3500)
AFRIDAR
11.
(3600-3500)
3500
© L. Watrin, O. Blin, 2000.
0. 2 m.

Plate 1

Figure 1

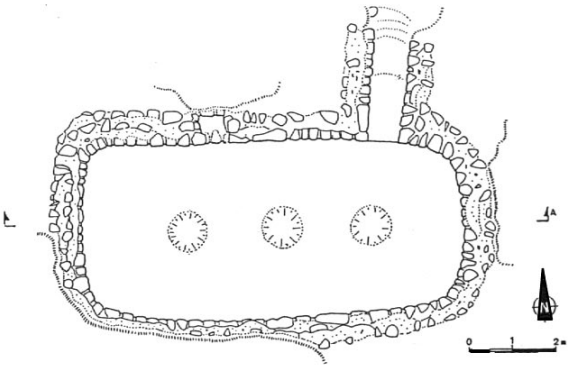

Fig. 2: Plan of the semi-subterranean stone structure. Ma'adi. (L. Wartin, O. Blin, 1996 fig. 8).

Plate 2

which supported a roof of foliage and earth. The rafters were running around the wall's top, and are sometimes supported by a central post on a flat stone foundation. In the same period, we see an evolution from monocellular subterranean cavities to a network of underground chambers linked by tunnels (pl. 1:3).[6] It is in these interconnected subterranean chambers where groups of colored pebbles scattered on the ground, as well as ivory objects including one statuette, were discovered.

The last phase consists of rectangular mud-brick constructions on the surface with stone foundations (pl. 1:4).[7] Once again the dimensions are comparable to the earlier underground constructions: 6–7 m x 2.5 m, with a surface area of 15 to 18 m^2.

Studies of these dwellings have underlined the difficulty of dating them. At the time of their discovery, their time frame was something of a mystery, and even J. Perrot's 1984 publication[8] places them between 3600 and 3300 BCE.[9] More recent studies such as those conducted by T. Levy at Shiqmim (downstream from Beersheva)[10] suggest dates for the three principal phases of occupation, respectively, 4500–4400, 4250–4000, and 4000–3700 BCE (a very large time frame in our reckoning[11]). Other researchers, particularly I. Gilead,[12] propose the relatively short time frame of 4300–3900 BCE for the Wadi-Beersheva cluster. This chronology of Southern Palestinian Chalcolithic cultures points to the second half of the fifth millennium and corresponds to the occupation of the key-site of Teleilât Ghassûl, which appears to have been settled since the beginning of the fifth millennium, and abandoned around 3900 BCE.[13]

Isaac Gilead has an original reading of the Chalcolithic sites of Wadi-Sheva. He considers the underground chambers as simple storage extensions of and hence contemporary ones of the surface rectangular dwelling structures.[14] His explanation relies heavily on the analysis of the disposition of the fireplaces (located in surface). In fact, the characteristics of the Beersheva dwellings (excavations by Perrot and Levy) present an evolution by phase (pl. 1:1 to 4): of entirely manmade

underground rooms (Phase I), followed by semi-underground dwellings (Phase IIa, former caves of which the natural earth ceiling had collapsed and was replaced by simple, organic, light roofing) as well as interconnected underground rooms (Phase IIb). Finally surface buildings appear in a Phase III. Remarkably enough, while the shapes changed during that process, the basic average size of each room remained unchanged. The ceramic and lithic material is apparently the same for the various phases recognized at Safadi.[15] The ceramic sets found show no gradual development, remaining strictly identical, suggesting either a conservative society or else a short occupation time that can be estimated, on the base of seven radiocarbon datings, as spanning a maximum of three centuries, probably between 4250–3950 BCE.[16] The same scheme is repeated elsewhere in the Wadi-Sheva valley, suggesting that the earliest subterranean dwelling phases (Phases I–II) belong to the final third of the fifth millennium.

