

# EXCAVATIONS AT 'AIN GHAZAL 1984: PRELIMINARY REPORT

by  
Gary O. Rollefson and  
Alan H. Simmons

## Introduction

The third consecutive field season at 'Ain Ghazal began on 7 July and continued through 23 August 1984. The primary goals of the 1984 season included the following: a) continuation of the investigation of the architecture and associated cultural material exposed during the 1982 and 1983 seasons (hereafter referred to as the Central Field). One particular facet of attention was directed towards the possibility of associating the 1983 statuary cache<sup>1</sup> stratigraphically with observable occupational units to the south, west, and north of the cache; b) excavation probes into the area dominated by the fifteen metre expanse of plaster floors and associated stone walls visible in the bulldozer cuts that created the car park in the southern area of the site<sup>2</sup> (hereafter, the South Field); c) testing of some visible architecture and cultural deposits in the eastern enclave of the village across the Wadi Zarqa from the main village site (hereafter, the Eastern Field); and d) additional reconnaissance of the immediate site vicinity in an effort to establish discretely the site boundaries of the Neolithic 'Ain Ghazal. Results of the preliminary analysis of the finds from the various parts of the 1984 season are presented below.

## Site Size

An increase in the size of the 'Ain Ghazal community was revealed during a geomorphological survey of the immediate vicinity of the main village area. In addition to the 600.00 x 160.00 m. (9.6 ha) main

village area and the 450.00 x 60.00 m. (2.7 ha) eastern enclave across the Wadi Zarqa to the east,<sup>3</sup> a newly created bulldozer section across the Wadi Fakhit, a major tributary to the Wadi Zarqa just to the northwest of the main village area, was identified. Here, in a cut measuring some 35.00 m. on a side and approximately five metres deep, an *in situ* plastered floor and a deep claylined/pottery-lined pit(?) were visible in the section. The location of this extension of the site has not yet been accurately mapped, but it now appears that the Neolithic settlement far exceeds twelve hectares, making it the largest known Neolithic village in the Near East.

Artefacts from this part of the site were very rare and non-diagnostic, but it appears that this section probably dates to the final phases of the Pre-Pottery Neolithic (PPN) or perhaps the earlier part of the succeeding Pottery Neolithic A (PNA). It should be noted here that a thick layer of yellowish clay, very fine in texture, was located in the lower portion of the bulldozer section. Clay of similar properties was used for the manufacture of human and animal figurines in the main village site as well as for unfired (and fired?) ceramic vessels found in PPNB loci.

## East Field

Two excavation trenches of approximately 3.00 x 2.50 m. each probed nearby areas in the northernmost reaches of the east enclave. Both trenches revealed a minimum of three construction phases of houses situated on a relatively steep slope, although it is not possible at this point to

<sup>1</sup> G. Rollefson, Ritual and Ceremony at Neolithic 'Ain Ghazal (Jordan), *Paleorient*, 9:2 (1983) p. 29-38.

<sup>2</sup> G. Rollefson and E. Suleiman, Survey of Exposed Neolithic Structures at 'Ain Ghazal *ADAJ*, XXVII

(1983) p. 471-480.

<sup>3</sup> G. Rollefson and A. Simmons, The 1983 Season at 'Ain Ghazal: Preliminary Report, *ADAJ*, XXVIII (fc).

correlate the events in these two trenches.

In Square 8547, the lowest floor had been replastered, although due to the limited area of the probe, as well as to severe erosion and damage inflicted during the construction of a water line in the area, no associated walls were encountered. Approximately 0.20 m. above this house floor, another plaster floor was exposed, once again without any associated walls. The most recent occupation is reflected by another floor approximately 0.15 m. higher in the section, complete with the corner formed by remnants of the eastern and southern walls of the structure.

The second test probe (Square 8344) was located approximately 15.00 m. to the southwest of Square 8547. Here the lowest occupational level was indicated by a compacted layer of soil just above the basal clay and possibly a terrace. Above this earliest evidence of habitation was a plaster floor associated with a wall constructed of massive limestone blocks (ca. 0.70 x 0.40 x 0.40 m.), much larger in size than the stones normally used for wall construction elsewhere in the Eastern Field or in the main village area. The most recent occupational episode was constructed 0.40 m. above the middle floor with an associated corner formed by parts of the eastern and southern walls.

Artefacts were relatively rare in both trenches, and the paucity of animal bones was particularly remarkable. Charcoal was present in minute quantities only. Nevertheless, characteristics of both the technology and typology of the chipped stone artefacts from the East Field permit a tentative correlation with the South Field of the main site, later in time than the late PPNB layers that characterize the cultural material in the Central Field (see discussion below).

### South Field

An area of approximately forty-five

square metres was excavated in the South Field, and the average depth in this area was more than 2.50 m. down to the floors of the fifteen metre structure visible in the bulldozer section. This field produced some of the most surprising results of the season, and this part of the site holds particular promise for future investigations.

Five major layers (and many units of microstratigraphy) were identified in the South Field excavations (Fig. 1). The uppermost of these — Layer 1 — was a heavily disturbed zone associated with relatively recent agriculture, especially the plowing of garden plots in an orchard. A large variety of artefacts was recovered from this layer (including an iron spear point of probable Islamic date), but it was evident that considerable mixing of formerly discrete temporal episodes has occurred.

Layer 2 yielded the first unsuspected results. This layer of up to a metre or more deep contained substantial quantities of well-made ceramics, including several *in situ* storage jars (Figs. 2, 3). The decoration and technique of the pottery is distinctive of the Yarmoukian phase and places this layer in the earlier part of the PNA period. Sherds with banded herring-bone incision are identical with specimens from Tell Abu Thawwab,<sup>4</sup> and many pieces bear a dark red burnished decoration.<sup>5</sup> So far, analysis of the ceramic material has not revealed any evidence of painting *per se* in geometric designs common, for example, at Sha'ar Hagolan,<sup>6</sup> Dhra,<sup>7</sup> and other early PNA sites in the area.

Associated with the ceramics were poorly preserved architectural remnants that suggest less substantial and durable housing for the inhabitants, although the small area exposed in the 1984 season may reflect a sampling problem: were the thin walls and beaten-earth floors the remains of dwellings or of outbuildings/structures associated with animal husbandry? Chip-

<sup>4</sup> E. Gillet and C. Gillet, *Jebel Abu Thawwab, Jordan, Levant*, 15 (1983) p. 187-191; Z. Kafafi, Yarmouk University, Irbid, Jordan, Personal communication.

