

# THE 1993 SEASON AT 'AIN GHAZAL PRELIMINARY REPORT

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## Introduction

Excavations sponsored by the Institute of Archaeology and Anthropology at Yarmouk University and the Peabody Museum of Harvard University, in cooperation with the Department of Antiquities of Jordan, took place from 19 June to 27 July 1993.

The goals of the season were principally two-fold: 1) to expand the exposure of Yarmoukian deposits in the Central Field in order to obtain a clearer idea of how the village was laid out in the late sixth millennium, and 2) to increase the area of Late Pre-Pottery Neolithic B (LPPNB) exposures in the North Field, where work in 1989 demonstrated that PPNC and Yarmoukian disturbance to late seventh millennium layers was minimal.

Additionally, four small test pits of 1 x 1.5 m probed the far southwestern edges of the site, and three other probes at the southern extremity of the settlement investigated two possible Early Bronze Age shaft tombs and an architectural installation of undetermined age. Altogether, the 1993 efforts exposed approximately 290 m<sup>2</sup> of cultural deposits, including 20 m<sup>2</sup> from the test pits.

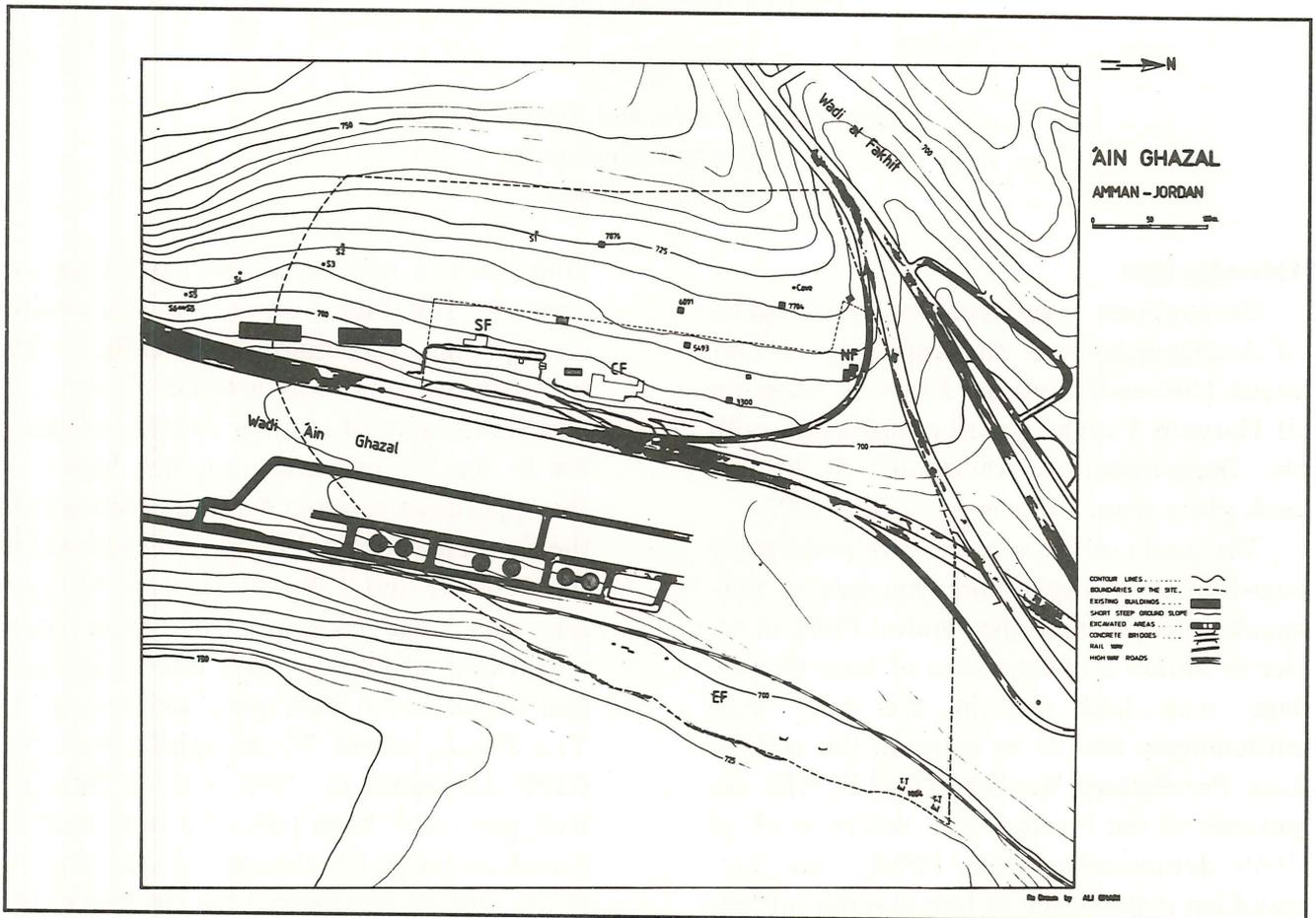
## The Test Pits

Test Pits A-D along the southwestern edge of 'Ain Ghazal (Fig. 1) showed little evidence of intensive Neolithic domestic activity in the area. Test Pit A was completely sterile, indicating that bulldozers had removed all early Holocene deposits during the construction of the adjacent commercial compound. Test Pit C was also essentially culturally sterile, and this result suggests that agricultural terracing in the

20th century had destroyed earlier *in situ* deposits. Test Pits B and D showed similar stratigraphic successions: beneath a disturbed plow zone was a thick (70-80 cm) and dense layer of angular rubble comparable to the "Yarmoukian cobble" layers of the uppermost ceramic Neolithic deposits in the South and Central Fields encountered in the 1984-85 and 1988-89 seasons. No pottery was found, although there were occasional flint artifacts (mostly flakes) and animal bones in the dark gray soil matrix. In Test Pit D, about 50 m uphill from Sq. 6260, excavated in 1989, a thick (60 cm) wall may have been part of a field wall or corral, although the absence of ashy deposits in the area argues against the existence of a dwelling. Throughout the depth of Test Pit B no evidence of architecture nor of common domestic activities (e.g. fires) was detected.

Below the cobble layer, beginning at about 1.20 m below the modern surface, the sediments changed to a loose, lighter brown to brownish-gray soil with rare stony inclusions but with a moderate density of cultural material. Again, no pottery was found, and chipped stone artifacts included flake and blade debitage but virtually no formal tools. Animal bones were frequently encountered, and most were in the small ruminant size, probably ascribable to ovicaprids. Sterile basal clay was reached at ca. 2.00 m below ground level.

None of the layers produced diagnostic artifacts, so the age of the deposits remains undetermined. It appears that the area around Test Pits B and D was outside of the settlement at 'Ain Ghazal, although activi-