This Southern Levantine Chalcolithic period corresponds in Lower Egypt to the Neolithic cultures of Merimde (*ca*. 4700–4300 BCE),[17] al-Omari (*ca*. 4300–4000 BCE),[18] and Buto Ia (*ca*. 4000–3800 BCE).[19] Only the most recent of these three cultures, that of Buto Ia, showed a clear connection with the Palestinian cultures of the Late Chalcolithic. Notably, the artifacts point to at least a temporary presence of culturally Palestinian groups.[20] The architectural structures of this period discovered in Egypt appear to belong to an entirely different pattern of evolution. However, architectural comparisons may be made in the slightly later period corresponding to the Ma'adi culture (*ca*. 3800–3500 BCE) *(infra)*.[21]

The Lower Egyptian cultures in the fifth and fourth millennia are marked by an architecture of ovoid or circular huts (pl. 1:8) made of light material (mud and reeds), rather close in aspect to the traditional architecture of sub-Saharan Africa.[22] On the site of Ma'adi, whose different phases cover nearly three centuries, we find these types of dwellings, as attested by post-holes, woven-reeds forming walls or fences, and the hardened and compacted negative impressions left by them.[23]

It seems that the settlement featured some original architectural elements, in particular semi-subterranean structures of stone and mud bricks that have been considered as possible dwellings. Some comparable parallels for these constructions may be found in the EB I Southern Levantine structures *(infra)*.

From the second third of the fourth millennium (*ca*. 3700/3650 BCE[24]) onward, a new type of dwelling consisting of oval or sub-rectangular chambers with rounded angles appears in this same geographic area. That type of dwelling corresponds to the chronological period in which a new culture in this region emerges, that of the Early Bronze Age I. This culture is distinguished from the preceding one by a new ceramic and lithic industry including wavy ledge-handled jars and Cannanean blades, which are among the most representative cultural elements. The change in the architectural domain can be illustrated by the Palestinian site of Meser (pl. 1:5), where M. Dothan's[25] excavations allow us to visualize a transition from the rectangular dwelling phase at the end of the Chalcolithic (Meser III) to the oval houses at the beginning of EB I (Meser II). Like E. Braun,[26] we think that the reconstitution of missing walls of Meser II by straight walls on one end is speculative.[27] Dothan's curious plan offers no solid evidence of either "one square end" or "one round end." Unfortunately, this theory has been widely accepted with little verification.[28] On our plan, these reconstructions have been modified on the basis of the prevailing EB I curvilinear architecture current in the region: that is, two rounded ends. This same type has also been discovered at Yiftah'el II in northern Palestine, excavated by E. Braun,[29] and that of Afridar (pl. 1:7) in southern Palestine, excavated recently by H. Khalaily and Z. Wallach.[30]

This chronological horizon requires that we speak of the agglomeration of Sidon-Dakerman in southern Lebanon, excavated by R. Saidah[31] (pl. 1:6), which has unearthed typologically similar

dwellings, some of which show the particularity of being semi-underground. These houses are made out of rough stone, assembled by a compact clay mortar used internally and sometimes externally. The thickness of the walls varies between 35 and 50 cm. The dimensions range between 6 m and 12 m long and 4.5–6 m wide. Most of these houses present rather homogeneous dimensions between 7.5 m long by 4.4 m wide. On the average surfaces are ranging from 30 to 40 m^2. These houses are accessible through openings in one of the wider sides, which are marked by a threshold. Among these, we note the presence of flagstones in the center and along the lengthwise axis, certainly intended for the support, a ridgeline rafter and woven roof supports, and possibly a floor. The floors are composed of beaten earth which has yielded fragments of large storage jars. Twenty-five houses have been identified or explored. Sidon-Dakerman is completed by an outer wall in mud some 2 m thick, and preserved to the height of 3 m. A radiocarbon dating yields a date around 3500 BCE.[32] The lithic and ceramic materials found on site confirm a dating contemporary with the EB Ia cultures of Palestine. A small sounding on one of the houses[33] has revealed remains of earlier structures in earlier layers, proof of at least one earlier occupation phase.

In light of these observations on the northern dwelling-types and their evolutions, it is interesting to consider the stone structure discovered by F. A. Badawi[34] in 1987 on the site of Ma'adi in the Cairo suburbs, re-examined in 1995[35] and in 1999[36] (pl. 1:11 and pl. 2).