<sup>5</sup> M. Adler, personal communication.

<sup>6</sup> M. Stekelis, *The Yarmoukian Culture of the Neolithic period, Jerusalem, 1972.*

<sup>7</sup> C.-M. Bennett, *Soundings at Dhra', Jordan, Levant*, 12 (1980) p. 30-39.

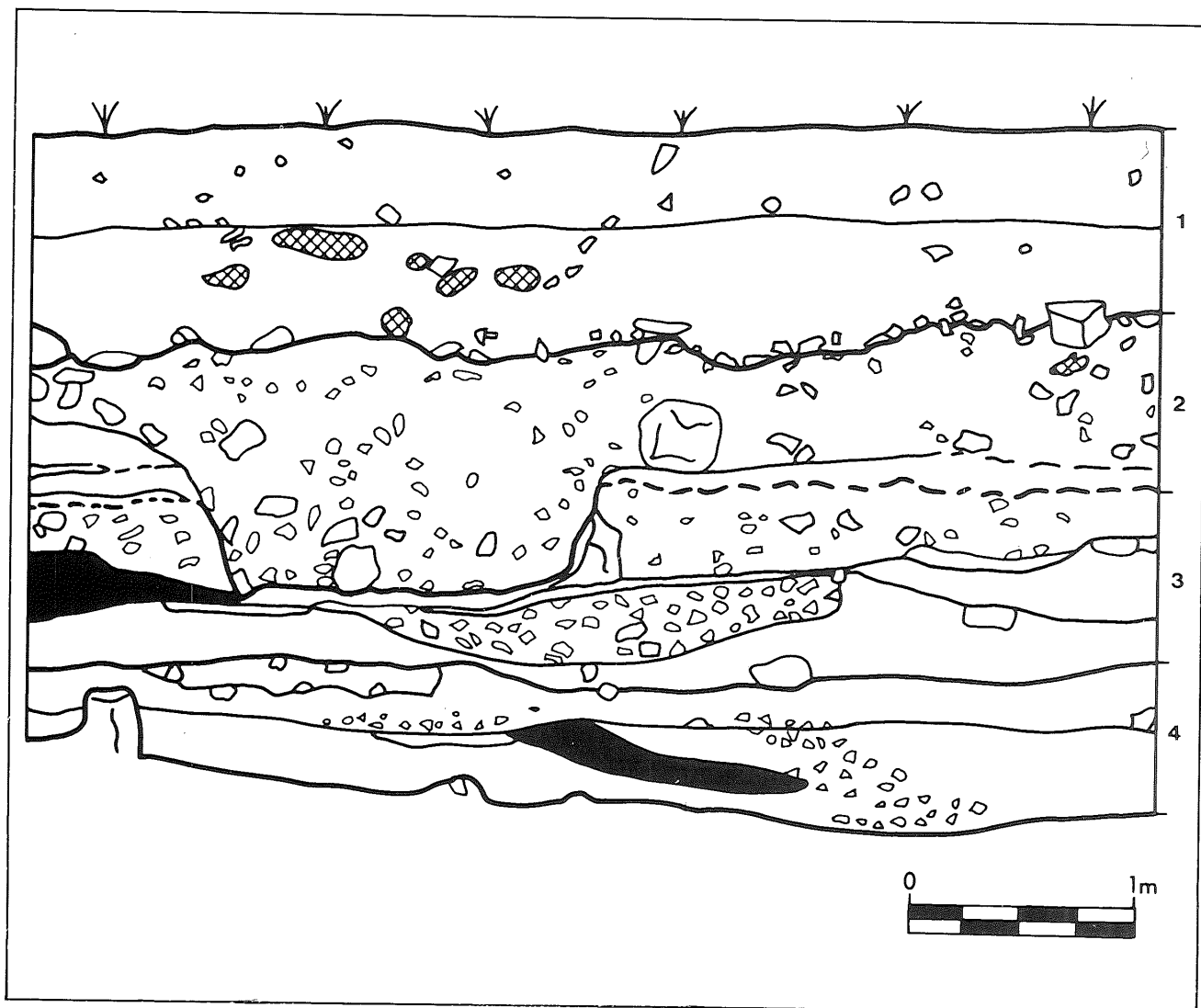


Fig. 1. West section of Square 4452 showing the major stratigraphic units found in the South Field. (Drawing: Deborah Fridell).

ped stone artefacts include characteristic early PNA types such as elaborately worked arrowheads and macro-denticulated sickle blade segments. A single human burial was found in the corner of one structure, in a flexed position with the skull absent.

Layer 3 consists of an aceramic period fill of, for the most part, structures that were erected before the formation of Layer 3. (An exception here may be some substantial architecture in the northernmost trench, Square 4454, which may be contemporary with the Layer 3 deposits in Squares 4452 and 4453. This correlation is very tentative and will be clarified when the microstratigraphic analysis is completed). The artefacts from Layer 3 included no pottery except for intrusive elements from Layer 2, indicating that the cultural deposition occurred before the

emergence of the Yarmoukian phase. Chipped stone tools were abundant, as were small finds, ground stone objects, and animal bone. Several human burials were also recovered. As was the case for Layer 2, charcoal and macrobotanical evidence (seeds, etc.) were extremely rare.

“Layer 4” consists of the floors and walls of the fifteen metre structure and other architectural evidence, and it does not refer specifically to any accumulation of other kinds of occupational debris. The re-use and modification of the buildings by the people responsible for the formation of Layer 3 has introduced a strong complicating element in the interpretation of the “Layer 4” architecture, and only after intensive microstratigraphic analysis will we understand the nature of the original construction and subsequent remodelings of the fifteen metre building (Pl. I,1).