1. Site map of 'Ain Ghazal showing the location of the excavation areas in 1993. (Drawing: 'Ali Omari).

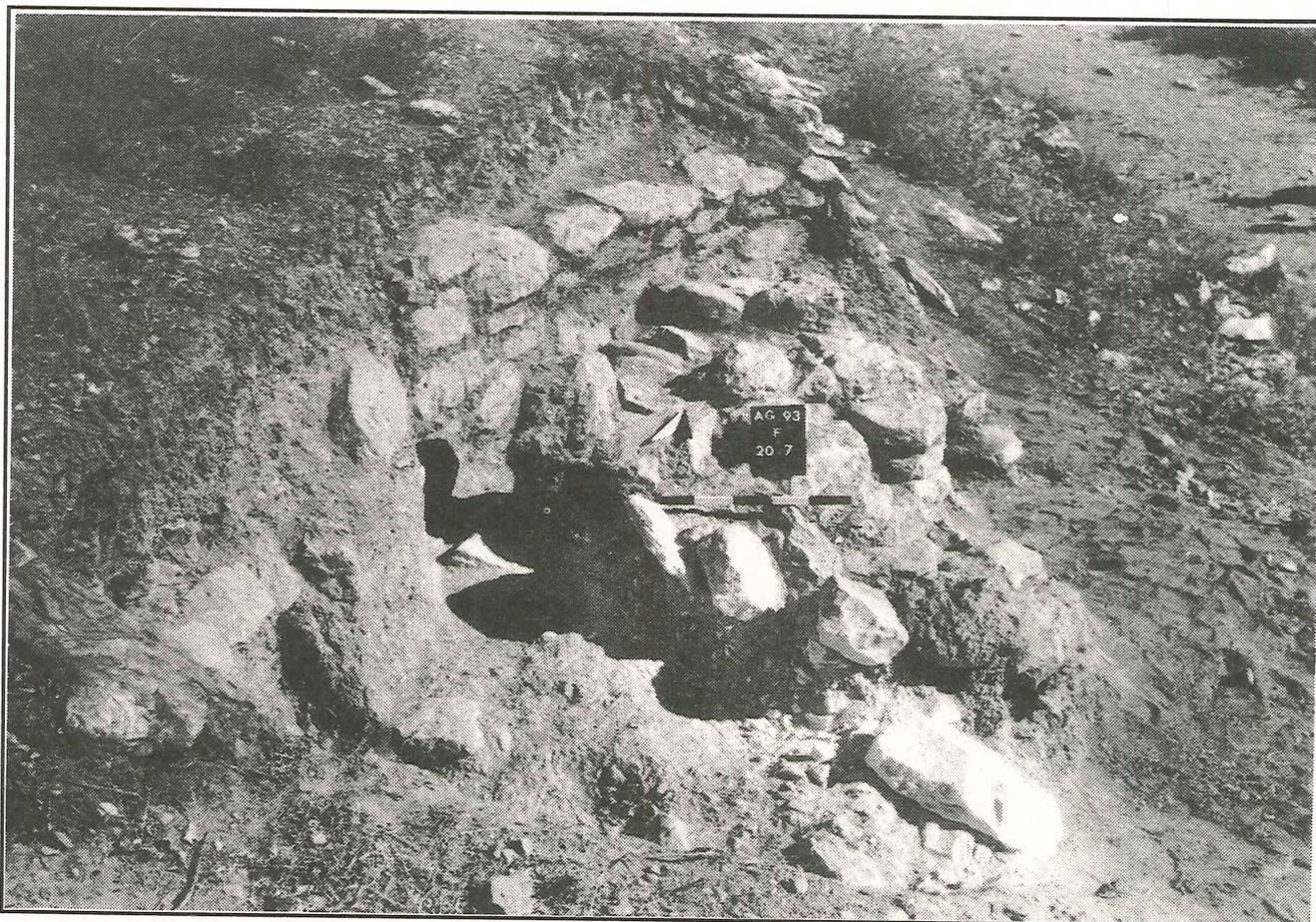
ties associated with animals, such as corraling and possibly butchering, were carried out there. The darkness of the soil (brown to brownish-gray) suggests a relatively strong organic component, possibly associated with the numerous animal bones (most likely sheep and/or goat) that came from this test pit.

Test Pits E and F were excavated near the southern end of the western wall of the walled compound. Sometime in the past, a road was bulldozed along the slope, cutting through two adjacent rock-cut shafts in the bedrock. It is likely that these are EB4 shaft tombs, although the sediments in both cavities produced only sparse, non-diagnostic flint debitage, no pottery, and only very poorly preserved fragments of bone that may have come from burrowing animals.

Test Pit G was much larger in size than the other test pits. Located about 150 m

south of Neolithic 'Ain Ghazal, the bulldozed road that had revealed the shaft tombs (Test Pits E and F) also cut through a stone structure in Test Pit G. Excavation by Dr. Mohammed Waheeb, the Department of Antiquities representative on the project, revealed a boat-shaped building approximately 8 m long (N-S) with a preserved width (E-W) of slightly more than a meter, built alongside a cliff-like outcrop of limestone bedrock. The walls were a single stone wide and remained standing to a height of 5-6 courses. Inside the structure, near the narrow north end of the building, was a mass of stones that may have been a platform; alternatively, it might simply represent wall tumble (Fig. 2).

The floor of the structure had patches of preserved plaster, although it has not been possible to determine if this was lime, gypsum, or *huwwar* plaster. The curious aspect



2. View towards the north of the boat-shaped building in Test Pit F. (Photo: Yusef al-Zoubi).

of the structure is that the interior did not produce a single artifact.<sup>1</sup> The sediments were a homogeneous mixture of weathered limestone and *terra rosa*, a strong contrast with the typical 10YR 4/5-4/6 (dark yellowish brown) material from all the domestic structures in 'Ain Ghazal. It is not possible to ascribe a date to this structure, and the situation suggests that the building may not ever have been finished; certainly it does not appear to have been inhabited.

### The Central Field Excavations

A principal focus of the 1993 season in the Central Field was to clarify the community structure during the Yarmoukian occupation at 'Ain Ghazal. Excavations in 1985 and 1988-89 had revealed numerous Yar-

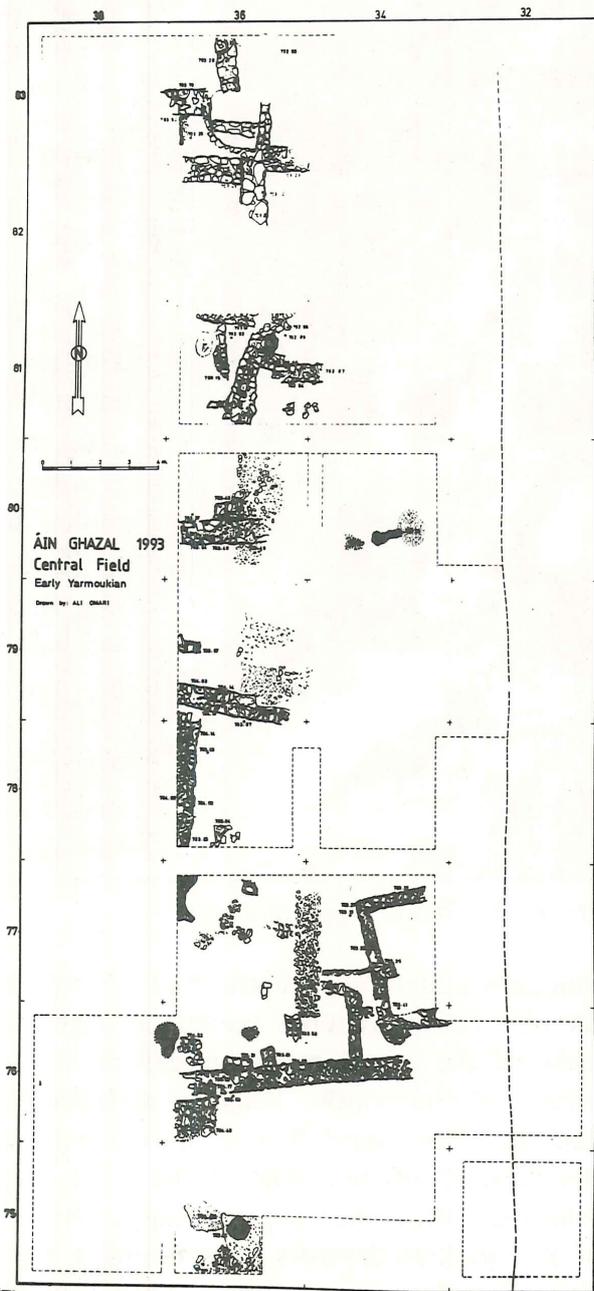
moukian structures, but the balks between the excavation trenches prevented a global view of the actual arrangements of structures and courtyards. Thus, in addition to opening nine more 5 x 5 m excavation trenches, all of the earlier balks were also removed. Altogether, approximately 185 m<sup>2</sup> of Yarmoukian deposits were sampled, representing Transitional/Early Yarmoukian, Middle Yarmoukian, and Late/Final Yarmoukian phases.

### *Transitional/Early Yarmoukian*

The PPNC "Great Wall" (NNE to SSW in Sqs. 3276 to 3675 in Fig. 3) remained in use by the earliest Yarmoukian populations at 'Ain Ghazal. An exciting feature that was unearthed in 1993 was a walled street that

1. On the modern surface just above the building, M. Waheeb recovered a well-preserved Byzantine

coin, but there is no demonstrable tie between this artifact and the structure.



3. Transitional and Early Yarmoukian structures and features in the Central Field. (Drawing: A. Omari).

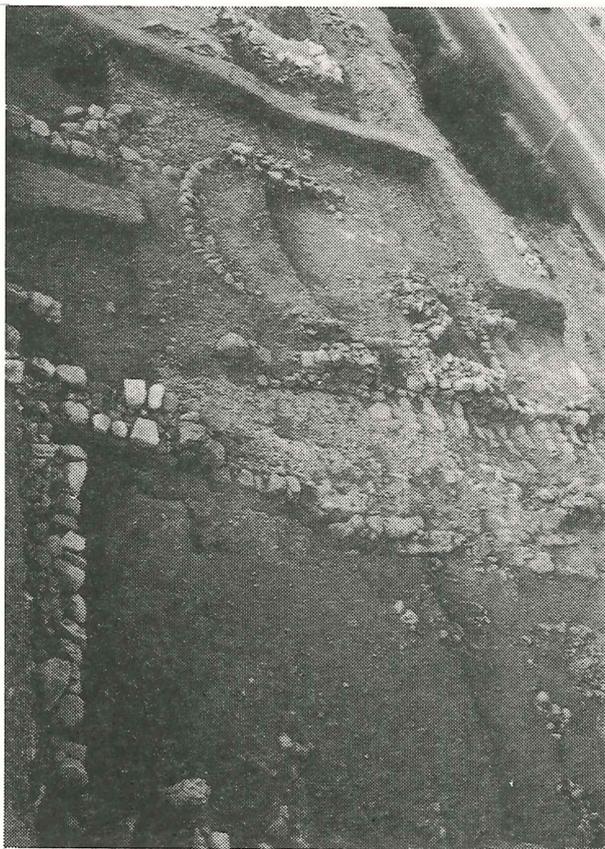
ran uphill (E-W in Sqs. 3279 to 3679 in Fig. 3). Including the walls to the north and south, the street is about 3.0 m wide, although the passageway between the walls averages around 1.75 m in width (Fig. 4). The street was truncated by the bulldozer section on its eastern end and was destroyed by later Yarmoukian construction. The street climbed approximately 1.30 m in

absolute elevation across the preserved length of nine meters. The ascent was facilitated by the construction of steps fronted with sizeable stones; the steps were not evenly spaced, although the average horizontal depth from front to back of the steps was around 0.5 m. More steps may exist under unexcavated sediments in the uphill area. Although the Early Yarmoukian residents certainly used the street, the absence of pottery in the step construction itself suggests that the thoroughfare may have been originally constructed during the PPNC period.