This semi-subterranean building is roughly oval inside and outside, and is constructed with stone laid in non-staggered rows. The wall's exterior measures 10.25 m x 5.50 m and 8.70 m x 4.20 m in the interior, corresponding to a surface area of 36 m^2. The walls are preserved to the height of about 2 m, and present the remains of multiple layers of clay mud-plaster. Access to the eastern end of the structure is gained through an entryway (0.80 m x 2.5 m) in the northern wall, which has a threshold and some steps carved into the substratum. This same wall presents a niche on its western side, which indicates that the original height of the walls must have been greater. Badawi reports that during the excavations, traces of combustion[37] "gave the impression that incense or another product had been burned at this place."[38] In the center of the structure, lined up along a lengthwise axis, are three pits dug in the building's floor, perhaps for supporting posts, which in their turn surely supported a main rafter.

Remains of reeds and mud bricks still covered the floor during Badawi's excavations.[39] He proposes that these are the remains of the structure's roof. They may also be remains of walls belonging to a superstructure of which we have no trace due to the significant erosion of the site. The considerable thickness of the walls (0.80 m) combined with the presence of the three axial posts (not really justified given the width of the structure), may be indicative of a larger above-ground building of which the current structure is only the basement. On the west side of the structure[40] are disposed several rows of jars-silos, perhaps forming a collective storage area.[41] The floor of the structure was made out of compacted and plastered earth as is shown by remaining plastering material. The floor features jar negatives along the northern wall and in the southeastern corner, which could also confirm the structure's function as a storage or production center.[42]

By all evidence, it is possible to link the Badawi structure to the Palestinian structures that we have presented as belonging to the tradition of Meser II, Sidon-Dakerman and more precisely the one of Afridar. The similarities are manifest. The Ma'adi site has benefited from several excavation campaigns in its different sectors.[43] They all point to an evolution which goes together with the shift of the village's occupied area, whose remains are spread over one kilometer east-west. The earlier excavations unfortunately failed to clearly record many dwellings, or their spatial distribution. Nonetheless, the Italian excavators[44] noted that the western sector of the village presented the most advanced cultural elements, and deduced from this a spatial shift, over time, from east

to west. The excavations brought to the daylight a series of semi-subterranean structures carved directly into the bedrock (Squares CXXIIIa and XLIXa).[45] These semi-subterranean chambers appear in the form of cavities in the bedrock, 3 m deep for the greatest among them (pl. 1:9–10). That they are contemporary with the Prehistoric village is verified by the presence of a jar-silo,[46] as well as Ma'adian ceramics including imitations of Black-topped ware in the greatest of the three cavities.[47] These semi-subterranean spaces are elliptical in plan, the deepest being accessible by steps made of flat stones. These structures must have served as basements or storage spaces for surface-level dwellings. It is nonetheless important to note that most of the Ma'adi excavations were conducted with only minor attention paid to stratigraphical control, with the exception of the Italian excavations (still unpublished) and that of F. A. Badawi. Hence it is impossible, at present, to determine precisely the site's succeeding occupational phases. Unfortunately, the unearthing of hundreds of wooden stakes and post-holes[48] correspond to different layers, rendering unreadable any architectural element of the eastern area of the village allowing only the recognition of the floor plan of a few huts associated with the silos.[49]

The discoveries of J. Perrot at Safadi in the Wadi-Sheva valley belong to the Chalcolithic period. For several decades, they have been the source of hazardous comparisons on the theory of influences from this region during this period, W. C. Hayes,[50] comparing the Ma'adi subterranean or semi-subterranean structures excavated by Mustapha and Amer in 1940 (pl. 1:9–10) to those of Safadi and Abu-Matar (pl. 1:1–2), M. A. Hoffman[51] even suggesting that they were secondary residences of traders from the Wadi-Beersheva–Ghassoulian culture. At a first glance, indeed, the Wadi-Beersheva structures may present several similarities with those of Ma'adi. Yet we have found solid reasons to reject this theory.[52]

The first reason concerns the structural elements. J. Seeher[53] attempted to compare the semi-subterranean structures of Ma'adi with the second-phase structures of Safadi, which are obviously the most similar of the three phases. We must note here that the architecture of Safadi, in all its phases, is a wholly subterranean architecture with the exception of the final surface phase. For the structures of the Phase IIa (pl. 1:2),[54] we underline the condition of an originally underground structure whose roofs collapsed, and were then modified by building walls to support a roof. There were thus some technological modifications between the first and intermediary phases, but apparently no morphological modifications. Likewise, J. Perrot demonstrates how that dwelling-type is part of an evolution from a single underground chamber to a network of interconnected underground chambers.