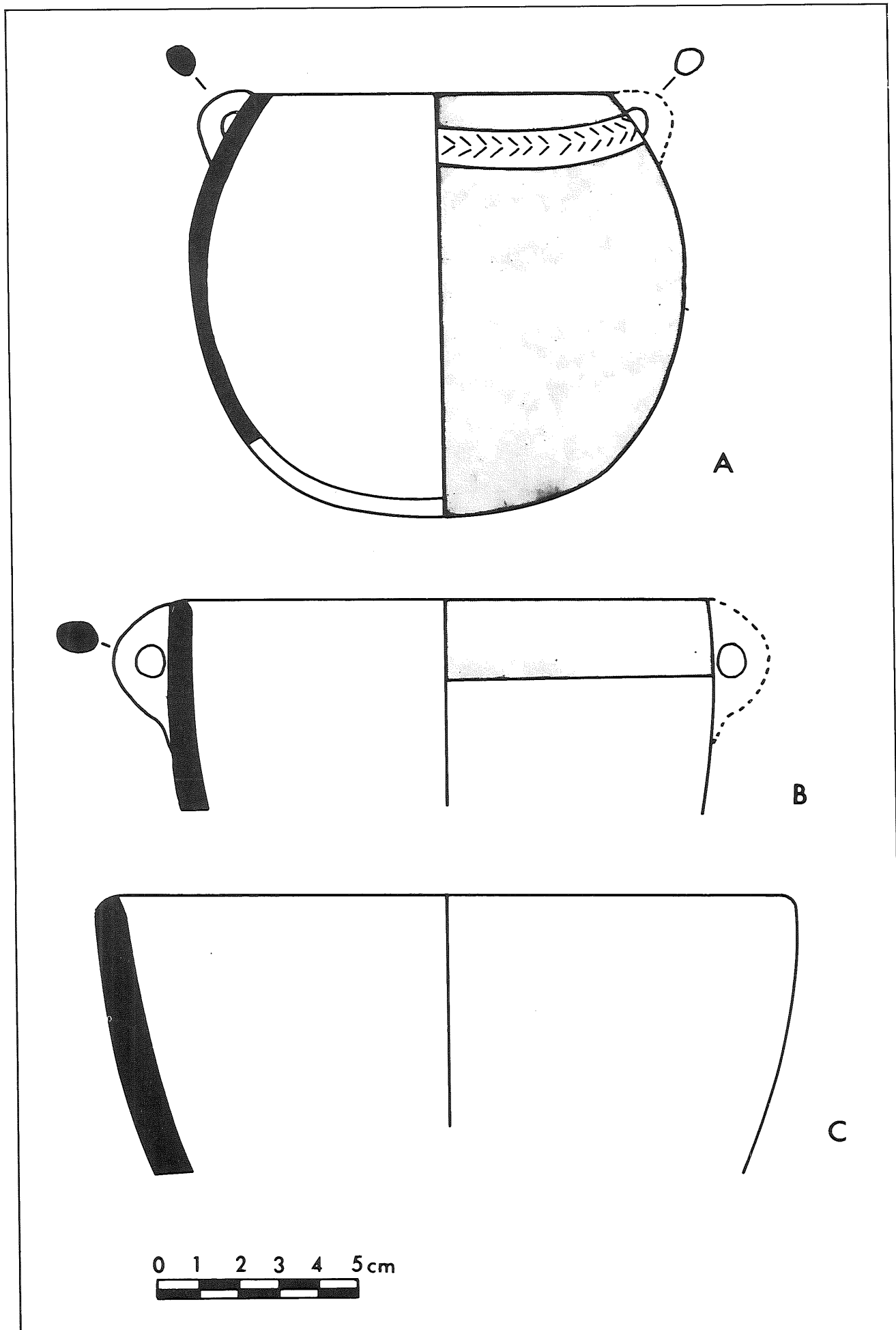


Fig. 2. Pottery from Layer 2, South Field, 'Ain Ghazal 1984. (Drawing: M. Adler).

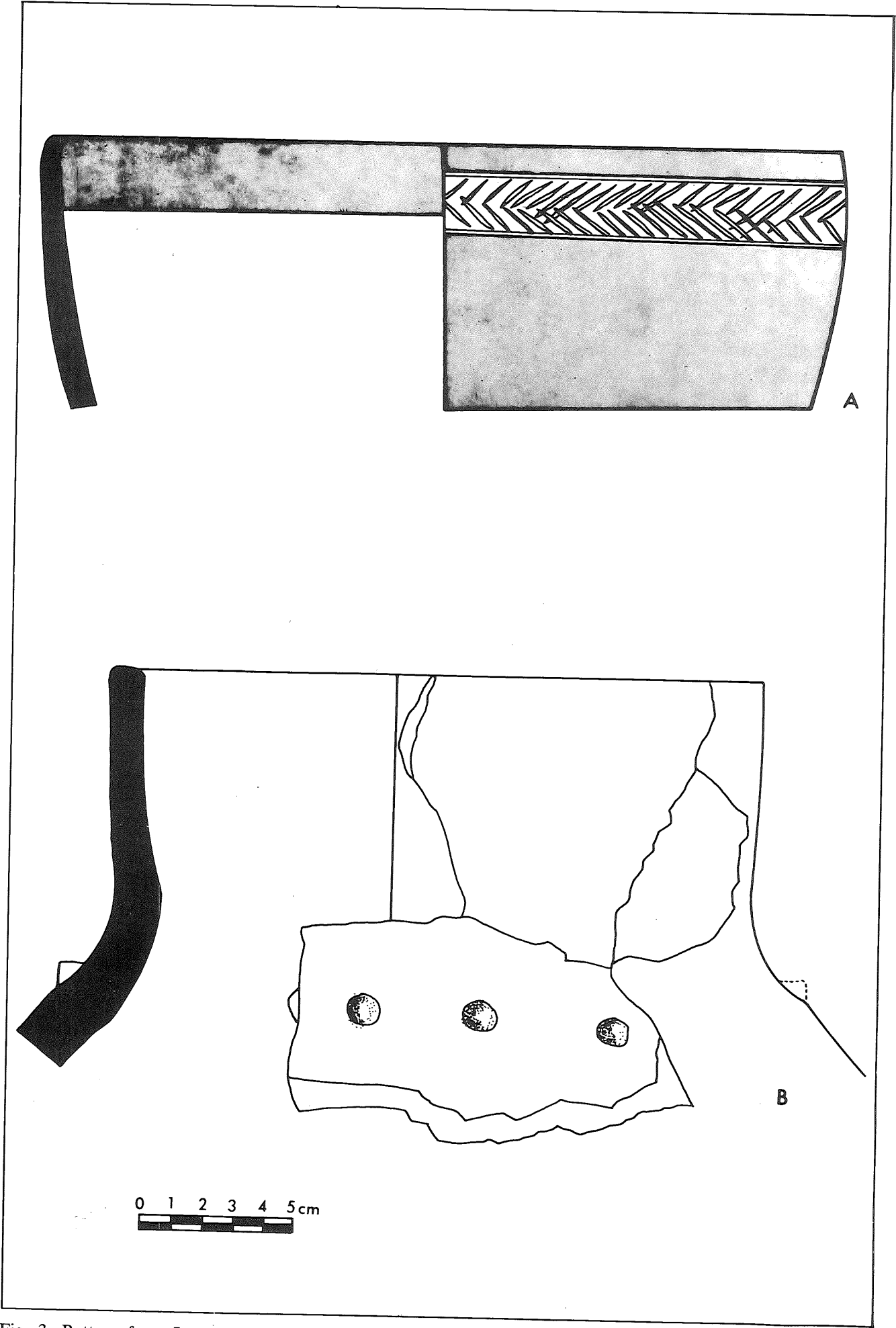


Fig. 3. Pottery from Layer 2, South Field, 'Ain Ghazal 1984. (Drawing: M. Adler).