The walled street also had at least two gateways in the north wall that presumably led into courtyards. (Since both courtyards were located under a large Final Yarmoukian structure, the courtyards could not be investigated; see below). The best preserved gateway in Sq. 3479 is 75 cm wide and set off from the street by a curb of a single course of stones. About 1.35 m farther to the west (uphill) is another curb in front of a partially destroyed gateway. No gateways were found in the south wall of the street, but the southern wall was also the most heavily damaged by later Yarmoukian residents.

Another aspect of continuity between the PPNC and the Early Yarmoukian residents was the continued use of a PPNC house in the northern end of the Central Field (Sqs. 3682-3683 in Fig. 3). The thick walls are PPNC constructions, while the thinner cross walls and the quarter-round curved wall (one stone wide) are Yarmoukian modifications (cf. Rollefson, Kafafi and Simmons 1990: fig. 11). Later Yarmoukian pit-digging makes it impossible to determine the exact relationship of this house with the Early Yarmoukian apsidal structure in Sqs. 3481-3482 (cf. Rollefson, Kafafi and Simmons 1990: fig. 12).

Later construction in the Early Yar-



4. Oblique view of the walled street (Transitional/Early Yarmoukian) and the circular Final Yarmoukian structure. (Photo: Y. al-Zoubi).

moukian phase include a courtyard wall that nearly parallels the Great Wall and several domestic structures between this wall and the apsidal building. Many of the houses were badly damaged by Middle or Late Yarmoukian pits, although the building in Sq. 3678 has not been excavated and may be in relatively complete condition. Two relatively large courtyards, each with post-holes that may have supported wall-less shade structures occur in Sqs. 3478 and 3677, with the latter being somewhat later in age.

It is clear that the density of dwelling construction in the Early Yarmoukian phase was considerably lower than in, for example, the MPPNB at 'Ain Ghazal, when houses were built very close together on a

series of rising terraces. Although the Yarmoukian house distribution may have covered all of the 10+ hectares west of the Zarqa River, the population may have even been smaller than the more densely packed families of the late eighth and early seventh millennia.

#### *Middle Yarmoukian Phase*

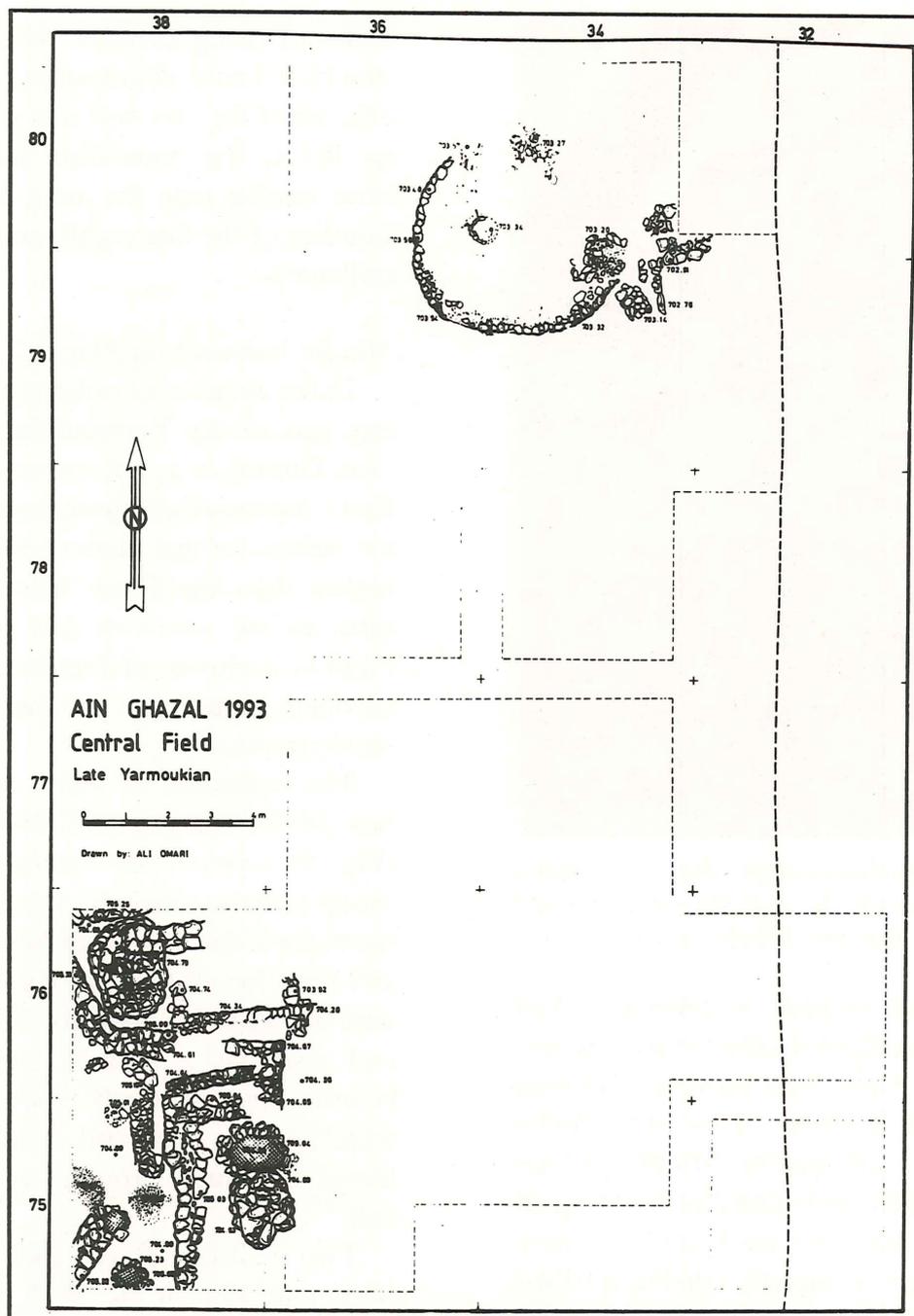
In the absence of radiocarbon dates from any part of the Yarmoukian occupation at 'Ain Ghazal, it is not known how long the Early Yarmoukian phase lasted (nor any of the others, for that matter). Stratigraphically higher than the Early Yarmoukian structures in the southern part of the Central Field is a cluster of features that we have ascribed tentatively to the Middle Yarmoukian phase.

The collection of walls and features in Sqs. 3875-3876 and 3675-3676 is intriguing (Fig. 5), even if the interpretation of the group remains unclear. The area produced the highest density of potsherds, not only in 1993 but for all the seasons that have dealt with Yarmoukian deposits. The area in general also has a marked concentration of hearths, and although charcoal fragments were minute, large soil samples were collected that may provide us with a C-14 date.<sup>2</sup>

Two wall complexes each set off a low stone platform; in Sq. 3875 the platform is immediately adjacent to a firepit. Each platform was constructed with a low (40-50 cm high) surrounding wall of large field stones, and the example in Sq. 3876 was especially carefully erected (Fig. 6). Large stones filled in the enclosed space, and in 3876 there is a suggestion of one or two east-west "cross walls" to subdivide the feature. There was not enough time in the 1993 season to investigate the interior of either plat-

2. Several radiocarbon samples from the 1993 season are currently being processed at the radiocar-

bon laboratory at the Max Planck Institute for Nuclear Physics in Heidelberg.



5. The Middle Yarmoukian platform complex in the Central Field. (Drawing: A. Omari).

form, and this remains an objective for the next excavation season.

The surfaces of the platforms were particularly densely populated with broken pottery, and numerous grinding implements were also in close proximity. It is tempting to suggest that these features were associated in some way with food preparation, although other uses may have dominated the

function of the platforms.