The second reason is chronological. The excavations at Shiqmim led by T. Levy[55] confirms that the earliest construction phase of these Chalcolithic subterranean dwellings must be placed in the last third of the fifth millennium, around 4300 BCE, at a period preceding by far the settlement of Ma'adi, which according to different studies must be placed around 3800 BCE.[56] At Safadi, the radiocarbon datings also yield a sequence in the second half of the fifth millennium for the subterranean construction phase *(supra)*. This chronological gap of nearly 500 years between the early phases of Chalcolithic/Ghassoulian cultures of Wadi-Sheva and that of Ma'adi excludes any direct link between these two architectures, a notion confirmed by the study of Palestinian artifacts from Ma'adi. Indeed, no ceramic from Chalcolithic Palestine—none whatsoever from the Beersheva cluster—has been discovered at Ma'adi.[57] The Palestinian material found at Ma'adi has been compared with both the Chalcolithic and Early Bronze Age I period, without clearly distinguishing the correct sequences for individual artifacts.[58] Our own studies of the Palestinian artifacts of Ma'adi show[59] that it is precisely contemporary with the initial phase of the Early Bronze Age I (EB Ia1), around 3700/3650 BCE,[60] and with this period only.

This precision is all the more interesting, as some of these semi-subterranean structures of Ma'adi (pl. 1:9–10) are found at a few hundred meters to the east of the "Badawi-building." It may be its prototypes, the closest parallel being the fourth ovoid semi-subterranean structure discovered by O. Menghin and M. Amer (pl. 1:10).[61] This structure of lesser dimension (4 m x 2.50 m), and like the structure discovered by F. A. Badawi is accessible by steps carved in the bedrock. Despite their differences, the structural elements are consistent: a large cavity carved in the bedrock with walls of mixed masonry (rubble and mud bricks). This construction may belong to a sequence between that of the elliptical semi-subterranean spaces to the east (pl. 1: 9)[62] and that of the stone structure discovered by Badawi on the western side (pl. 1:11).

If the hypothesis of a spatial displacement of the settlement is confirmed, we could envision this stone structure as corresponding to the most recent and elaborated phase of the Ma'adi village constructions. The artifacts discovered in the earth filling the buildings as well as in the surrounding levels forward no evidence to contradict this notion.[63] As such, one can be tempted to understand this structure as being of an earlier cultural tradition, and so far,[64] unique both for the Ma'adi's site as well as the others. The chambers carved into the bedrock, of elliptic shape for some and of roughly sub-rectangular for others, appear as forerunners of an architectural type that would become more sophisticated. Inspired by Palestinian construction concepts and techniques, it shows another genuinely local step of development.

Taking into account this unparalleled stone structure in Egypt, may lead us to search elsewhere concrete signs of influences that could have inspired this radical steps in architectural technology. It is necessary to take into consideration the existence of a model from the Southern Levant (Sidon-Dakerman, Yiftah'el, Afridar) that bears several items in common with the Ma'adi structures which cannot be ignored. This architecture is "sausage-shaped," constructed in stone (a material little used in this period in Egypt), and features a plastered floor (another Palestinian tradition). All of these are characteristics that can be found both on Palestinian sites of the Early Bronze Age I (EB Ia). The artifacts and imports from Palestine that were discovered in Ma'adi may further confirm this connection.

