

Diane L. Holmes

Recent investigations in the Badarian region (Middle Egypt)

Introduction

There is now a substantial quantity of data for the Predynastic of Lower Egypt, and as we endeavour to comprehend the relations between the northern and southern parts of the country, the Predynastic of the Badari region assumes particular importance. It represents the last known Upper Egyptian cultural area before reaching the cultural domain of the north, even though it lies some 250 km south of the Fayum.

Our knowledge of Predynastic developments in the Badari region is still largely based on the work of Brunton & Caton-Thompson (1928; Brunton 1937; 1948). Between 1922 and 1931, Brunton explored the area between the villages of el Etmanieh and el Ghoreib (see Fig. 1), a distance of approximately 35 km, while in 1924 and 1925, Caton-Thompson conducted her stratigraphically controlled excavation at North Spur Hemamieh. Brunton had divided his 35 km stretch of low desert into three sectors: Badari, Mostagedda and Matmar. However, these may be all considered as part of the Badari region, more appropriately defined as the area between (and including) the two large wadis, Qau Bay and Wadi el Asyuti.

Brunton & Caton-Thompson found evidence for a Predynastic culture that preceded the other periods (Amratian, Gerzean and Semainian) then known. This was the Badarian, which they documented using some of the best recording procedures of their time. However, by modern standards, their data are far from adequate, and, in particular, Brunton, who was responsible for recording most of the Predynastic material from the Badari region, paid even less attention to the finds of the subsequent Predynastic periods. Since the Amratian and later Predynastic "cultures" were well known from sites in other parts of Upper Egypt, he made the erroneous assumption there was nothing really new to be learned from studying these "cultures" in the Badari area.

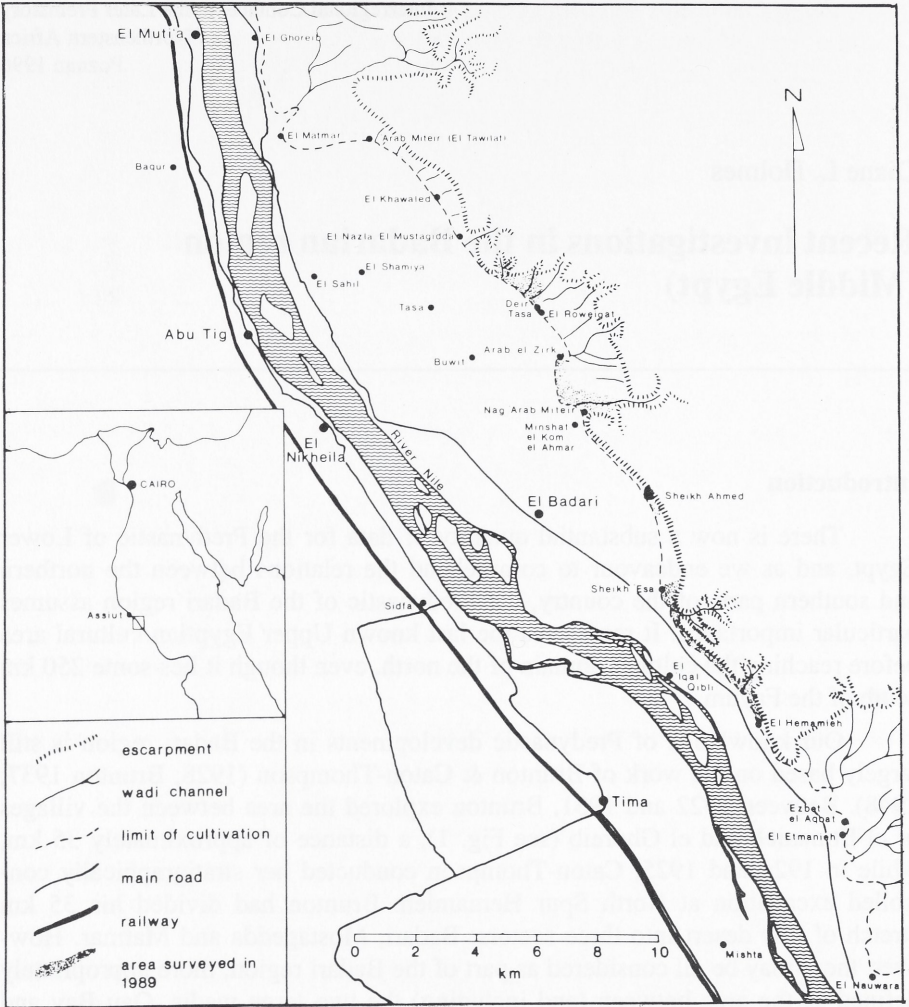


Fig. 1. Map of the Badari region.