At the present time there are no houses that we can definitely assign to the Middle Yarmoukian, although some of the walls in Sqs. 3678-3680 may be Middle rather than Early Yarmoukian.

*Late/Final Yarmoukian*

During excavations in 1985 to recover



6. The stone platform in Sq. 3876. (Photo: Y. Zoubi).

the second cache of lime plaster statues at 'Ain Ghazal, incomplete remains of flimsy, temporary curvilinear structures were encountered in the higher reaches of the Yarmoukian layers of the trench (Rollefson and Simmons 1987: 105). In 1993 we were able to expose a complete example for the first time (Figs. 4 and 7).

Semi- or three-quarter circular in form, the structure measures 5 m in diameter. The wall is built of a single row of stones (in places there is a double row) and stands rarely more than two courses high; it is difficult to believe that such a narrow wall made of such small stones ever reached any higher. The opening of the structure is only slightly narrower than the maximum diameter, although it is possible that extensions of the wall on both sides of the entrance were destroyed. Inside, flanking the opening, are two relatively amorphous pavements of stone and cobbles; these low platform-like

features may be analagous to stone storage platforms common in Bedouin tents (cf. Banning 1993: 219; Rosen and Avni 1993: 197), although the analogy is by no means certain.

In the interior of the structure is a circular depression about 50 cm in diameter surrounded by stones. Another alignment of stones, although less regular in shape, encloses a slightly smaller area near the eastern stone pavement. It is tempting to interpret both of them as postholes, although the diameters are very large. It is also possible that they may have served as small fireplaces, but there was no noticeable concentration of ashy deposits inside or around the features.

It could be argued that the structure was an animal enclosure, with the wall anchoring a brush fence to keep the animals from wandering away. We feel that such an explanation is unlikely in view of the paved areas and the posthole or fireplace features. Furthermore, there are several patches of poor quality *huwwar* plaster preserved near the entrance of the building, an improbable component for the floor of an animal pen.

Instead, we suggest that this structure represents a tent erected and occupied temporarily (and perhaps repeatedly) by late sixth or early fifth millennium Yarmoukian pastoralists who visited the spring at 'Ain Ghazal during the warm and dry seasons, when water and forage for their animals were in short supply or absent altogether in the steppe and desert east of 'Ain Ghazal.

#### *PPNC and LPPNB*

Excavations in Sq. 3883 produced some stratigraphic oddities that apparently relate to the original topography of 'Ain Ghazal as well as the consequences of modern agricultural terracing. The first surprise was the virtual absence of Yarmoukian pottery in the upper sediments of the excavation trench: the stratigraphy essentially began with a thick (ca. 1.20 m) series of PPNC



tion (both relative and absolute) of these floors suggests an LPPNB ascription, although the associated artifacts were too rare for lithic seriation.

Based on lithic material in the fill above them, these floors appear to have been used in the PPNC period too, but not necessarily as floors for a house. Two or more post-holes were driven through the PPNB floors (including one directly through the center of a PPNB circular hearth), but no walls could be definitely associated with the post-holes. If PPNC in age, the holes would be the first early sixth millennium evidence of posts from 'Ain Ghazal.

Slightly above the floors was a crude stone alignment, one or two stones wide and several courses high, that delineated the northwest corner from the rest of the trench. To the southeast of the stone "wall" were repeated patches of thick accumulations of *huwwar* plaster that formed no consistent pattern as either floors or regular features. At the moment it appears that the later PPNC residents used Sq. 3883 as part of a *huwwar* production area, although only excavation in the adjacent areas can provide conclusive evidence for this supposition.

### The North Field Excavations

In 1989 a test trench in Sq. 5518 in the North Field revealed part of a substantial late LPPNB building that was relatively undisturbed by later Neolithic inhabitants of 'Ain Ghazal (Rollefson, Kafafi and Simmons 1993: 114-115; figs. 6-8).<sup>3</sup> Since excavations in 1984-1985 and 1988-1989 had shown that PPNC and even Yarmoukian inhabitants had created severe damage to earlier LPPNB deposits, the North Field seemed to hold promise for investigating the otherwise impoverished late seventh millennium record at 'Ain Ghazal. For this reason, two additional 5 x 5 m trenches, in

addition to a continuation of the clearance of Sq. 5518, were excavated in 1993.

### Sq. 5518

The resumption of the excavation in 5518 helped to clarify the circumstances of the LPPNB building. In 1989, it was clear that there were at least three adjacent rooms aligned roughly E-W, each of them opening onto a larger space to the north. In 1993, it became obvious that the cellular structure (rooms approximately 2 x 2 m in size) was the result of renovation. The doorways that led to the north of all three rooms was formed by short secondary abutting walls, which created the "cells" from larger N-S longitudinal rooms. The westernmost cell was not, in fact, the western limit of the building: a narrow probe in the area of the sun-dried clay storage vessel (Rollefson, Kafafi and Simmons 1993: fig. 8) showed that the wall continued towards the west (uphill), although how far could not be determined. How far east the building ranged was also not determinable, since Neolithic (?) erosion and bulldozers destroyed the evidence in this area. The common southern wall of the cellular rooms proved to be the southern end of the building. An LPPNB (?) courtyard wall (?) was exposed less than a meter farther south in the upper part of the LPPNB deposits, but there was not enough time to see if this feature could be associated with the main building in 5518. In the balk between 5518 and Sq. 5517 to the south, this LPPNB "courtyard" wall appears to have been used as a foundation for a PPNC wall of unknown use; the PPNC rebuild was poorly constructed and suffered a major collapse towards the south.

Within the cell-like rooms, new excavations provided additional information. At one time a doorway provided entrance from the western cell to the central cell. This

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3. Nevertheless, the vast majority of the LPPNB building had been destroyed by road building.

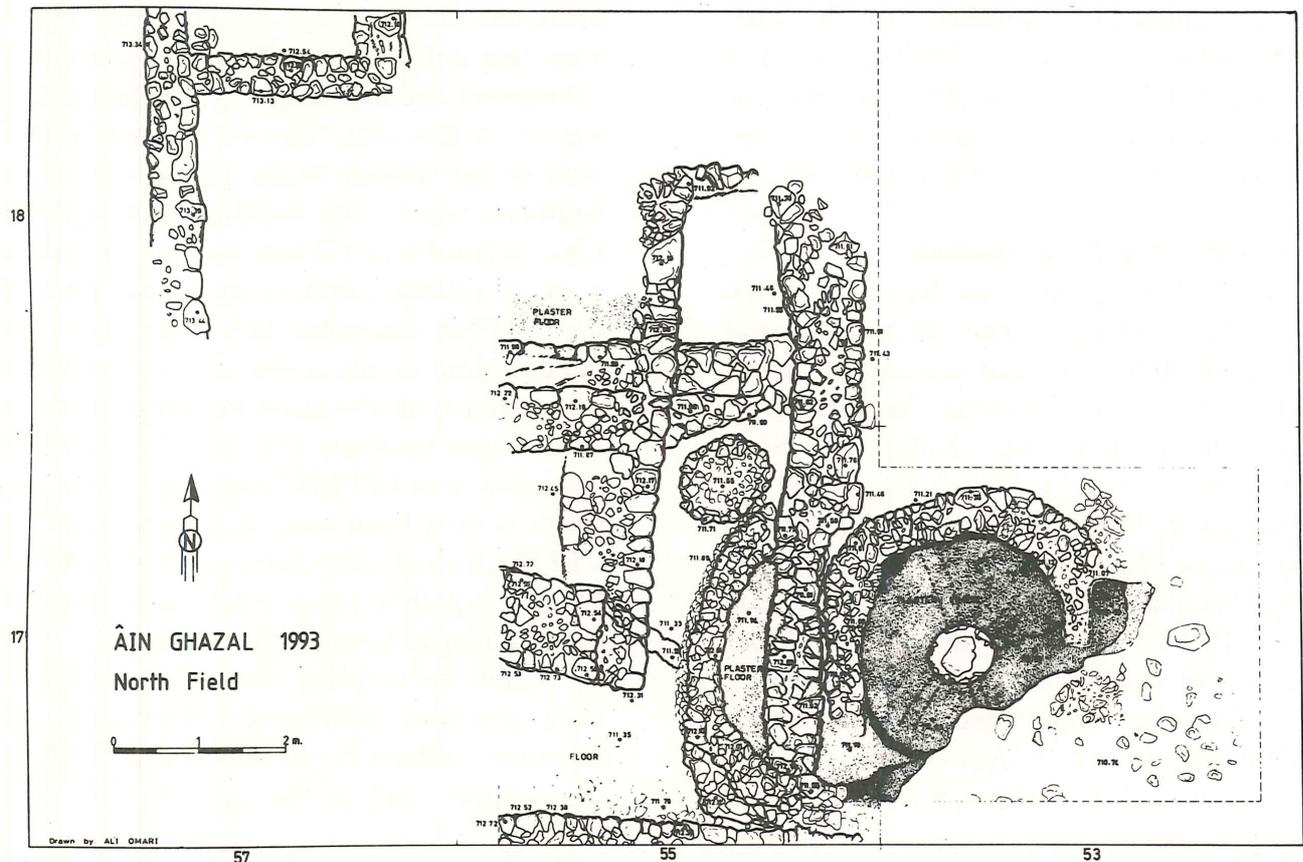
doorway was later blocked, possibly in connection with the fire that razed the westernmost room (Rollefson, Kafafi and Simmons 1993: 115). In the easternmost cell, in fill above the lime plaster floor, was a collapsed clay vessel that had clearly been exposed to fire. The ceramic was very thick, crude and friable, and it is likely that this was either another accidentally fired sun-dried clay storage vessel or a primitive oven. Possible LPPNB parallels for the latter interpretation are to be found at Baṣṭa in southern Jordan (Gebel, personal communication).

