

Preliminary Report of the A.P.C. Township Archaeological Survey

by

David W. McCreery

1.0 Introduction

The purpose of this article is to report the preliminary findings of the archaeological survey of the proposed Arab Potash Company's township site in the Southern Ghor.¹ The survey was conducted under the auspices of the American Schools of Oriental Research and the Jordanian Department of Antiquities and financed by USAID. The staff was comprised of personnel in residence at the American Center of Oriental Research in Amman, Vincent Clark, Linda McCreery and the author and two representatives from the Department of Antiquities, Mr. Sami Rabadi and Miss Nazmiah Rida Tawfig. The operation spanned the entire month of November 1977 with a one week break during the Adha Feast.

1.1 Background

During the course of the 1977 Bab edh-Dhra' excavation, our attention was drawn to a plot of ground immediately south of the Early Bronze Age cemetery where coring engineers and surveyors were working. From our inquiries we found that the Arab Potash Company was considering this site along with four others, as a possible location for a township intended to house some 2,000 persons who will be working on the Dead Sea potash project by 1980. By mid-October we learned that the site near Bab edh-Dhra' had been decided upon and that construction plans were moving ahead rapidly. Prompted by concern over the close proximity of the proposed township to the Bab edh-Dhra' cemetery and the possibility that significant antiquities might be found on the site, Mr. Sami Rabadi, supervisor of the Kerak District for the Department of Antiquities and the author, visited the site on October 21, 1977 to examine the exact perimeters of the township and check for signs of ancient human activity in the area.

We found that the cemetery proper and the township site were as close as 200 meters at one point and separated by a small but rather deep wadi. Although we found very little pottery on the site, what we did pick up was contemporary with the cemetery's EB IA shaft tombs. Of greater interest were a number of poorly preserved cairns, a long wall running roughly E-W through the site and a number of heavily patinated Paleolithic flint implements. Our findings were not startling but did seem to be significant enough to warrant further investigation of the site before the commencement of construction. Dr. Adnan Hadidi, Director of the Department of Antiquities and Dr. James A. Sauer, Director of the American Center of Oriental Research agreed with this assessment and preparations for putting a team in the field were begun. By November 1, 1977, all preliminary arrangements had been taken care of and we traveled to Kerak to pick up additional equipment and then on to the Bâb edh-Dhra' cemetery where we set up our headquarters in the midst of an abandoned army encampment.

The major objectives of the project were clearcut. We were to thoroughly examine the township site in order to determine the areas of concentration, date and significance of pottery, artifacts and architecture found to be present. Of special importance was assessing the evidence for Early Bronze burials within the township since the southern boundary of the Bab edh-Dhra' cemetery has never been defined. The strategy we adopted to accomplish these goals was to conduct a careful surface survey followed by soundings in areas where pottery and/or architectural remains were concentrated.

2.0 The Surface Survey

As the map (Fig. 1) indicates, the township

site consists of a narrow strip of land separated by a shallow wadi from a larger land mass to the south. By the time we began the survey, the A.P.C. surveyor had staked out a center line through the southern half of the site with points assigned a letter of the alphabet every 50 meters. We were able to tie into these points and use the maps supplied by the A.P.C. to great advantage for recording the location of architectural remains and keeping track of pottery and flint concentrations. We began the survey at the northwest corner of the township setting up four survey poles which defined a strip of ground 50 meters wide, corresponding to the F and G points on the center line. We then swept slowly through this area picking up pottery and other artifacts, plotting architectural remains on the map and taking notes on the general nature of the surface, e.g., noting rock concentrations, erosional patterns, etc. The finds were then bagged and labeled F₁/F₂ and we moved on to the next 50 meter section where the process was repeated. The site was thus divided into 55 sections, 50 meters wide running perpendicular to the township center line.

2.1 Pottery and Flint Artifacts Pl.LXXXV 3 and LXXXVI.

Since pottery appeared to be relatively scarce, we decided to pick up all sherds whether diagnostic or not in order to see if patterns of ceramic concentrations would show up. The sherds were counted and recorded at our camp in the evening and then all but potentially diagnostic sherds were discarded. This strategy worked quite effectively and we were able to pinpoint two areas of Chalcolithic and Early Bronze 1-11 pottery concentration indicating human occupation or at least intensive activity in those areas in spite of little surviving architectural evidence.