The Early EB I Palestinian cultures are contemporary with Ma'adi, but that does not necessarily imply that they were in direct contact. Nonetheless, culturally-Palestinian imports[65] at Ma'adi are characteristic of a very early phase of EB I. Similar artifacts to those of Ma'adi have been located in the Negev area at 'En Besor Oasis Site-H[66] (Lower layers, EB Ia1,[67] *ca*. 3650–3500 BCE) which attest to a minimum of trade links between the two regions. More interestingly, research at the oasis of 'En Besor (Site-H)[68] has yielded two samples of dwellings which, while summarily and partially excavated, feature remains of stone walls apparently belonging to ovoid structures of the type discovered in the Gaza region at Afridar *(supra)*.

Palestine thus presents during the Bronze Age an evolution from a rectangular surface shape of buildings (succeeding the subterranean dwellings), to an ovoid sub-surface structure (which, along with a rectilinear architecture of another type, is the dominant architecture of the EB I).[69] Around the same period, the site of Ma'adi appears to present an evolution from semi-underground storage spaces of elliptical shape dug in the ground, to semi-underground constructions of roughly sub-rectangular shape with walls built of rubble and mud bricks, and finally to semi-subterranean architecture of oval shape built in stone (pl. 1:9–11 and pl. 2).

The structure from Ma'adi west appears to represent an evolutionary crossroads: showing both similarities with the Mengin and Amer structures at Ma'adi, but also with structures from EB I in Southern Levant. Such a distribution of architectural traits, combined with the certainty of a growing EB I Palestinian influence on Ma'adi, allows us to advance the theory that the

Ma'adian architecture underwent both direct/internal evolutions and indirect/external evolution, and that the Ma'adian structures evolved into a hybrid architecture featuring elements of both Egyptian and Palestinian ancestry.

Besides the stone dwellings at Afya[70] in Nubia whose chronology is unclear (around 3000 BCE, not before?), the earliest stone constructions discovered to date in the Nile Valley have a funerary function. In Lower Egypt, they date to the beginning of the third millennium and belong to the First Dynasty (i.e. funerary chambers at Helwan with a stone floor and walls of limestone blocks at tomb 40 H.3, belonging to a high official contemporary with King Den[71]). In Upper Egypt they appear slightly later, from the Second Dynasty onward (funerary chamber with limestone-block floor and walls of King Khasekhemwy at Abydos[72]).

The existence of such a carefully constructed stone structure at Ma'adi, in Lower Egypt, some five hundred years before the first stone structures in Upper Egypt, is a remarkable discovery. It is also a further indication of the cultural evolution that took place in this area over more than a thousand years.

Notes:

1 C. Epstein, *The Chalcolithic Culture of the Golan* (IAA Report 4, Jerusalem, 1998), 352.

2 A. Mallon, R. Koeppel, R. Neuville, *Teleilât Ghassul I : Compte Rendu des Fouilles de l'Institut Biblique Pontifical, 1929–32* (Rome 1934), 254.

3 P. Bar-Adon, *The Cave of the Treasure* (Jerusalem, 1980), 243; A. Gopher and T. Tsuk, *Ancient Gold* (Jerusalem, 1991), 62.

4 J. Perrot, "Structures d'habitat, mode de vie et environnement : les villages souterrains des pasteurs de Beershéva," *Paléorient* 10/1 (1984), 80–3, fig. 7.

5 Perrot, "Structures d'habitat," 84–5, fig. 8.

6 Perrot, "Structures d'habitat," 84–6, fig. 10.

7 Perrot, "Structures d'habitat," 85–7, fig. 11.

8 These results are based on calibration tables that are today obsolete and which yield much too recent datings.

9 This chronology is today in the first half of EB I. We must nonetheless note that this chronology for the end of the Ghassulian in 3300 BCE was established in the 1950s (W. F. Albright, *L'archéologie de la Palestine* (Paris, 1955), 76) and is still used by some researchers (A. Mazar, *Archaeology of the Land of the Bible* (New York, 1990), 88).

10 T. Levy, "Radiocarbon Chronology of the Beersheva Culture and Predynastic Egypt," in E. van den Brink (ed.), *The Nile Delta in Transition* (Jerusalem, 1992), 350–5.

11 It appears that Shiqmim's division into phases is based on an arrangement of unclear radiocarbon datings, with some 30 dates aligning the chronological range, rather than being based on a real stratigraphy. See the criticism of Gilead for more ("The History of the Chalcolithic Settlement in the Nahal Beer Sheva Area: the Radiocarbon Aspect," *BASOR* 296 (1994), 5–12.