*Sqs. 5517 and 5317*

*Yarmoukian and PPNC Layers.* Both of these 5 x 5 m excavation trenches are treated together since a multi-phase building occurred across the arbitrary line separating them. There appears to have been no major Yarmoukian occupation in this area; only two non-diagnostic potsherds were found in

the uppermost, disturbed 10-15 cm of soil. Intact PPNC deposits were found beneath the disturbed layer. These early sixth millennium deposits were thin in the eastern (downslope) parts of Sq. 5317, where the upper sediments appear to have been bulldozed away during agricultural work in recent times. The thickness of the PPNC layers increased towards the west, so that they remained to a depth of approximately 50 cm or more at the western edge of Sq. 5517. Included in the western third of Sq. 5517 were several walls of a PPNC structure; the plan of this structure remains unknown, since most of the building remains unexcavated in Sq. 5717, but it seems improbable that it was one of the “corridor buildings” common in the South Field (Rollefson, Simmons and Kafafi 1992: 449-450; fig. 5).

*LPPNB.* The principal feature of the two excavation trenches is an imposing building



8. The LPPNB four-phase structure in the North Field. (Drawing: A. Omari).

that underwent four phases of construction and renovation (Fig. 8). The size and shape of the Phase 1 structure is unknown due to later renovations. Phase 1 is represented along the southern edge of the excavated area by the remnant of an E-W stone wall and a small exposure of a well-made lime plaster floor; the plaster continues up the interior face of the wall, producing the "bathtub" juncture of floor and wall typical for PPNB structures at 'Ain Ghazal. The exposed surface of the floor was coated with a thin calcareous concretion, but it was apparent that the floor had been painted with red pigment. The P-1 floor appears to consist of a single construction episode.

A couple of centimeters of sediment separated the P-1 floor and the overlying floor of Phase 2 which, like its predecessor, had the same bathtub conformation along the southern wall, was also painted red, and was not renewed (Fig. 9). The short preserved section of the southern wall is rectilinear and was built inside (along the northern face) the P-1 wall. Only a bare stub of the north wall remains after Phase 4 work, but it also appears to be straight in an E-W axis. Between the walls at the western end of the P-2 building, an apsidal wall was constructed. Unlike the northern and southern walls, which used sizeable, solid limestone blocks, the western apsidal wall was made of soft chalky limestone that had been broken into small, angular fragments. Another difference involves the surfaces of the apsidal wall: although the inner face was relatively smooth, the exterior face was jagged and spiky, very uncharacteristic of the normal architecture of any occupational phase at 'Ain Ghazal.

The decision to use soft limestone for

the apsidal wall was evidently a case of bad judgement, for the apse began to collapse inward near the juncture with the south wall. This necessitated a major repair, and in Phase 3 a new, straight N-S wall of strong limestone was built across the chord of the P-2 apse. There appears to have been no alteration to the P-2 floor, which continued in use during Phase 3.

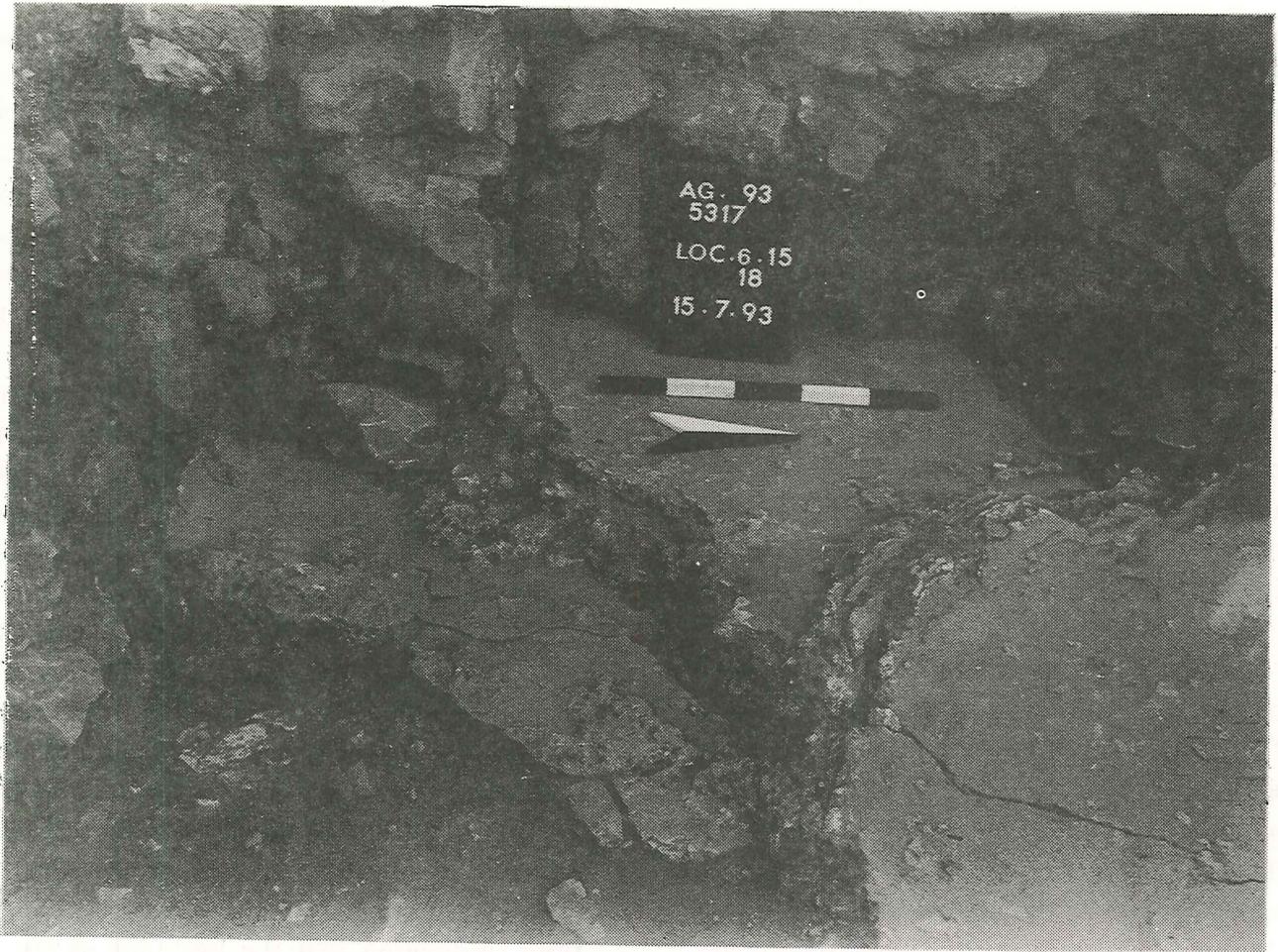
Phase 4 witnessed a major reorganization of the structure. A circular room 2.5 m in diameter was erected, with the stone wall directly atop the P-3 floor and abutting the P-3 western wall; the northern P-2 and P-3 walls were thoroughly destroyed. (It is not known what happened to the southern and eastern walls of the earlier structural phases, since erosion in Neolithic or post-Neolithic times removed this part of the building).

The P-4 lime plaster floor, whose red pigment is obscured by a thin calcareous crust, was built directly atop the P-2/3 floor, indicating that the building was not abandoned for very long, if at all, before the reconstruction. Besides the radical difference in shape, the P-4 floor also differed in the sense that it was relaid six or seven times after the original flooring episode; again, each new floor (consisting only of the fine, almost pure lime plaster finishing layer) was laid directly atop of the preceding one (Fig. 9). The quick succession of the flooring episodes suggests that some ritual activity must be considered; there is nothing to suggest that the replacements were due to mundane functional needs.<sup>4</sup>

On the eastern side of the P-4 circular room, the wall arc curving from the north is interrupted by a doorway, clearly indicated by the coving of the plaster at the edge of

4. The structure of the lime plaster floors at 'Ain Ghazal provided for very sturdy and apparently long-lasting surfaces, as the P-2/3 floor itself suggests. Reflooring episodes occurred relatively

frequently in earlier MPPNB houses, but such activities seem to be related to floor renewal after subfloor burials and subsequent skeletal decapitations (Rollefson 1983:18).