Layer 5 is the temporary designation for the archaeological material lying beneath the floors of "Layer 4". Several pits dug by the inhabitants of Layer 3 for burials and other purposes cut through the floors into Layer 5, mixing the artefacts from these three discrete habitation layers. Excavation in the South Field did not probe Layer 5, although a small test pit approximately 25.00 m. to the southeast of the fifteen metre structure sampled deposits roughly contemporaneous with Layer 5.

Because the microstratigraphic analysis is still in progress, the artefacts tabulated in Tables 1-11 are not segregated according to the separate layers. Instead, all are lumped together in the "South" column. (Artefacts from the disturbed Layer 1) are included in the *ex situ* column). Although this arrangement distorts the interpretations at this preliminary stage of our assessment, it is interesting to note that substantial differences can be seen in comparisons with the Central Field. While small units of cultural development are not apparent at this time, it seems that the South Field behaves as a distinctive entity, at least in terms of Layers 2-4. This tentative conclusion is supported in part by intuitive impressions obtained in the field as the artefacts and features were excavated, as well as during preliminary sorting in the laboratory. These differences are elaborated below.

### Central Field

The excavations in the Central Field continued the research initiated in this sector in 1982 and 1983. Primary concerns concentrated on the stratigraphic history of this part of the village in the Step Trench (Squares 3073/3273) as well as the complete exposure of dwellings discovered in the first two field seasons.

The Step Trench confirmed that a minimum of nine major construction phases occurred during the occupation of this area, and close examination of the unexcavated parts of the bulldozer section

revealed that one or more of the later phases possibly overlap in time with the PNA occupation in the South Field. Two floors, one above the other, exposed in Sqs. 3073/3273 (Phases V and VI) showed intricate painted designs, evidently applied using a "finger painting" method. Both floors were in a poor state of preservation, and only limited areas of each preserved the painted designs. These consist of parallel and sub-parallel lines that occasionally intersect (Pl. I: 2), and while the overall pattern is elusive, parallels with wall paintings from the "Vulture Shrine" at Çatal Hüyük in Anatolia are striking.<sup>8</sup> It should be noted that "finger painting" also characterized the floor of the easternmost room of the three-room Phase IV house in the same trench, just below Phase V.

Perhaps the most remarkable feature of the architecture in the Central Field was the abundant evidence of renovation in nearly every structure that was investigated. Dwellings witnessed several rearrangements of interior (and perhaps exterior) space with the erection of new walls (Pl. II: 1), creation of doorways, blocking of doorways, (Pl. II: 2), building of screens and storage facilities (Pl. III: 1, 2), and abandonment of certain rooms. These remodeling episodes evidently reflect the changing needs of the inhabitants over more than just one generation, although additional microstratigraphic work is necessary to unravel the sequence.

Another element of interest is the variation in room sizes. The west room of the house in Sqs. 3083/3283 (Pl. II,2), for instance, measured nearly 5.00 x 5.00 m. This contrasts with the western room of the house in the adjacent Square 3082 (Pl. III,1), which had dimensions of approximately 6.00 x 3.00 m. The centre room of the three-room house in Sqs. 3073/3273 (Pl. III,2), on the other hand, was even smaller, measuring ca. 4.00 x 2.25 m.

The number of human and animal figurines recovered from the Central Field was substantial, although most were in a poor state of preservation. Two figurines, however, merit special attention here. In a

<sup>8</sup> J. Mellaart, *Earliest Civilizations in the Near East*, London, 1965, Fig. 86.

tiny pit beneath a pavement of limestone flagstones in the SW corner of the western room of the house in Sqs. 3083/3283, two clay figurines of cattle lay side by side (Pl. IV: 1). Each of the figurines had been pierced by two flint bladelets while the clay was still wet: one bladelet penetrated the chest area from the side while another entered the heart area from the front. This is the only evidence of "ritual killing" of animal figurines known from the PPNB period, and the implications for the interpretation of this sort of small finds, which were so abundant in 1983, become much clearer. It is apparent that these figurines played a ceremonial role in human-animal relationships, and they probably represent artefacts associated with magic/luck in wild cattle hunting and fertility.

The faunal remains from the Central Field were once again very abundant and well preserved. The preliminary analysis of the relative numbers of species conforms to patterns witnessed for the earlier seasons at 'Ain Ghazal.<sup>9</sup> Of note among the animal bones, three *Bos* metacarpals were found at the bottom of a plastered stone-lined storage feature in the house in Square 3082 (Pl. IV: 2). Beneath one of the bones lay a small *Bos* figurine. The bone itself had been incised with three sub-parallel grooves along its length, and cross-hatching had been carved into the bottom groove at various intervals. The incised metacarpal was rather poorly preserved, and it has not been possible to examine the incisions in much detail. Nevertheless, whatever the association with the storage feature may entail, the correspondence of the three *Bos* bones and the figurine is indicative of some ceremonial correlation.

Paleobotanical evidence was also relatively abundant, and a broad range of utilized plants — both domestic and wild — has now been identified. (Table 12). In a pattern that appears to differ from contemporary settlements in the Near East, domesticated peas and lentils appear to have constituted the primary staple in

the diet of the 'Ain Ghazal population, with supplements provided by domestic wheat and barley as well as fig, chickpea, almond, and pistachio.<sup>10</sup> The westernmost room of the house in Sqs. 3073/3273 had been subdivided by a low wall, and to the north of this wall were the remains of tens of thousands of charred peas and lentils, with barley occurring less abundantly (Pl. III,2).

Human burials from the Central Field have expanded our understanding of the post-mortem treatment of 'Ain Ghazal residents in PPNB times. Burial styles continued to reflect the patterns noted in the first two seasons,<sup>11</sup> although the previously noted association of sub-floor burials with room hearths must be reassessed.