Recent analysis of the collections of lithic artifacts from Brunton & Caton-Thompson's excavations that are now housed in the Petrie Museum at University College London, led to the provisional conclusion that the Badarian was an early Predynastic tradition restricted to the Badari area, as well as to the identification of a subsequent regional lithic tradition, termed the Mostagedda industry (Holmes 1988; 1989). The dating of this later industry was uncertain, though it was concluded that it must be, in part, Gerzean, even if it extended back to the Amratian as well. Much of the material studied came from settlement localities that Brunton had considered primarily Amratian.

Clearly, Brunton & Caton-Thompson's investigations left much unanswered and the analysis of their collections only raised more questions. Only two radiocarbon dates existed for the Badari area. Both were for Badarian contexts, and calibration yielded a weighted average of 4080 ± 160 B.C. and a range of ca. 4400-3800 B.C. (Hassan 1984). As potentially the oldest Predynastic tradition in Upper Egypt, a full understanding of the Badarian could be expected to throw light on the establishment of farming communities in the Nile Valley. Thus, with these various considerations in mind, the "Prehistory of Badari Project" was initiated. So far, two seasons of fieldwork have been undertaken, the first in February-March 1989, and the second in July-August 1992. Both have been short seasons devoted to field survey, and test excavation. It is hoped that further fieldwork can be carried out concentrating on excavation and involving larger field crews.

Aims and results of the field-survey

A Cultural Resources Management (CRM) approach was adopted for the field survey. The principal aims were, to relocate sites of all periods (including historic) that had been recorded by Brunton and others who have worked in the region, to record any additional sites that might be encountered, to identify Predynastic localities suitable for surface sampling and/or excavation, and to assess the impact of modern land-use activities on site preservation.

In 1989, four segments of low desert amounting to around 10 km were visited between the modern village of el Hemamieh and the gebel promontory just to the north of Deir Tasa (see Fig. 1). These segments contained a total of 42 sites, of which 32 yielded Predynastic remains, while the total included for sites (one Predynastic and three historic) that apparently had not been previously recorded. In 1992, the entire low desert between Gebel el Haridi (the southern limit of Qau Bay) and el Matmar, a distance of more than 40 km, was field-walked. Regrettably time limitations prevented a continuation of the reconnaissance into the Wadi el Asyuti. Nevertheless, well over a hundred sites were visited including several more that have not been documented before.

The Predynastic occurrences in the region date predominantly to two phases: the Badarian and Gerzean. A few sites have recognizable Protodynastic remains. However, no localities have yielded ceramics suggestive of an exclu-

sively Amratian component. Badarian sites are readily recognizable from their organic-tempered fine Nile silt and fine untempered Nile silt wares (the Predynastic wares encountered in the Badari region are described in Holmes & Friedman n. d.). Some of the latter show the characteristic Badarian rippled decoration. Carinated vessel forms also occur. Gerzean localities, on the other hand, are easily identified on the basis of their straw-tempered pottery and occasional Decorated sherds. Items that Brunton would have regarded as "Tasian" occur very rarely, and always at localities which otherwise yield recognizable Badarian finds. Thus, Brunton's case for an even earlier "Tasian" culture preceding the Badarian can not be supported on the basis of the recent field observations.

Brunton had considered the majority of the post-Badarian Predynastic settlement sites that had yielded the lithic artifacts assigned to the Mostagedda industry by the writer, to be primarily Amratian (Brunton & Caton-Thompson 1928: 43-48). However, whereas Brunton relied largely on the very rare whole pots that he found to date his sites, modern archaeologists rely chiefly on the commonplace potsherds, and for the localities in question, these latter are predominantly of Gerzean type. Only very few sherds occur which might imply an Amratian component as well.