9. Three floors in the four-phase LPPNB structure. At the lower left is the P-1 floor; just above and to the right is the P-2 floor. The multi-layered circular floor of P-4 is in the right half of the photograph. (Photo: Y. Zoubi).

the wall. (The southern side of the doorway was destroyed by later erosion, so it is not known how wide the doorway was). The plaster floor continued through the doorway for about 45 cm into a room that extended almost a meter to the north of the doorway. Only the northwest corner of this floor was preserved, but it appears to have been a small rectangular anteroom.

The circular room is dominated by a large circular hole (65 cm diameter and 40 cm deep) in the center of the floor. The plaster floor lips up on the eastern edge of the hole, indicating that an installation existed in the hole. That the hole may have been a posthole can be dismissed immediately. First, a post of that diameter is clearly out of place for a room of such small size. And second, the hole, as excavated, con-

tained a large angular block of limestone that filled much of the space. It is not clear if the stone was originally a feature of the hole or if it was placed there later when the room was abandoned.

The excavation of the hole revealed two pairs of subfloor channels about 20 cm wide and 15 cm high. One pair was oriented roughly north-south (true, not grid), the other northeast-southwest. Each channel was constructed with sidewalls of small, thin limestone slabs (ca. 20 x 15 x 4 cm) which were capped by similar slabs at the top; there was no stone floor to the channels (Fig. 10). Presumably the channels continued from the hole out to the walls, if not beyond them: the South Channel was excavated more than 50 cm from the hole to where the floor had been destroyed by erosion.



10. The northeast subfloor channel beneath the Phase 4 circular structure. (Photo: Y. Zoubi).

With earthen bases, it is obvious that the channels were not used to bring water or other liquids into the hole or to drain the hole of such liquids. At the moment, it seems logical to assume that the channels served as ducts to draw air into the hole from outside the structure. This, in turn, strongly suggests that a fire may have been associated with the installation in and above the hole, and some sort of an altar is a possible interpretation for this feature. Because of the calcareous crust on the floor, no evidence of burning could be detected, although next season the concretion will be carefully removed to see if such evidence

exists, as well as to determine if there is any patterning to the pigment on the floor's surface.

*Interpretation.* How the building functioned in Phase 1 remains unknown simply because so little of this period of use is exposed. In Phase 2, the building was obviously something special, for apsidal buildings during the PPNB were rare in the Levant.<sup>5</sup> The "emergency" repairs to the western side of the building in Phase 3, using the same floor, connotes a continued special use of the structure. Notably, in the space between the P-2 apse wall and the P-3 straight wall, very few artifacts were

5. Kenyon reported a PPNB building with two apsidal end-walls at Jericho from PPNB layers, which she interpreted as a shrine or temple (Kenyon 1979: 34; 1981: 71-72 and pls. 46b, 47) because of its shape, the square internal central hearth, and

the cleanliness of the floors. An apsidal building was also excavated from the Yarmoukian layers at 'Ain Ghazal, and the pottery inside the structure argued for a public function (Rollefson, Kafafi and Simmons 1990: 110-112).

found beyond a few burned animal bones.<sup>6</sup>

The P-4 circular structure is clearly a building with a non-domestic purpose. The combination of its unique shape, the small anteroom, the repeated flooring episodes, the intriguing central hole and associated subfloor channels, and the virtual absence of any artifacts or bones on or immediately above the floor forcefully argue for at least a public, if not ritual, interpretation, although in what manner remains frustratingly enigmatic.<sup>7</sup> In sum, it is likely that the P-4 structure, at least, served as a cult building.

*LPPNB/PPNC Transition.* Unlike the evidence of PPNC re-use of LPPNB buildings in the South Field (Rollefson 1993: 94 and pl. I-2), there is no similar indication of PPNC structural modifications of earlier houses or buildings in the North Field, although the LPPNB courtyard wall in Sq. 5518 served as a foundation for a later PPNC wall. Nevertheless, there is a substantial stratigraphic unit between the LPPNB (ritual) four-phase building and the succeeding PPNC structure that can only be ascribed at the present time to the LPPNB/PPNC transition period. This unit lies above a surface directly associated with the LPPNB cult building in Sqs. 5517/5513 and is relatively rich in lithic and faunal remains. In addition, there is a circular fire pit that may provide a radiocarbon date.

### Lithic Artifacts

More than 26,000 chipped stone artifacts were recovered during the 1993 season. Almost all of the debitage has been sorted, but sorting of the tools has only been partially completed.

Tables 1 and 2 show the absolute and

relative frequencies of debitage classes. Most notable in Table 1 is the low absolute count for the LPPNB layers, which is a strong reflection of the lack of lithic artifacts on, above, and around the cult building in Sqs. 5517/5317. Table 3 demonstrates some apparent sampling biases, since Yarmoukian blade counts are much higher than in previous seasons (cf. Rollefson, Simmons and Kafafi 1992: table 3). PPNC blades are also very strong compared to previous seasons, and it may be that the LB/C transition more strongly represents LPPNB contributions than the PPNC.

The absolute and relative frequencies of tools in Tables 4 and 5 are presented here *pro forma* only: the PPNC and LPPNB samples are poorly represented as a consequence of the current state of analysis: the projectile point, sickle, and burin figures in Table 5 are cases in point (cf. Rollefson, Simmons and Kafafi 1992: table 4).

### Pottery (Contribution by Hisahiko Wada)

Overall, the Yarmoukian pottery recovered in the 1993 season resembles closely the materials excavated in previous seasons at the site. This report will concentrate on newly noticed information.

### Ware

Analysis of the ware from the 1993 season has not been completed, but to date there is little to indicate any difference from the analysis of previous seasons (Kafafi 1990). It might be mentioned, however, that a cup form has been recognized for the first time among the coarse ware.

### Pottery Forms

The range of forms for the Yarmoukian pottery from 'Ain Ghazal (Kafafi 1990)

6. See Note 5.

7. There are three close parallels from Beida. In no case was there an obvious central hole (Kirkbride 1968: 93-96, pls. 25B-28).

**Table 1.** Absolute counts of debitage types in the analyzed samples from the 1993 season at 'Ain Ghazal.

	YARMOUKIAN	PPNC	LB/C	LPPNB
Blades	3,415	872	1,472	163
Bladelets	306	143	143	15
Flakes	5,021	1,638	1,822	275
CTE	38	9	22	4
Burin Sp	77	35	42	1
Other	60	77	87	2
Cores	<u>59</u>	<u>66</u>	<u>79</u>	<u>11</u>
SUBTOTAL	8,976	2,840	3,667	471
Microflake	1,314	568	533	61
Debris	3,657	1,739	2,071	221
Paleolith	<u>1</u>	<u>2</u>	<u>1</u>	<u>0</u>
TOTAL	13,948	5,149	6,273	753

Note: CTE refers to "core trimming elements", Burin Sp to burin spalls.

**Table 2.** Relative frequencies of debitage types in the analyzed samples from the 1993 season at 'Ain Ghazal.

	YARMOUKIAN	PPNC	LB/C	LPPNB
Blades	38.0	30.7	40.1	34.6
Bladelets	3.4	5.0	3.9	3.2
Flakes	55.9	57.7	49.7	58.4
CTE	0.4	0.3	0.6	0.8
Burin Sp	0.9	1.2	1.1	0.2
Other	0.7	2.7	2.4	0.4
Cores	<u>0.7</u>	<u>2.3</u>	<u>2.2</u>	<u>2.3</u>
TOTAL	100.0	99.9	100.0	99.9
Microflake	( 9.4)	(11.0)	( 8.5)	( 8.1)
Debris	(26.2)	(33.8)	(33.0)	(29.3)
Paleolith	( 0.0)	( 0.0)	( 0.0)	( 0.0)

**Table 3.** Relative frequencies of blades and bladelets (B1+b1) versus flakes in the analyzed 1993 samples.

	YARMOUKIAN	PPNC	LB/C	LPPNB
B1+b1	42.6	38.3	47.0	39.3
Flakes	57.4	61.7	53.0	60.7

**Table 4.** Absolute counts of tool classes in the analyzed samples from the 1993 season at 'Ain Ghazal.

	YARMOUKIAN	PPNC	LB/C	LPPNB
Proj. Pts.	44	14	5	0
Sickles	13	1	1	0
Burins	55	24	42	0
Truncs	11	1	0	0
Scrapers	56	8	4	4
Dentics	16	2	0	1
Notches	30	4	4	3
Borer/Drill	107	7	8	0
Perforatrs	137	7	4	3
Bifacials	7	6	3	1
Knives	29	9	6	4
Backed Bls	2	1	0	0
Tanged Bls	13	0	1	0
Other	<u>7</u>	<u>4</u>	<u>0</u>	<u>0</u>
SUBTOTALS	527	88	78	16
Ret. Pcs.	355	50	28	4
Util. Pcs.	<u>165</u>	<u>36</u>	<u>6</u>	<u>3</u>
TOTALS	1047	174	112	23