Instead of the previously observed one-to-one correspondence of burial pits to the south of room hearths, the evidence from the western room of the house in Sqs. 3083/3283 revealed that five burial pits were arranged *around* the hearth (although one was situated to the south). In addition, at least one more adult was found beneath the SE corner of this room. An infant had been placed beneath the doorway connecting this room with the eastern room of the house. A cache of three skulls (a male older than 60, another male between 21-30, and a child of above 11 years) was found along the SE wall of the western room, all in a line facing the wall (Pl. V). Along the western wall of another house (Sq. 3080), four infants had been placed *on* the floor at roughly one-metre intervals; the significance of this disposition is difficult to determine at the moment, but evidently infant mortality had some ceremonial influence among the village residents.

Finally, the skull of a 7-8 year old child was found beneath the floor in the SW corner of the eastern room of the house in Sqs. 3083/3283. Although the cranium had been badly damaged during a later remodelling of the room, it appears that a black pigment had been applied to the back of

<sup>9</sup> Ilse Köhler-Rollefson, personal communication; G. Rollefson, *et. al.*, Excavations at the PPNB Village of Ain Ghazal (Jordan) 1982, *Mitteilungen der Deutschen Orient Gesellschaft*, 116

(1984) (In press).

<sup>10</sup> R. Neef and M. Donaldson, personal communication.

<sup>11</sup> Rollefson and Simmons, *op. cit.*

the skull. While there is no direct evidence that this skull was plastered, the black colour may have represented hair. This interpretation is consistent with the treatment of some of the Jericho plastered skulls,<sup>12</sup> although the pigment used there was red. Another possible parallel was noted by Tubb on some of the statuary discovered in 1983.<sup>13</sup>

### Intra-Site Comparisons

At this early stage in the analysis of the stratigraphy and artefacts, it is not possible to make detailed comparisons among the various areas excavated in 1984. Furthermore, it will be several months before our radiocarbon samples are processed so that temporal relationships among these widely spaced areas can be established. Nevertheless, several features stand out in vivid contrast, and these can be cited to provide a preliminary assessment of the occupational history of the site.

There is no doubt that Layer 2 in the South Field represents a major occupation later than the classic late PPNB habitation levels in the Central Field. The presence of well-made pottery of the Yarmoukian phase places Layer 2 in the early part of the PNA period, probably around 5,700-5,000 B.C.<sup>14</sup>

Layers 3-5 in the South Field are not so easily assigned, on the other hand. Their situation beneath the Yarmoukian layer and the aceramic nature of the artefact inventory confirm that Layers 3 and 4 are clearly PPN, but the degree of contemporaneity they share with the PPNB strata in the Central Field is questionable. But several factors of the cultural material suggest that Layer 3, at least, is later than the excavated levels in the Central Field.

A comparison of the chipped stone artefact classes in Table 1, for example, reveals that the South Field is heavily dependent on a flake technology, which is

in stark contrast with the blade: flake ratio from the Central Field Layers. The differences are significant beyond the .0001 level of probability in Chi-Square comparisons. Notably, the artefacts from the East Field are also significantly different from the Central Field artefacts in terms of the flake: blade ratio, although differences between the East and South Field ratios are not statistically meaningful.

Furthermore, there are also major differences in the types of tools produced in the South and Central Fields: arrowheads outnumber spear points in the South, while arrowheads are absolutely rare in the Central Field (Table 2). Among the wide variety of burin types, which can be lumped into "simple", "complex", and "truncation" classes, there are also significant departures between the two tool kits (Table 3).

Equally important in the comparison of the South and Central Fields are the faunal remains (the sample from the East Field is too small for meaningful comparisons). In the Central Field, the only certain domesticated species is goat, although there is some slight evidence to suggest that cattle were also under some degree of cultural control.<sup>15</sup> In the South field, on the other hand, definitely domesticated species include goat, cattle, pig, and dog. This evidence is the most conclusive basis for stating that Layer 3 represents a later period of cultural development than the PPNB.

Substantiating the cultural/economic differences manifested by the artefacts and faunal remains are differences in human burial practices between the two investigated areas. In marked contrast to the model style of the Central Field, the sub-floor interments in Layer 3 are multiple burials, with two or three individuals stuffed into the same pit. Furthermore, no instances of decapitated skeletons were found from Layer 3, signifying another major departure from the cultural practices

<sup>12</sup> K. Kenyon, *The Archaeology of the Holy Land*, London, 1979.

<sup>13</sup> G. Rollefson, *et. al.*, Excavations at the PPNB Village of 'Ain Ghazal (Jordan) 1983, *fc.*

<sup>14</sup> J. Weinstein, Radiocarbon Dating in the Southern Levant, *Radiocarbon*, 26: 3 (1984), p. 333.

<sup>15</sup> Rollefson, *et. al.*, *op. cit.*



of the Central Field PPNB.

From these three independent sources of evidence, there is little doubt that Layer 3 represents a time period intermediate between the "classic" late PPNB (ca. 6,600-6,000) of the Central Field and the later PNA period (57/5500-5000 B.C.). Whether the material from Layer 3 represents a previously unrecognized stage of cultural development ("PPNC" or Early Neolithic III?)<sup>16</sup> cannot be determined on the basis of a single site, but certainly the least that can be said is that a period of local transition leading to the PNA exists at 'Ain Ghazal, even though such a transitional phase has not been noted in stratigraphic succession elsewhere in the Levant up to this time. Some aspects of archaeological reports suggest, however, that several sites may correspond to this time period, such as Beisamoun and Abu Ghosh,<sup>17</sup> Labweh in Lebanon,<sup>18</sup> and perhaps the desert sites of southern and eastern Jordan.<sup>19</sup>

The architectural complex we have provisionally designated as "Layer 4" in the South Field also provides some details which allow a tentative correlation with the Central Field PPNB levels. Although the basic construction techniques are similar, the complex design of the exterior walls and interior rooms suggest major differences compared to the simpler two- and three-roomed dwellings in the PPNB. Comprising a *minimum* of eight rooms, "Layer 4" is much more complicated than PPNB structures. In one section of the fifteen metre building several rooms open onto a plastered interior corridor. Interior walls of the complex are sometimes curvilinear, and room sizes are often much smaller. (One room, for example, mea-

sures only 1.00 x 0.60 m. Pl. I,1 center bottom). This architectural complexity is unmatched by other Palestinian/Jordanian PPNB examples, although rough parallels may be seen at Bouqras.<sup>20</sup>

Some of the architectural arrangements in "Layer 4" are undoubtedly due to modifications of the original structure by Layer 3 inhabitants. The question remains, then, how does the original building relate in time to the PPNB period?