Of the grand total of 1,126 sherds collected during the surface survey, 1,031 or 84% came from the northern section of the township and only 195 sherds or 16% from the southern section. This is a surprising distribution pattern not only because the southern section is much larger, but almost all of the architectural remains on

the site are concentrated in the southern sector. Table 1, which lists the results of the pottery reading, indicates that most of the diagnostic pottery, i.e. 639 sherds or 81% of the total, come from the Chalcolithic and Early Bronze Periods and of this total, 444 or 69% come from the EBI-II periods. One final observation concerning the distribution patterns is the fact that 472 sherds or 74% of all Chalcolithic and Early Bronze pottery came from two areas within the northern section of the township between points F₁-K₂ and S₁-X₂ (Cf. Fig. 1).

All of the flints found could be roughly assigned to the Chalcolithic--Early Bronze periods and the Paleolithic period. Detailed comparative study of the implements will have to be conducted before more precise dates can be assigned. The Paleolithic flints were distributed fairly evenly over the entire site but concentrated along the ancient beachlines which run along a northwest-southeast line. As is shown by Table 2, the Chalcolithic and Early Bronze flints, like the pottery, were concentrated in the northern section of the township.

On the last day of the survey, while examining the proposed routes for an access road, we picked up 83 Chalcolithic and 16 EB I sherds in the foothills just west of the northern section of the site. Further west, adjacent to the Mazra'a-Safi highway, we found 92 Paleolithic flints which represents a much heavier concentration of early flint implements than anything encountered within the township proper. Subsequent examination of the land between the township site and the Bab edh-Dhra' cemetery revealed a trail of Chalcolithic and Early Bronze pottery all along the foothills. As one approaches the cemetery from the southwest, less early pottery and more Byzantine material appears.²

2.2 Architectural Remains

The first significant architectural feature encountered was a long wall which runs along an east-west line through the township site and

TABLE 1
Distribution of Surface Survey Diagnostic Pottery

Period	N. Section of Township	S. Section of Township	Totals
Chalcolithic	53	25	78
Chalco-EB	35	--	35
EB	30	52	82
EB I	149	33	182
EB I-II	241	21	262
Nab.	6	11	17
Byz.	74	32	106
Modern	16	13	29
GRAND TOTALS	604	187	791

TABLE 2
Distribution of Surface Survey Flint Implements

Period	N. Section of Township	S. Section of Township	Totals
Chalco-EB	142	73	215
Paleolithic	43	55	98
Grand Totals	185	128	313

Sherds within the categories Chalco-EB or simply EB are body sherds whose ware and technique of manufacture place them in these periods generally but the absence of rims, bases or other diagnostic components make a more precise dating impossible.