**Table 5.** Relative frequencies of tool classes in the analyzed samples from the 1993 season at 'Ain Ghazal.

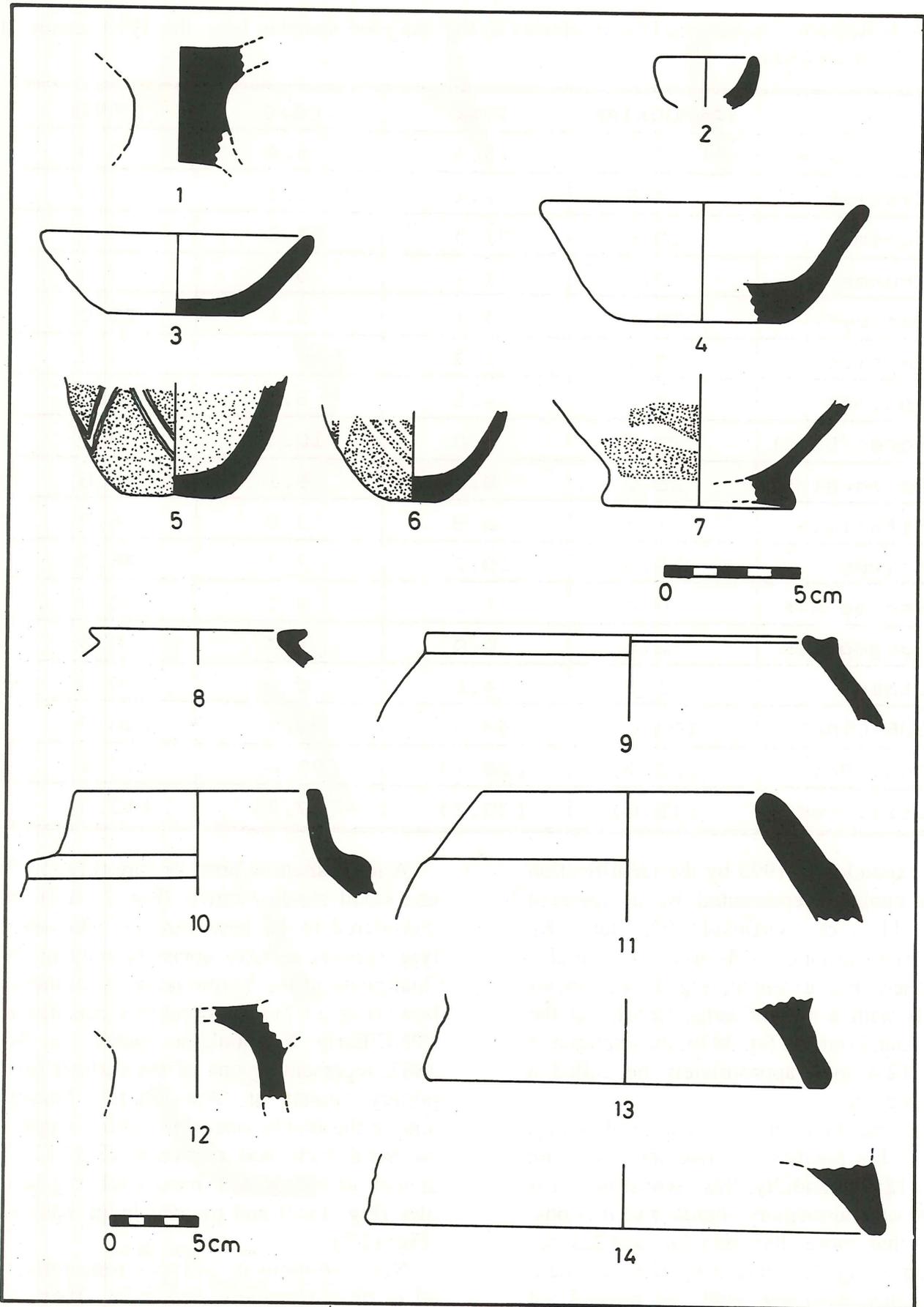
	YARMOUKIAN	PPNC	LB/C	LPPNB
Proj. Pts.	8.3	15.9	6.4	0.0
Sickles	2.5	1.1	1.3	0.0
Burins	10.4	27.3	53.8	0.0
Truncs	2.1	1.1	0.0	0.0
Scrapers	10.6	9.1	5.1	25.0
Dentics	3.0	2.3	0.0	6.2
Notches	5.7	4.5	5.1	18.8
Borer/Drill	20.3	8.0	10.3	0.0
Perforators	26.0	8.0	5.1	18.8
Bifacials	1.3	6.8	3.8	6.2
Knives	5.5	10.2	7.7	25.0
Backed Bls	0.4	1.1	0.0	0.0
Tanged Bls	2.5	0.0	1.3	0.0
Other	1.3	4.5	0.0	0.0
SUBTOTALS	100.0	99.9	99.9	100.0
Ret. Pcs.	(33.9)	(28.7)	(25.0)	(17.4)
Util. Pcs.	(15.8)	(20.7)	( 7.7)	(13.0)

was expanded in 1993 by the identification of a chalice, represented by a fragment (Fig. 11:1; cf. Garfinkel 1993: table 6). Variations among bowls and jars were also enriched. For example, Fig 12:4-5 shows bowls with a pair of ledge handles at the rim, found only in Sq. 3876; the example in Fig. 12:4 may appropriately be called a cooking pot.

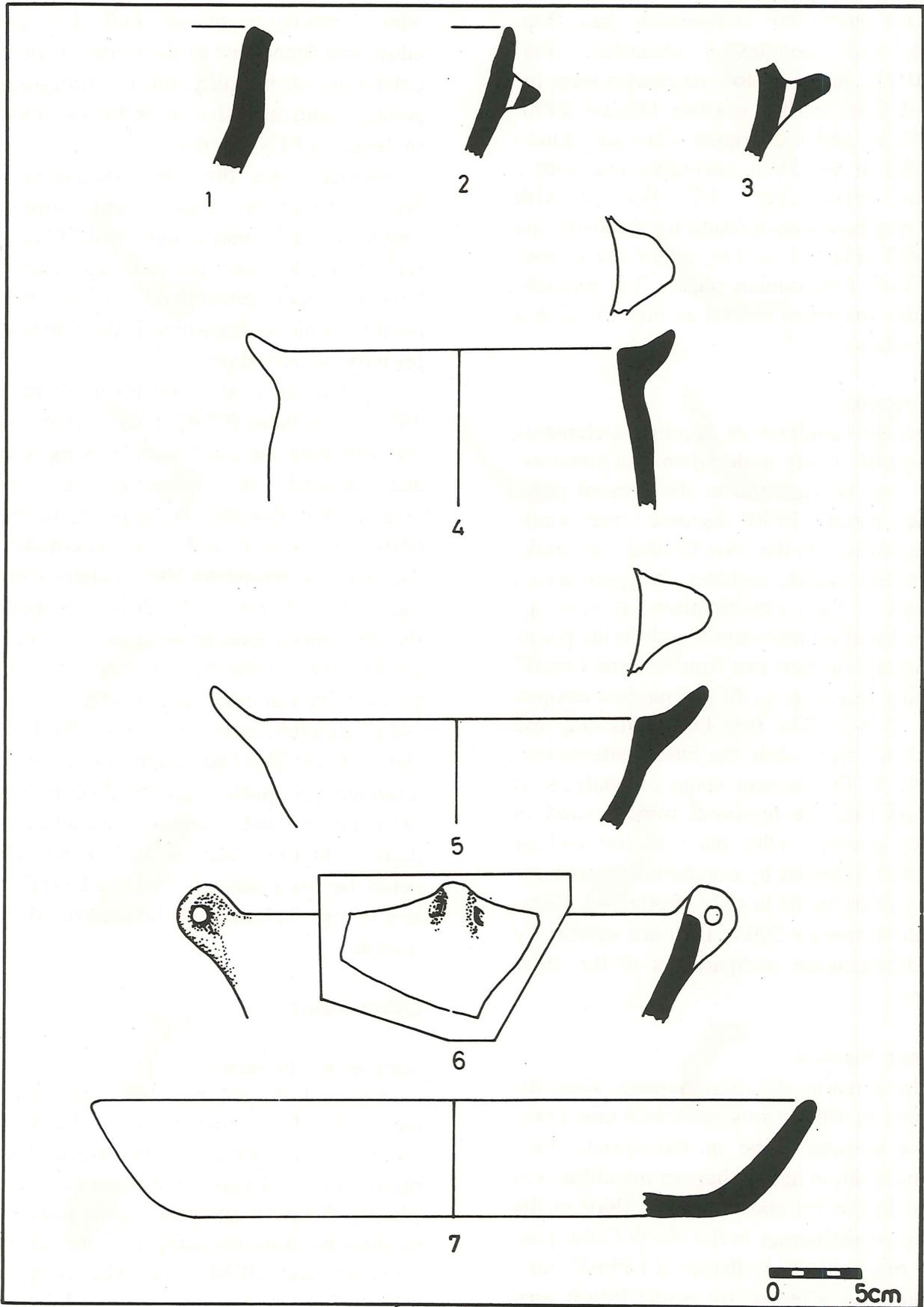
Another bowl form is equipped with a pair of lug handles that rise above the rim (Fig. 12:6); candidly, this reconstruction is based on fragmentary sherds, and it is possible that more than two lug handles occurred along the undulating rim. (Incidentally, this particular bowl was painted red both inside and outside).