More analysis of the microstratigraphy is necessary to clarify the sequence of the use of the fifteen metre complex, but there is one element that may complicate correlations with the Central Field structures. It has been noted, for example, that at Jericho and Beidha the PPNB inhabitants constructed at least one building at each site which served as a public structure rather than as a domestic dwelling. This interpretation was based in part on the extraordinary size of the buildings compared to normal house sizes, as well as differences in interior room arrangements. If the original fifteen metre building of "Layer 4" was a public structure, then its relative uniqueness inhibits the determination of temporal correlations with domestic buildings at 'Ain Ghazal based only on architectural comparisons.

### Statuary

Two discoveries made in the closing days of the field season deserve special comment in view of their remarkable nature. A small, shallow pit beneath the house floor in Sq. 3081 had been dug into the culturally sterile basal clay. The contents of this pit consisted of numerous large fragments of plaster sculpture similar in

<sup>16</sup> Weinstein, *op. cit.*, p. 304.

<sup>17</sup> M. Lechevallier, Abou Gosh et Beisamoun, *MTJ*, 2, Paris, 1978.

<sup>18</sup> D. Kirkbride, Early Byblos and the Beqa'a, *Mélanges de l'Université Saint Joseph*, 45 (1969) p. 45-60.

<sup>19</sup> D. Kirkbride, The Neolithic in Wadi Rumm: 'Ain Abu Nekheileh, p. 1-10 in R. Moorey and P. Parr (eds.), *Archaeology in the Levant*, Warminster, 1978; J. Waechter and V. Seton-Williams, The Excavations at Wadi Dhobai 1937-1938 and the Dhobaian Industry, *Journal of the Palestine*

*Oriental Society*, 18 (1938) p. 172-186; G. Rollefson and B. Frohlich, A PPNB Burin Site on Jabal Uweinid, Eastern Jordan, *ADAJ*, XXVI (1982) p. 189-198; G. Rollefson and M. Muheisen, Chipped Stone Artefacts from a specialized PPNB Camp Near Kharaneh Castle, Eastern Jordan, *ADAJ*, n.d.

<sup>20</sup> P. Akkermans, *et. al.*, Bouqras Revisited: Preliminary Report on a Project in Eastern Syria, *Proceedings of the Prehistoric Society*, 49 (1983) p. 335-372.

several respects with the statuary discovered at 'Ain Ghazal in 1983.<sup>21</sup> The material, which was painted pink, appears to represent from one to three or more statue heads. Unfortunately, the plaster fragments have become cemented to the pit walls in the course of the past 8,000 years. Due to the lateness in the season and the paucity of funds remaining in the budget, the pit was backfilled and protected until arrangements can be made for excavation by a trained conservator.

The second discovery occurred on the final day of the excavation season. In the process of cleaning back a bulldozer section prior to drawing the exposed stratigraphy, the edge of a large pit appeared at about 2.50 m. below the surface of the cut behind (i.e., to the west) of Sq. 3282. Within the visible portion of the pit, fragments of plaster statuary were discernible. It appears that the pit is another cache of statuary comparable in size and importance to the 1983 discovery. It was impossible to excavate the objects, so the pit was covered to protect the contents until an emergency excavation season can be arranged.

### Concluding Remarks

The 1984 excavation season at 'Ain Ghazal was unusually successful in terms of answering questions we had developed based on the data recovered in the 1982 and 1983 seasons. What appears to be a sequence of continuous occupation from the Late PPNB through the onset of the PNA periods will provide an unmatched opportunity to examine the course of cultural change during a critical period of human development. Many of the agonizing problems concerning human control over animal and plant species may now be resolvable or at least be brought into a clearer perspective. The evolution of ceramic technology can be traced in an unbroken line from the initial tentative experimentations in the PPNB through the flourishing pottery production of the Yar-

moukian phase of the PNA. Aspects of social structure and religion can be brought under more intensive scrutiny than was previously possible, and the symbolism entailed in Neolithic art will come into clearer focus.

It should be emphasized that the statuary discoveries in the last days of the dig season present an unparalleled opportunity to examine more closely the social, religious, economic, and perhaps even political facets of community life that such highly significant objects entail. With this goal in mind, proposals to fund an emergency excavation season in 1985 are currently being written for submission to appropriate granting agencies.

### Acknowledgements

Funds for the 1984 field season were provided by the National Geographic Society (USA), the Center for Jordanian Studies at Yarmouk University, and the University of Kansas. Post-season analysis is supported in part by the Cobb Institute of Archaeology at Mississippi State University and by San Diego State University. We would like to thank Alia, the Royal Jordanian Airlines, for their invaluable assistance with international travel for most of the staff. We would also like to express our gratitude to the Ministry of Education for providing us with lodging at the Abdul Monim Riyadh school in Marka. We also deeply appreciate the help and support provided by the American Center of Oriental Research in Amman, the British Institute in Amman for Archaeology and History, and Stanley Consultants.

Gary O. Rollefson  
Department of Anthropology  
San Diego State University  
U.S.A.

Alan H. Simmons  
Museum of Anthropology  
University of Kansas  
U.S.A.

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<sup>21</sup> Rollefson, Ritual, *op. cit.*

**Table 1.** Absolute (above) and relative frequencies (below) of artefact classes among the chipped stone material from the South, Central, and East Fields of 'Ain Ghazal, 1984.

Class	<i>in situ</i>			<i>No Context</i>					
	Central <i>n</i>	South <i>n</i>	East <i>n</i>	C <i>n</i>	S <i>n</i>	E <i>n</i>	X <i>n</i>		
Blades	10,252	5,334	129	2037	755	63	199		
Bladelets	2,923	1,043	9	299	166	8	42		
Flakes	9,414	9,514	189	1558	1191	68	197		
C.T.E.	643	125	3	113	25	—	4		
Burin spalls	445	226	6	53	24	2	16		
Other	21	93	1	14	12	9	1		
Microflakes	4,469	3,193	10	296	416	2	56		
Debris	5,460	3,089	32	550	440	8	136		
Cores	135	311	11	51	15	7	2		
(Tools)	(2,156)	(1,702)	(20)	(564)	(248)	(38)	(85)		
Subtotals	33,761	22,926	390	4965	3044	167	653		
Paleolithic	15	16	1	14	—	—	—		
Totals	33,776	22,942	391	4979	3044	167	653	65,952	Total