Systematic surface sampling

During the 1992 season, two localities with Gerzean habitation remains were selected for surface sampling: BD-36 and BD-51. Rather than simply collecting the artifacts seen lying literally on the surface of these sites, the surface deposits were scraped off and screened. This allowed very small items to be recovered and avoided the problem of surface objects being obscured by a very thin dust layer, or by limestone scree.

BD-36 is one of Brunton's "3000-series" of sites between Sheikh 'Esa and Sheikh Ahmed, but unfortunately it has not been possible to establish precisely which one. It may correspond to Brunton's locality 3000/10, but Brunton's map (Brunton & Caton-Thompson 1928: pl. II) does not quite match the actual topography. Most of the low desert in the Badari region between Qau Bay and Wadi el Asyuti is very narrow and is dissected into many "spurs" by small wadis and gullies. There is a small village at the edge of the cultivation immediately to the north of BD-36, and recent activity may well have altered the size and shape of some of the adjacent spurs, thus preventing Brunton's spur sequence to be followed. Nonetheless, BD-36 was untouched by the modern village activities, and showed only some old disturbance due to Brunton's probing and perhaps some grave plundering as well. There were indications of a few Dynastic burials, otherwise there appeared to be evidence of only Gerzean use. Two 5x5 m squares were marked out for systematic surface scraping: one near the tip of the spur, and the second where the spur sloped down into a gully. Both units produced an abundance of straw-tempered ware ceramics, typical of the Gerzean, as well as smaller quantities of Nile silt and marl wares. A marl ware sherd with a painted

spiral (i. e. a piece of typical Decorated ware) was found just outside one of the 5x5 m collection areas. The lithic artifacts collected consist mainly of small-sized debitage (i. e. flakes, flake fragments and shatter that would pass through a 20 mm mesh). There is a total of 11 tools, 4 of which are made on reasonably regular blades and bladelets.

BD-51 is a newly discovered site near Nag'Arab Miteir. It is a large site with extensive Predynastic occupation deposits which was reused as a cemetery during Graeco-Roman times. A 5x10 m area was marked out for surface scraping in an area, which though disturbed by later burials, showed a concentration of Predynastic ceramics. The main ware represented, as at BD-36, is the Gerzean straw-tempered fabric. Nile silt and marl wares are also present. In addition, the collection includes five fine Nile silt sherds, two of which have slipped and polished rippled surfaces. These suggest that the site may have a Badarian component as well. The lithic collection comprises 175 pieces in addition to a large quantity of small-sized debitage. There are 25 tools which include two endscrapers, a burin, five notches, a truncation, two broken blade tools with alternate backing retouch, and two unusually small bifacial crescent drills.

Test excavations at Hamamieh

During the 1989 season, two test pits (TP1 and TP2) were excavated at Caton-Thompson's site, North Spur Hemamieh, which is located about 2.5 km north of the modern village of el Hemamieh. Caton-Thompson excavated nearly all of the main area of the site. However, it is clear that she did not touch the area upslope of her excavation unit "strip H", the edge of which is still discernible. The two test pits were thus placed in this undisturbed area. TP1 was a 1x3 m unit positioned approximately 40 cm upslope from the edge of strip H. At a depth of about 45 cm, part of a circular mud feature having a maximum diameter of 148 cm, was uncovered. For reasons too lengthy to explain here (but fully discussed in Holmes & Friedman n. d.), the feature in TP1 represents roughly a third of Caton-Thompson's hut circle no. 268. She must have excavated about half of the circle in her strip H and interpolated the rest of the circle in her excavation plan (Brunton & Caton-Thompson 1928: pl. LXIII). There was absolutely no sign of disturbance in TP1 and consistent pottery sequence was obtained. The mud circle was built on a hard layer of "breccia" which occurred at a depth of 70-75 cm below surface. This "breccia" layer is the hard cemented limestone gravel deposit that Caton-Thompson found underlying the bulk of the cultural deposits at Hemamieh. TP2 was a 1x1 m unit placed approximately 5.7 m north of TP1 and about 4 m from the edge of Caton-Thompson's strip H.