A large shallow bowl or tray (Fig. 12:7) and small shallow bowls (Fig. 11:3-4) are considered to be new variants. The latter type appears to have appeared only in the final phase of the Yarmoukian. A miniature bowl (Fig. 11:2) was found in a transitional PPNC/Early Yarmoukian context in Sq. 3883, representing one of the earliest fired pottery vessels at 'Ain Ghazal. Finally, among the bowls, one bowl with a slightly carinated body was recovered (Fig. 12:1), as well as sherds with horizontal ring handles (Fig. 12:2) and pierced ledge handles (Fig. 12:3).

New variations in jar types were reflected in rims, shoulders, and bases. They include everted flattened rims (Fig. 11:8),



11. Selected Yarmoukian pottery specimens from the 1993 season at 'Ain Ghazal.



12. Selected Yarmoukian pottery forms from the 1993 season at 'Ain Ghazal.

concave rims for hole-mouth jars (Fig. 11:9), and pronounced shoulders (Fig. 11:10-11). Jars with low ring bases were reported from earlier seasons (Kafafi 1990: fig. 12.1), and such bases were also found in 1993 in Sq. 3876, including one with a painted design (Fig. 11:7). But jars with high ring bases were found for the first time in 1993 (Fig. 11:12-14), all of them from the Final Yarmoukian phase. It is possible that the specimen shown as Fig. 11:12 is a large chalice.

### *Decoration*

Detailed analysis on decorative elements is currently being undertaken, but some aspects can be reported at the present time. Earlier, Kafafi (1990) discussed three kinds of decoration on the 'Ain Ghazal Yarmoukian pottery: paint, incision, and punctation, as well as their combinations. It now appears that it is important to subdivide painted decoration into two kinds: "broad field" painting (e.g. Fig. 11:6) and painted designs (Fig. 11:6-7). The first kind adds only the effect of color, while the latter patterns that effect. At the present stage of analysis, it appears that the temporal trends noted in earlier seasons, with paint as the earliest element, followed by combinations with incision or by incision only (Rollefson, Kafafi and Simmons 1993: 117) are upheld by the stratigraphic comparisons of the 1993 season.

### **Human Burials**

The remains of eight humans were recovered in 1993. Consistent with past excavation seasons, none of the burials were Yarmoukian in age. A human mandible was found in the fill above the P-2 floor in the four-phase structure in the North Field; possibly this could be a disturbed LPPNB burial that was affected by post-LPPNB ero-

sion. A poorly preserved skull of a young adult was found just to the north of the circular P-4 cult building, but its stratigraphic position indicates that it probably belongs to the early PPNC period.

Erosion since the 1988 season in Sq. 3681 (Rollefson, Kafafi and Simmons 1990) exposed a badly preserved PPNC burial in a courtyard context; age and sex have not been determined yet, nor has it been possible to determine if the burial was primary or secondary.

Five humans were retrieved from Sq. 3883, all of them PPNC in date. One burial pit contained an adult female lying above and around an infant/neonate. Post-depositional disturbance appears to have destroyed the skull and vertebral column of the woman; based on the arrangement of the bones of both individuals, it appears that this was a case of secondary burial. In another part of the trench, a second burial pit contained another double secondary burial of an adult female and infant, both with skulls intact. This burial appears to have intersected yet another interment of an adult. Only the articulated feet, ankles, and lower parts of the lower legs of the last individual could be excavated in 1993, although the rest of the skeleton will be recovered next season.

### **Other Finds**

#### *Subsistence Economy*

Although faunal remains were rich in the Central Field, they appear to have been much less numerous in the North Field; preliminary analysis has not yet been completed. Flotation analysis<sup>8</sup> again proved to be disappointing for samples from the Yarmoukian and PPNC contexts; only one sample from each period produced any rec-

8. We should like to thank Peter Warnock for his analysis of the samples.

ognizeable charred wood fragments, but they were rare and much too small to identify. In the LPPNB/PPNC fill outside the four-phase structure in the North Field, more than ten lentils and a possible Broom grass grain were recovered, as well as small fragments of tamarisk and an unidentified conifer. From the LPPNB period came a single lentil, a *Pistacia* shell, and numerous minute fragments of charred, unidentifiable wood.

*Small Finds*

Small finds were not abundant in the 1993 season. A small LPPNB animal figurine, nicely made (from a broken "bracelet" fragment?), was so stylized that it could not



13. LPPNB animal figurine.

be identified to species (Fig. 13). A tiny LPPNB bead (of turquoise?) came from a flotation sample. Seven stone ring (or "bracelet") fragments were recovered from LPPNB/PPNC contexts, and four each from PPNC and Yarmoukian layers. Yarmoukian layers also produced a small bone bead, an incised stone (Fig. 14), and a broken shaft straightener. Another shaft straightener piece came from a PPNC context.

**Concluding Remarks**

For the past seven years, 'Ain Ghazal has been under threat of complete destruc-

tion by commercial and residential development, and that threat still remains very real. The 1993 season was on a small scale, but the excavation results were enormously successful, particularly regarding the PPNC/Yarmoukian walled street and the LPPNB cult building. The Department of Antiquities of Jordan has agreed to expropriate the "core" 3.5 hectares of the site on the west side of the Zarqa River, which we hope can be developed into a permanent open-air archaeological museum and research facility. We extend our most heartfelt thanks to Dr. Safwan Tell, the Director-General, for his concern and help in making this expropriation a reality.



14. Incised basalt fragment from the Yarmoukian period.

**Acknowledgements**

Funding for the 1993 season was provided by Yarmouk University, a grant from USAID, which was administered by ACOR, and a grant from the United States Information Agency. Additional support

was provided by the Department of Antiquities. The season would not have been possible without the active support of Dr. Cherie Lenzen, Dr. Carl Dutto, and Mr. 'Aid Sweis of the USAID office in Amman and Mr. Peter Kovach of the USIS office at the American embassy, as well as the cooperation of Drs. Pierre and Patricia Bikai, Dr. Gaetano Palumbo, and Mr. Glen Peterman of ACOR.

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### Bibliography

Banning, E.

1993 Where the Wild Stones Have Been Gathered Aside: Pastoralist Campsites in Wadi Ziq-lab, Jordan. *BA* 56(4): 212-221.

Garfinkel, Y.

1993 The Yarmukian Culture in Israel. *Paléorient* 19(1): 115-134.

Kafafi, Z.

1990 Early Pottery Contexts from 'Ain Ghazal, Jordan. *BASOR* 280: 15-30.

Kenyon, K.

1979 *Archaeology in the Holy Land*. London: Benn.

1981 *Excavations at Jericho, Vol. III*. London: British School of Archaeology in Jerusalem.

Kirkbride, D.

1968 Beidha 1967: An Interim Report. *PEQ*: 90-96.

Rollefson, G.

1983 Ritual and Ceremony at Neolithic 'Ain Ghazal (Jordan). *Paléorient* 9(2): 29-38.

1993 The Origins of the Yarmoukian at 'Ain Ghazal. *Paléorient* 19(1): 91-100.

Rollefson, G., Kafafi, Z. and Simmons, A.

1990 The Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1988 Season. *BASOR Supplement* 27: 95-116.

1993 The Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1989 Season. *AASOR* 51: 107-126.

Rollefson, G. and Simmons, A.

1987 The Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1985 Season. *BASOR Supplement* 25: 93-106.

Rollefson, G., Simmons, A. and Kafafi, Z.

1992 Neolithic Cultures at 'Ain Ghazal. *Journal of Field Archaeology* 19(4): 443-470.

Rosen, S. and Avni, G.

1993 The Edge of the Empire: The Archaeology of Pastoral Nomads in the Southern Negev Highlands in Late Antiquity. *BA* 56(4): 189-199.