Class	Central			South			East		
	%	%'	%"	%	%'	%"	%	%'	%"
Blades	30.4	43.0	52.1	23.3	32.0	35.9	33.1	37.1	40.6
Bladelets	8.7	12.3	—	4.5	6.3	—	2.3	2.6	—
Flakes	27.9	39.5	47.9	41.5	57.2	64.1	48.5	54.3	59.4
C.T.E.	1.9	2.7	—	0.5	0.8	—	0.8	0.9	—
Burin spalls	1.3	1.9	—	1.0	1.4	—	1.5	1.7	—
Other	0.1	0.1	—	0.4	0.6	—	0.3	0.3	—
Microflakes	13.2	—	—	13.9	—	—	2.6	—	—
Debris	16.2	—	—	13.5	—	—	8.2	—	—
Cores	0.4	0.6	—	1.4	1.9	—	2.8	3.2	—
(Tools)	(6.4)	(9.0)	—	(7.4)	(10.2)	—	(5.1)	(5.7)	—
Totals	100.1	100.1	100.0	100.0	100.2	100.0	100.1	100.1	100.0
Paleolithic	(0.0)			(0.0)			(0.3)		

Note: C.T.E. refers to "core trimming element".

**Table 2.** Absolute and relative frequencies of tools among the chipped stone artefacts from the three excavation areas at Ain Ghazal 1984.

<i>Type</i>	<i>Central</i>		<i>South</i>		<i>East</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Spear points	45	4.9	14	2.1	1	6.2
Arrowheads	2	0.2	22	3.2	—	0.0
Sickle blades	82	8.9	4	0.6	—	0.0
Burins (all types)	395	42.9	217	32.0	5	31.2
Truncations	82	8.9	76	11.2	2	12.5
Scrapers (all types)	18	2.0	49	7.2	1	6.2
Denticulates	52	5.7	46	6.8	1	6.2
Notches	136	14.8	119	17.6	1	6.2
Perf./drills	72	7.8	65	9.6	2	12.5
Bifaces	12	1.3	50	7.4	3	18.8
Knives	1	0.1	10	1.5	—	0.0
Backed blades	6	0.7	5	0.7	—	0.0
Tanged blades	17	1.8	2	0.3	—	0.0
Subtotals	920	100.0	679	100.2	16	99.8
Retouched blades	268	18.9	168	13.9	3	13.6
Retouched flakes	159	11.2	294	24.3	2	9.1
Other	73	5.1	71	10.5	1	4.5
Subtotals	1420		1212		22	
Util. blades	176	10.1	140	8.5	1	3.3
Util. flakes	72	4.1	156	9.4	4	13.3
Indeterminate	73	4.2	143	8.7	3	10.0
Totals	1741		1651		30	

**Table 3.** Absolute and relative frequencies of burin classes in the Central and South Field assemblages.

<i>Class</i>	<i>Central</i>		<i>X<sup>2</sup></i>	<i>South</i>	
	<i>n</i>	<i>%</i>		<i>n</i>	<i>%</i>
Simple burins	292	73.9	.0000	108	49.8
Complex burins	90	22.8	.0000	86	39.6
Truncation burins	13	3.3	.0001	23	10.6
Totals	295	100.0		217	100.0

**Table 4.** Groundstone objects from 'Ain Ghazal 1984.

<i>Object</i>	<i>Central</i>		<i>South</i>		<i>East</i>		<i>X</i>
	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>	
Basalt axe	1	—	—	—	—	—	—
Basalt fragments	3	4	1	10	—	—	—
Basalt discs	11 <sup>a</sup>	3	3	1	1	—	—
Pestles	1 <sup>b</sup>	2	3	—	—	—	1 <sup>b</sup>
Limestone discs	4	—	4	—	1	—	—
Mullers	5	3	4	2	—	—	—
Indet. groundstone	18 <sup>c</sup>	12	17 <sup>c</sup>	2 <sup>c</sup>	2	—	—
Sandstone fragments	4	—	—	—	—	—	—
Mortars	3 <sup>d</sup>	—	4	—	—	—	—
Stone bowl (Limestone)	13 <sup>e</sup>	3	8	1	1	—	1
Stone bowl (basalt)	—	—	1	—	—	—	—
Limestone torus	—	1	3	—	—	—	—
"Worked stone"	9 <sup>c</sup>	3	4	2	—	—	—
Grooved stones	—	3	3	—	—	—	—
Burnishing stones	8	1	1	—	—	—	—
Hammerstones	7	—	5	—	1	—	—
<b>Totals</b>	<b>87</b>	<b>35</b>	<b>61</b>	<b>18</b>	<b>6</b>	<b>0</b>	<b>2</b>

Notes: A: in situ  
 B: ex situ  
 X: general site surface  
 a: one is incised  
 b: basalt  
 c: one stained with red ochre  
 d: one is basalt  
 e: one is miniature

**Table 5.** Bone tools from 'Ain Ghazal 1984

<i>Type</i>	<i>Central</i>		<i>South</i>	
	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>
Awls	18	1	14	2
Spatulas	12	4	4	—
"Comb"	—	1	—	—
Indeterminate	26	9	9	2
Other	1 <sup>a</sup>	—	—	—
<b>Totals</b>	<b>57</b>	<b>15</b>	<b>27</b>	<b>4</b>

Notes: A: in situ  
 B: ex situ  
 a: incised *Bos* metacarpal

**Table 6.** Plastic objects from the Central Field, 'Ain Ghazal, 1984.

<i>Figurines</i>	<i>In Situ</i>		<i>ex Situ</i>	
	<i>clay</i>	<i>plaster</i>	<i>clay</i>	<i>plaster</i>
Human	7a	—	—	1
Cattle	10	—	—	—
Indeterminate animal	10	—	1	—
Animal head	1	—	—	—
Appendages	1	—	1	—
Animal horns	5	—	—	—
<hr/>				
Subtotals	34	0	2	1
Modelled fragments	4	2	—	—
<hr/>				
Totals	38	2	2	1
<i>Geometric Objects</i>				
Balls	46	4 <sup>b</sup>	2	2 <sup>b</sup>
Hemisphere	1	—	—	—
"Tablet"	1	—	—	—
Cuboid	1	—	—	—
Pyramids	3	—	—	—
Cones	3	—	—	—
<hr/>				
Totals	55	4	2	2
<i>Other Plastic Objects</i>				
Painted fragment	1 <sup>c</sup>	—	—	—
Molded fragments	10	—	—	—
Reed-impressed fragments	6	X	—	—
"Loomweight"	1	—	—	—
<hr/>				
Totals	18	X	0	0

Notes. a: two bear rocker-stamped impressions  
 b: one incised  
 c: red ochre  
 X: more than 10. Pieces of statuary?