12 *Idem,* "The History of the Chalcolithic Settlement...," 12.

13 According to S. J. Bourke (pers. comm. 1999), the stratigraphy and radiocarbon datings made layer by layer on the village of Ghassûl (around 10 datings) shows that it was occupied continually throughout the fifth millennium, closing around 3900 BCE.

14 Gilead, "The Chalcolithic Period in the Levant," *Journal of World Prehistory* 2 (1988), 397–443.

15 C. Commenge-Pellerin, *La Poterie de Safadi (Beersheva) au IVe millénaire* (Paris, 1990), 230.

16 Gilead, "The History of the Chalcolithic Settlement in the Nahal Beer Sheva Area : the Radiocarborn Aspect," *BASOR* 296 (1994), 2, tab. 1.

17 F. Hassan, "Radiocarbon Chronology of Neolithic and Predynastic sites in Upper-Egypt and the Delta," *AAR* 3 (London, 1985), 105.

18 B. Mortensen, 1992, "Carbon-14 Dates from El-Omari," in R. Friedman and B. Adams, *The Followers of Horus, Studies dedicated to M. A. Hoffman (1944–1990)* (Oxford, 1992), 173.

19 A recently published radiocarbon dating (KN 4015) yields a range of 4300–3800 BCE for the first layer of Buto (see T. von der Way, in *Tell El Fara'in - Buto I* [1997], 82), a date which is coherent with the material, whatever may think S. Hendrickx ("La chronologie de la préhistoire tardive et des débuts de l'histoire de l'Egypte," *Archéo-Nil* 9 [12/1999], 20).

20 D. Faltings, "Recent Excavations in Tell El-Fara'in/Buto: New Finds and their Chronological Implications," *OLA* 82 (Leuven, 1998), 365–75. Watrin, "The Relationship between the Nile Delta and Palestine during the Fourth Millennium: from Early Exchange (Naqada I–II) to the Colonisation of Southern Palestine (Naqada III)," *OLA* 82 (Leuven, 1998), 1215.

21 Hassan, "Radiocarbon Chronology of Neolithic and Predynastic Sites...," 105. Rizkana and Seeher, *Maadi III*, 82.

22 See for example: J. B. Reynolds, *Regional Geography of Africa and Australasia* (London, 1911), 81.

23 Rizkana and Seeher, *Ma'adi* III (Mainz, 1989), 35–6, pl. XI–XII–XIII–XXII.

24 Our own work on the relationship between Egypt and Palestine place the beginning of the EB I in Palestine around 3700–3650 BCE on the basis of the study of material and radiocarbon datings from Ma'adi (Egypt), Wadi-Fidan 4 (Jordan), Sidon-Dakerman (Lebanon), and at several sites of Southern Palestine (Watrin, "The Relationship between the Nile Delta and Palestine," 1216–8. This chronology is in synchronicity with the works of Y. Yekutieli, who has come to the same conclusion on the basis of the material and radiocarbon datings from the sites of Southern Palestine (Yekutieli, pers. comm., 1998).

25 M. Dothan, "Excavations at Meser (1956)," *IEJ* 7 (1957), 217–228; "Excavations at Meser (1957)," *IEJ* 9 (1959), 13–29.

26 E. Braun, "The Problem of the Apsidal House: New Aspects of Early Bronze I Domestic Architecture in Israel, Jordan and Lebanon," *PEQ* 121 (1989), 6.

27 It may be possible that M. Dothan has found "wall negatives," contemporary with the curvilinear architecture (a fact that he fails to mention), and used it as a basis for his architectural reconstruction (?).

28 The only structure in Palestine dating from the EB I and that may present an "apsidal" form is a building located on the eastern slope of the Megiddo mound excavated by R. Engberg and G. Shipton in 1934. Only one aerial photograph was published (Engberg and Shipton, "Notes on the Chalcolithic and Early Bronze Age Pottery of Megiddo," *SAOC* 10 (1934), 244) from which this drawing has been made (A. G. Barrois, *Manuel d'Archéologie Biblique* I (Paris, 1939), 249, fig. 93b). The conditions of publication make any interpretations doubtful. In a recent article on Meser, M. Dothan ("Meser," *New Encyclopedia of Archaeological Excavations in the Holy Land* III (Jerusalem, 1993), 1035) confirms his interpretation by replacing the dotted lines of his earlier drawing with straight lines—definately apsidal—without any justification.