The stratigraphy observed in both test pits corresponds to that reported by Caton-Thompson with brown and ashy cultural deposits sandwiched between a surface limestone scree deposit and the "breccia" layer, although whereas the depth of deposits in her excavations was mostly in the region of 1.8 m, the deposits in TP1 and TP2 were only about 70-75 cm thick (to the top of the "breccia",

TP1: Level		
1		(only two undatable sherds recovered)
2		Late Gerzean
3		Late Gerzean
4		Early Gerzean
5	internal & external	transitional Amratian-Gerzean
6		Amratian
7		transitional Badarian-Amratian
8		Badarian or transitional Badarian-Amratian
	Note: "internal" and "external" refer to whether the deposit is from inside or outside the mud circle.	
TP2: Level		
1		Gerzean (but sherds somewhat mixed)
2		(undated; no ceramics found)
3		Early Gerzean ?
4		Amratian
5		transitional Badarian-Amratian
6		Badarian
7		Badarian
8		(undated; "breccia" layer, no ceramics found)
9		(undated; no ceramics found)

Table 1. Hemamieh. Suggested dating of the levels in TP1 and TP2, based on ceramic data.

because of their peripheral location). Traces of cultural deposits together with a few lithic artifacts were found beneath the "breccia" in TP2.

Although the sherd samples from the test pits are not very large (127 sherds from TP1 and 184 from TP1 and 184 from TP2, 311 sherds altogether; Caton-Thompson herself used only 439 sherds deemed to be of chronological value to date the levels of the whole site), they suggest a continuous sequence spanning from the Badarian to the Gerzean (see Table 1). There is a gradual change in the ceramic composition from one period to the other. The identification of an Amratian level is not clear-cut; there are no distinctive elements to distinguish it. Rather the designation Amratian has been applied where all, or practi-

cally all, of the Badarian ceramic wares (organic-tempered and fine Nile silt) in the sequence have phased out, and before any characteristic Gerzean form appear. Thus the ceramics from the tentatively identified Amratian horizon consist predominantly of straw-tempered and Nile silt wares, some of which have been slipped and polished.

The two test pits yielded only small numbers of lithic artifacts: 51 from TP1 and 131 from TP2. The majority of the pieces consist of debris (chips and chunks), and between them, two pits produced only 7 tools: a bifacial sickle, an irregular glossy bladelet tool, a retouched flake from TP1, a burin, sidescraper, retouched piece, and a miscellaneous bifacial tool from TP2. The sickle is apparently the only complete bifacial specimen from Hemamieh. Caton-Thompson remarked that she did not find any (Brunton & Caton-Thompson 1928: 75), although there is a broken bifacial sickle (UC10525) from her excavations in the Petrie Museum.

Only very limited faunal remains (analyzed by Brewer) were recovered. The most notable genera present are the fish, *Clarias* and *Synodontis*, and a *Conus* shell which probably came from the Red Sea. The plant remains (analyzed by Nabil el Hadidi, Wafaa Amer and Nahed Mourad Waley) include domestic wheat (*Triticum* sp.) from the Badarian and subsequent levels, and barley (*Hordeum* sp.) from a transitional Badarian-Amratian level.

Charcoal was fairly abundant and four samples were submitted for radio-carbon dating. The dates obtained are shown in Table 2 together with their calibrated ranges computed using Stuiver & Reimer's (1986; 1987) program, CALIB (which, for the period 2500-5210 B.C. uses the data of Pearson et al. 1986). The two dates for the Badarian levels in TP2 yield a calibrated age range of ca. 4400-4000 B.C. The most probable calendrical age range (at the 95.4% confidence level) for the sample from TP1 level 6 internal, tentatively assigned to the Amratian based on its ceramic data, is 3827-3620 B.C., which is consistent with radio-carbon dates obtained for level 4 of TP1 and gives a most probable calendrical age range of 3700-3494 B.C. (at the 95.4% confidence level). The pottery from this level suggests an early Gerzean attribution.

Test excavations at locality 3400

Site 3400 is Brunton's designation for a Badarian settlement located about 0.5 km north of Deir Tasa. In 1989, it appeared to be essentially undisturbed, and was noted as the most promising Badarian locality visited that season. In 1992, it was found that half of the site had been cut away and converted into fields. Thus, it was considered imperative that at least a test excavation was carried out before any more of the site was destroyed. Consequently, a 2x4 m test pit (TP1) was opened.