**Table 7.** Plastic objects from the South Field, 'Ain Ghazal, 1984.

<i>Figurines</i>	<i>In Situ</i>	<i>Ex Situ</i>	
	<i>Clay</i>	<i>Other</i>	<i>Clay</i>
Human	1	2 <sup>a</sup>	—
Indeterminate animal	1	—	2 <sup>b</sup>
Animal horns	2	—	—
<hr/>			
Subtotals	4	2	2
Modelled fragments	1	—	—
<hr/>			
Totals	5	2	2
<i>Geometric Objects</i>			
Balls	2	3 <sup>c</sup>	—
Cylinder	1 <sup>d</sup>	1 <sup>c</sup>	—
<hr/>			
Totals	3	4	0
<hr/>			

Notes: a: one is a small figurine base in chalk, the other a large foot (51 x 44 x 15 mm) made in stone.  
 b: male genitalia notable, probably a bull.  
 c: plaster  
 d: "hollow, as if formed around a stick"

**Table 8.** Jewelry from 'Ain Ghazal 1984

	<i>Central</i>		<i>South</i>	
	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>
<i>Beads</i>				
Bone	90 <sup>a</sup>	—	—	—
Greenstone	—	1	—	—
Clay	1	1	—	—
Shell	1	—	2	—
Limestone	—	—	1	—
<i>Pendants</i>				
Fossil sea urchin	2	—	—	—
Shell	1	—	2	—
Mother-of-pearl	—	—	1	—
Limestone annulars	2	9	47	7
Chalk	—	—	1	1
Bone	—	1	—	—
<i>Rings</i>				
Stone	1	—	—	—
Shell	—	—	1	—
Bone	—	—	4	—
<i>Button</i>				
Mother-of-pearl	—	—	1 <sup>b</sup>	—
<i>Indeterminate jewelry</i>				
Greenstone fragment	1	—	2	—
Carnelian fragment	—	—	2	—
Azurite (?) fragment	—	—	1	—
"Worked shell"	—	—	3 <sup>c</sup>	—

Notes. A: in situ

B: ex situ

a: all are from a single burial (Sq. 3083/3283)

b: two holes

c: small "buttons" without holes?



**Table 9:** Other small finds from 'Ain Ghazal 1984.

<i>Object</i>	<i>Central</i>		<i>South</i>	
	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>
Clay discs/spindle whorls	—	—	3	—
Obsidian bladelet fragments	1	—	4	—
Cowrie shell	1 <sup>a</sup>	—	—	—
Cockle shell	4 <sup>b</sup>	—	—	—
Unidentified shells	5 <sup>c</sup>	3	12 <sup>d</sup>	—
Fossil shells	4	—	5	—
Mace heads	—	1	1	—
Stone palette	1	—	—	—
Incised stone	1 <sup>e</sup>	—	1	—
Perforated stone	3	1	10 <sup>f</sup>	—
Stone sphere	—	—	2	—
“Worked shale”	—	—	1	—
Marble (?) bowl rim	—	—	1	—
Iron spear point	—	—	1 <sup>g</sup>	—
Red ochre rubber	1	—	—	—
Red ochre fragments	1	—	7	—

Notes. A: in situ

B: ex situ

a: worked

b: all perforated at hinge

c: one incised

d: one filled with plaster

e: very fine parallel lines with intricate cross-hatching

f: weights?

g: Layer 1, probably Islamic.

**Table 10.** White ware and ceramics from Ain Ghazal 1984.

	<i>Central</i>		<i>South</i>	
	<i>A</i>	<i>B</i>	<i>A</i>	<i>B</i>
<i>White ware</i>				
Bowl body fragments	2	2	1	—
Bowl base	1	—	—	—
Rim fragments	—	1	—	—
Miniature platter	1 <sup>a</sup>	—	—	—
“Worked” chalk fragments	2	—	2 <sup>b</sup>	2
<i>Pottery<sup>c</sup></i>				
Body sherds, unfired	1 <sup>d</sup>	—	—	—
Body sherds, fired	—	2 <sup>e</sup>	—	—
Rim sherds, fired	2	—	—	—

Notes. A: in situ  
 B: ex situ  
 a: with small cylindrical handle  
 b: one fragment painted red  
 c: the rich PNA sample from Layer 2, South Field, not included in this table.  
 d: 28 mm thick  
 e: probably modern

**Table 11.** Small finds from other areas of ‘Ain Ghazal 1984.

<i>East Field Excavations</i>		
<i>Object</i>	<i>in situ</i>	<i>ex situ</i>
Bone awl	1	—
Indeterminate bone tool	1	—
Stone pendant fragment	1	1
Chalk pendant fragment	1	—
Carnelian fragment	1	—
Burnishing stone	1	—
Fossil shark tooth	—	1
<i>Far Northwest Section</i>		
Potsherds	X <sup>a</sup>	—
<i>General Surface</i>		
Stone pendant fragment	—	1

Notes. X: more than ten  
 a: from a large clay-pottery-lined storage feature, date uncertain.

**Table 12.** List of plant species identified in samples from 'Ain Ghazal 1984

<i>Genus-species</i>	<i>Common name</i>
<i>Vicia faba</i>	horsebean
<i>Vicia</i> sp.	vetch
<i>Lens culinaris</i>	lentil
<i>Pisum sativum</i>	fieldpea
<i>Hordeum distichum</i>	two-row barley
<i>Hordeum vulgare/distichum</i>	—
<i>Triticum monococcum</i>	einkorn wheat
<i>Triticum dicoccum</i>	emmer wheat
<i>Triticum aestivum/durum</i>	bread wheat
<i>Pistacia</i> sp.	pistachio
<i>Ficus</i> sp.	fig.
<i>Amygdalus</i>	almond
<i>Papilionaceae</i> sp.	
<i>Melilotus</i> sp.	
<i>Medicago</i> sp.	
<i>Medicago radiata</i>	
<i>Astragalus</i> sp.	
cf. <i>Cucurbitaceae</i>	
<i>Chenopodium</i> sp.	
<i>Helianthomum</i> sp.	
<i>Lithospermum</i> sp.	
<i>Graminaceae</i> indet.	grass
<i>Lolium</i> sp.	
<i>Setaria</i> sp.	
<i>Galium</i> sp.	
<i>Fumaria dentiflora</i>	poppy
<i>Malva</i> sp.	mallow

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