29 E. Braun, "Yiftah'el, Salvage and Rescue Excavations at a Prehistoric Village in Lower Galilee," *IAA Reports* 2 (Jerusalem, 1997), 249.

30 Nonetheless, this last structure, differing from the sausage-shaped Yifta'el structures, present a sub-rectangular plan with rounded angles. H. Khalaily and Z. Wallach, "Ashkelon, Ha-Tayyasim Street," *Excavations and Surveys* 18 (Jerusalem, 1998), 100, 154, fig. 189.

31 R. Saidah, "Fouilles de Sidon-Dakerman: l'agglomération Chalcolithique," *Berytus* XXVII 1979, 29–76. H. de Contenson, "A propos du niveau Chalcolithique de Dakerman," *Archéologie au Levant, Receuil R. Saidah* (Paris, 1982), 80–5.

32 Saidah, "Fouilles de Sidon-Dakerman...," 47. BP 4570 +- 90.

33 Saidah, "Fouilles de Sidon-Dakerman...," 49 (House n°2).

34 F. A. Badawi, "Kuzbericht über die neuen ägyptischen Ausgrabungen in Ma'adi (prädyn.)," *MAVV* 12 (Tübingen, 1987), 58–60; Badawi, "Kurzer Bericht aus dem spat-prädynastischen Fundort Maadi," *Eighth International Congress of Egyptologists, Abstract of Papers (Cairo, 28 March - 3 April 2000),* 25.

35 See preliminary results in Watrin, "The Western Quarter of the Prehistoric Settlement of Ma'adi : Projected Archaeological Rescue Operation," *GREPAL* (Cairo, 1996), 50.

36 See Professor Badawi's article in this volume (*Proceedings of the Eighth International Congress of Egyptologists)*. We note that this structure has been the object of a re-excavation in 1999 under the direction of U. Hartung (DAI) on the base of the GREPAL's project.

37 These traces were no longer visible during our survey in 1995, but the structure's exposure to erosion (filled and protected for 5600 years, then exposed to urban Cairo for 12 years) has doubtless wiped away the traces of this burning.

38 Badawi, "Kuzbericht über die neuen ägyptischen Ausgrabungen...," 58.

39 Badawi, "Kuzbericht über die neuen ägyptischen Ausgrabungen...," 58.

40 Badawi, "Kuzbericht über die neuen ägyptischen Ausgrabungen...," 60, pl. 2.

41 To the west of the building were found buried jar-silos, one of them contained salted fish. (Badawi, "Kuzbericht über die neuen ägyptischen Ausgrabungen...," 59).

42 A hypothesis of I. Caneva who had visited the site during the excavations of F. A. Badawi and proposed "a temple surrounded by store rooms" (see I. Caneva, B. Marcolongo and A. M. Palmieri, "Geoarchaeology at Maadi: A Short Note," *Proceedings of the Egyptian - Italian Seminar on Geosciences and Archaeology in the Mediterranean Countries: Cairo, November 28–30/1993* [Cairo, 1995], 311).

43 Excavations of the Egyptian University (O. Menghin, M. Amer, I. Rizkana) and the University of the Sapienza (Roma).

44 I. Caneva, M. Frangipane and A. Palmieri, "Predynastic Egypt: new data from Maadi," *AAR* 5 (1987), 113.

45 Rizkana and Seeher, *Maadi* III, 35; 50–4.

46 Rizkana and Seeher, *Maadi* III, pl. XIV, 3.

47 Rizkana and Seeher, *Maadi* III, 49.

48 Rizkana and Seeher, *Maadi* III, fig. 5a et 5b.

49 Rizkana and Seeher, *Maadi* III, 41, fig. 8, pl. XII, 1–2. For example in Square XIIa.

50 W. C. Hayes, *Most Ancient Egypt* (Chicago, 1965), 123.

51 M. A. Hoffman, *Egypt Before the Pharaohs* (New York, 1979), 201.

52 See the first criticisms on this subject in Watrin, *Les Echanges entre l'Egypte et la Palestine au IVe millénaire : Etat de la Question*, M.A. Dissertation (University of Paris I, Sorbonne, 1995), 67–72.