TP1 was divided into two squares, A and B. The excavation revealed an *in situ* trash pit which was traced over eight 10 cm levels in square B. (Only the very edge of the feature occurred in square A, and to save time, only four 10 cm

Sample provenance	Lab No.	C-14 age BP $\pm 1 \sigma$	Calibrated age ranges at 68.3% confidence level (with relative contribution to the 68.3% probability distribution)	Calibrated age ranges at 95.4% confidence level (with relative contribution to the 95.4% probability distribution)
TP1 Level 4	Beta-35822	4790 \pm 60	3671-3667 (0.02) 3648-3511 (0.94) 3394-3388 (0.03)	3700-3494 (0.87) 3474-3451 (0.02) 3431-3378 (0.11)
TP1 Level 6 internal	Beta-35823	4940 \pm 80	3902-3883 (0.08) 3812-3791 (0.09) 3790-3645 (0.83)	3958-3837 (0.23) 3827-3620 (0.72) 3574-3533 (0.05)
TP2 Level 6	Beta-35824	5300 \pm 60	4231-4191 (0.24) 4165-4040 (0.76)	4327-4281 (0.06) 4247-3997 (0.94)
TP2 Level 7	Beta-35825	5440 \pm 60	4354-4239 (1.00)	4456-4417 (0.05) 4404-4220 (0.82) 4201-4145 (0.11) 4111-4090 (0.01)

Table 2. Radiocarbon dates from Hemamieh.

levels were dug there). TP1 yielded pure Badarian ceramic and lithic assemblages. The pottery consists predominantly of an organic-tempered ware having mostly brown wet-smoothed or lightly burnished surfaces. There is also a small amount of Badarian fine Nile silt ware, some of which has the characteristic Badarian rippled decoration. In addition, the excavation yielded two black-incised sherds which may pertain to so called "Tasian" beaker vessels. The lithic assemblage comprises mainly small-sized debitage and flakes. The few tools include endscrapers, notches, denticulates, irregular truncations, and a small bifacial triangle.

Botanical and faunal remains were also recovered from the test excavation, but they have yet to be analyzed. The animal bones include a fairly large number of fish vertebrae.

Modern destructions of sites

Modern land-use activities are having an extremely damaging impact on the archaeology of the region, and it is very noticeable that the use of the low desert has intensified since 1989. Huge areas are being reclaimed for agriculture, and many villages are spilling on to the low desert. Modern cemeteries too are expanding considerably. In order to assess this modern cemeteries encroachment

systematically, two images acquired by the French satellite, SPOT, have been image processed and digitized; one scene was taken on December 6, 1987 and other on November 23, 1991. Both are multispectral scenes having a spatial resolution of 20 m. While the analysis of this satellite data is not yet complete, a comparison of the two images does reveal substantial differences. New fields, irrigation canals, roads, and expanding village areas show up quite clearly, and the digitized data will be used to provide quantitative information concerning the spread of these developments into the low desert.

To give a provisional idea of the rate of destruction of archaeological localities in the Badari region, the 42 sites first visited in 1989 may be considered. During that season, 5 (12%) sites were found to be completely destroyed by modern activities, while just three years later, in 1992, the total of destroyed sites had risen to 14 (33%) with a good many more showing severe damage. At this rate, there will soon be no archaeological sites left except for the rock tombs and quarries in the limestone escarpment.

Concluding remarks

The recent investigations have shown that the Badari region still has a large number of Badarian and later Predynastic sites worthy of further work (the area also has abundant Roman remains which deserve to be properly documented). The ceramic and lithic samples so far studied provide important new data to supplement the information obtained from the selective collections made by Brunton and Caton-Thompson. The new radiocarbon dates confirm that the Badarian is a tradition extending back to more than 4000 B.C. - a key date, for there are very few localities in Upper Egypt representing food-producing communities rather than hunter-gatherers that are older. The principle such sites outside the Badari region occur in the Gournia-Armant area where one locality (MA 21/83) has an early occupation phase dated to more than 5100 B.P. (or > 4050-3950 cal. B.C.), and a hearth at another (MA 6/83) has been dated to 5560±80 B.P. (Ginter et al. 1987; 1988). The excavators assign these sites to their "Nagadian" culture.