53 Rizkana and Seeher, *Maadi* III, 55.

54 Perrot, "Structures d'habitat, mode de vie et environnement...," 83, fig. 8; i.e. dwellings 528 and 546.

55 T. Levy, "Radiocarbon Chronology of the Beersheva Culture and Predynastic Egypt," in E. van den Brink, *The Nile Delta in Transition* (Cairo, 1992), 348.

56 Rizkana and Seeher, *Maadi* IV (Mainz, 1990), 104, fig. 34F. Caneva, M. Frangipane, A. Palmieri, "Recent

Excavations at Maadi (Egypt)," in *Late Prehistory of the Nile Basin and the Sahara* (Poznan, 1989), 289. F. Hassan, "Radiocarbon Chronology of Neolithic and Predynastic Sites...," 105. I. (BP 5050 +-55).

57 Some researchers claim to have identified the Chalcolithic Palestinian ceramics at Ma'adi, without any precision as to which (D. Faltings, "Recent Excavations in Tell El-Fara'in/Buto...," 374).

58 For example: Rizkana and Seeher, *Maadi* I (Mainz, 1987), 74, 79.

59 I thank the successive directors of the Cairo University, I. Rizkana and Y. Fayyed, for allowing me to study their collections since 1993.

60 Watrin, "Copper Drops and Buried Buildings: Ma'adi's Legacy as a Predynastic Trade Capital," *Bulletin de la Société de Géographie d'Egypte* 73 (Cairo, 2000), 171–173.

61 A. Badawy, *A History of Egyptian Architecture,* vol. I (Giza, 1954), 18, fig. 8. Rizkana and Seeher, *Maadi* III, 54, pl. 18. In Square XXVIIb.

62 Badawy, *A History of Egyptian Architecture,* fig. 15 and 17.

63 Some of the shapes (i.e. blackware jars with a pointed base) may have come later in an occupation phase (Late Naqada IIa?). See Watrin, "Copper Drops and Buried Buildings...," 170.

64 September 2000.

65 Ledge-handled ceramics with wavy and ring handles, scrapers and "Canaanean blades," copper ingots, asphalt.

66 Blackware, catfish barbs, *Asphataria Nilotica* shells, square-sectioned copper hooks.

67 The works of Y. Yekutieli (in *The Early Bronze IA of Southwestern Canaan,* M.A. Thesis, (Tel Aviv University, 1992) show that at 'En Besor Site H, two archaeological phases should be recognized according to the material (EB Ia1 and EB Ia2).

68 E. Macdonald, *Beth-Pelet II : Prehistoric Fara* (London, 1932), pl. IX–X. Hypothesis also advanced by E. Braun ("Cultural diversity and Change in the Early Bronze Age I of Israel and Jordan," unpublished Ph.D. thesis, [Tel-Aviv University, 1996], 119–120).

69 The most recent synthesis works on Levantine architecture are those of E. Braun ("The Problem of the Apsidal House," 1–43) and A. Golani ("New Perspectives on Domestic Architecture and the Initial Stages of Urbanization in Canaan," *LEVANT* 31 (1999), 123–32).

70 H. S. Smith, *Preliminary Reports of the Egypt Exploration Society's Nubian Survey* (Cairo, 1962), 58–61, fig. VII, 1.

71 Z. Saad, *Royal Excavations at Saqqara and Helwan* (Cairo, 1947), 164, pl. LXII–LXIX. T. Wilkinson, "A Re-examination of the Early Dynastic Necropolis at Helwan," *MDAIK* 52 (1996), 342.

72 F. Petrie, *Royal Tombs* II, 57, 4–5. J. M. Breasted, *Histoire de l'Egypte I* (Bruxelles, 1926), pl. 27.