There is a paucity of Amratan material in the Badari region which raises the question of whether the Badarian tradition continued locally into the Amratan time period, a suggestion also made by Kaiser (1956; 1985). However, it is possible that after ca. 4000 B.C. the Badarian developed into an "evolved" Badarian which incorporated some Amratan elements. The later Predynastic sites have been found to be predominantly Gerzean. It is the settlement sites of this phase which yielded the lithic artifacts assigned to the Mostagedda industry, and the recent fieldwork confirms that it is an industry characterized by regular blade and bladelet technologies in contrast to the earlier flake-based Badarian industry.

However, sites are disappearing very rapidly as the local people reclaim large tracts of low desert for agriculture and extend their villages. If a thorough understanding of Predynastic developments in the region is to be achieved,

further fieldwork must be carried out as soon as possible. The current unprecedented expansion of land-use activities means that the majority of archaeological sites will have been destroyed within 4-5 years.

Acknowledgements

The Prehistory of Badari Project has been supported by grants from the British Academy and the Central Research Fund of London University. I am grateful to Ted Brock, Director of the Canadian Institute in Egypt, and his assistant, Saad Badiva Mohammed, for their invaluable help in Cairo. I should also like to thank my colleagues, Renee Friedman and Chris Ellis for their help in the field, as well as Magdy Fawzy and 'Esam Meghazy Abdel Rahman, Inspectors of the Egyptian Antiquities Organisation, for their participation and assistance in the 1989 and 1992 seasons, respectively. Additional thanks go to Renee Friedman for her efforts to teach me the finer points of ceramic analysis. Since I was on my own in 1992 as far as the pottery was concerned, her instruction is very much appreciated.

References

- BRUNTON, G. 1937. Mostagedda and the Tasian Culture. London: Quaritch.
- BRUNTON, G. 1948. Matmar. London: Quaritch.
- BRUNTON, G. & G. CATON-THOMPSON. 1928. The Badarian Civilisation. London: British School of Archaeology in Egypt.
- GINTER, B., J. K. KOZLOWSKI & M. PAWLIKOWSKI. 1987. Investigations into Sites MA 6/83 and MA 21/83 in the Region of Qurna-Armant in Upper Egypt. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 43: 45-66.
- GINTER, B., J. K. KOZLOWSKI, M. LITYNSKA & M. PAWLIKOWSKI. 1988. Field Report from the Excavation of the Sites MA 21/83 and MA 21a/83 near Armant in Upper Egypt in 1986. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 44: 95-104.
- HASSAN, F. A. 1984. A Radiocarbon Date from Hemamieh, Upper Egypt. *Nyame Akuma* 24/25: 3.
- HOLMES, D. L. 1988. The Predynastic Lithic Industries of Badari, Middle Egypt: New Perspectives and Inter-regional Relations. *World Archaeology* 20: 70-86.
- HOLMES, D. L. 1989. The Predynastic Lithic Industries of Upper Egypt: A Comparative Study of the Lithic Traditions of Badari, Nagada and Hierakonpolis. *British Archaeological Review - International Series* 469 (2 vols.). Oxford:
- HOLMES, D. L. & R. FRIEDMAN. N. D. Survey and Test Excavations in the Badari region, Middle Egypt.
- KAISER, W. 1956. Stand und Probleme der ägyptischen Vorgeschichtsforschung. *Zeitschrift für Ägyptische Sprache und Altertumskunde* 81: 87-109.

- KAISER, W. 1985. Zur Südausdehnung der vorgeschichtlichen Deltakulturen und zur frühen Entwicklung Oberagyptens. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 41: 61-87.
- PEARSON, G. W., J. R. PILCHER, M. G. L. BAILLIE, D. M. CORBETT & F. QUA. 1986. High-Precision ^{14}C Measurement of Irish Oaks to show the Natural ^{14}C Variations from AD 1840 to 5210 B.C. *Radiocarbon* 28: 911-934.
- STUIVER, M. & P. J. REIMER. 1986. A Computer Program for Radiocarbon Age Calibration. *Radiocarbon* 28: 1022-1030.
- STUIVER, M. & P. J. REIMER. 1987. User's Guide to the Programs CALIB & DISPLAY 2. 1. Seattle: Quaternary Isotope Laboratory, University of Washington.