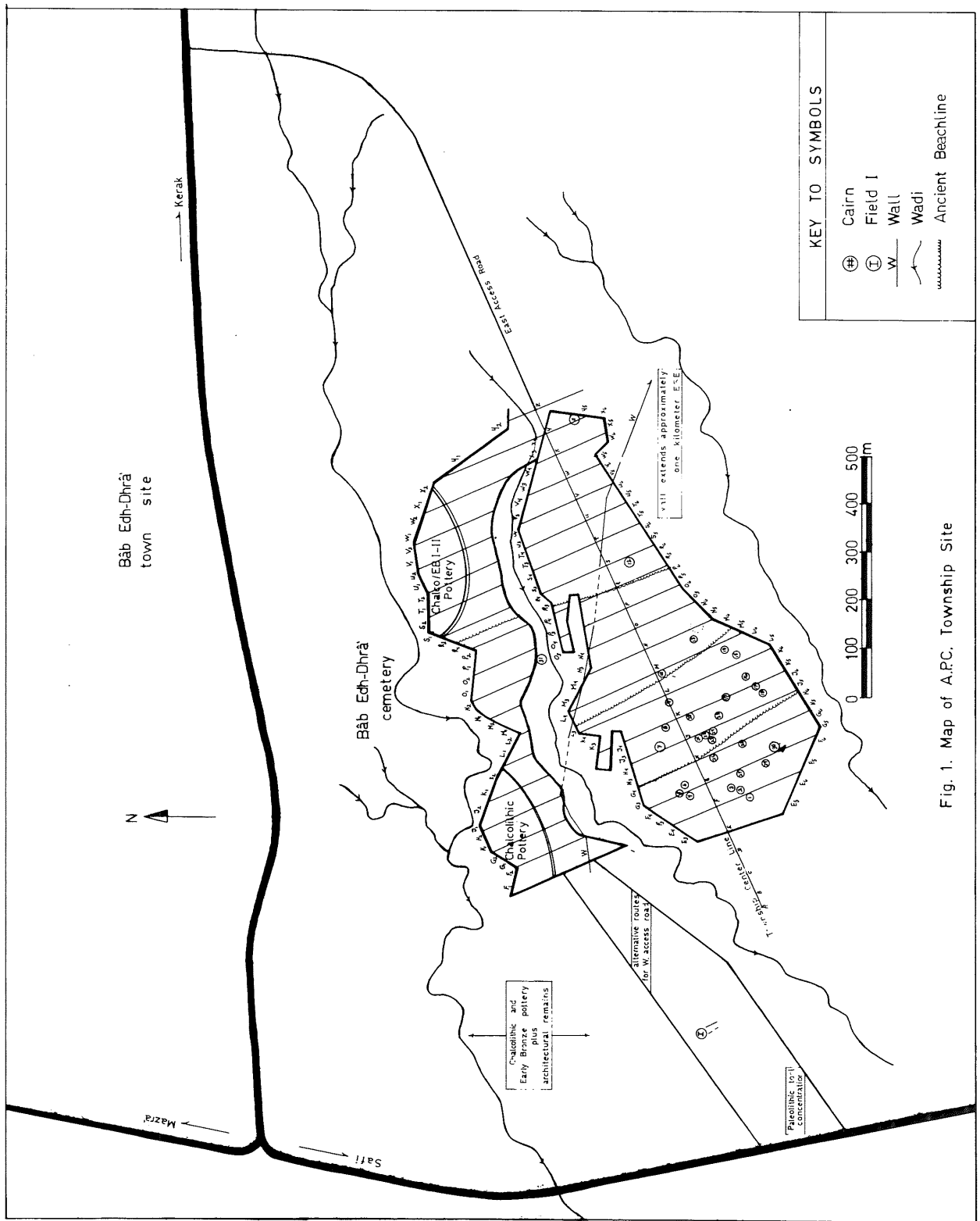


Fig. 1. Map of A.P.C. Township Site

extends for another kilometer eastsoutheast of the site where it disappears at the edge of a cultivated field (Cf. Fig. 1). The wall is approximately one meter thick, roughly faced on both sides with small field boulders averaging 20 cm. in diameter. The fill between the faces is composed of small and medium size rocks, gravel and scil (Cf. Fig.2). None of the stones used in the construction of the wall show signs of working. The first course of the wall is well preserved over most of its length and at some points is preserved to two courses. Judging from the small amount of debris strewn along the wall, it was probably never more than three courses high and if there was a mud brick superstructure it has disappeared without a trace. Only three early, but nondiagnostic sherds and a few flint tools were found on top of the wall.

The most prominent architectural remains on the site are 31 poorly preserved cairns all but one of which are located in the southern section of the township. The cairns are roughly circular with diameters ranging from 2-6 meters with the average around 4 meters. They range in height from .40-1.20 meters with an average of 75 centimeters. The foundation stones which are usually visible since few of the cairns are preserved more than two courses high, were set on the natural soil surface and form concentric rings (from 2-4) around the burial cavity. Quite often, the burial in the center of the cairn is flanked by boulders much larger than those used in the construction of the rest of the cairn.

All of the rocks used in the cairns appear to have come from the immediate area and none of them show signs of quarrying or dressing. In those cairns which are preserved to two or more courses, the rocks of the upper courses are often noticeably larger than those of the lower courses.

Although there are variations in the construction of the cairns, only two stand out as being distinctively different from all the rest. Like the other cairns, they are constructed of natural field boulders arranged in concentric

rings but both the rocks and the cairns themselves are larger than average and a large upright megalith is set in the center of the cairns. The "orthostats" or "monoliths" measured .70m x .70m x 1.35m (cairn 12) and .60m x .60m x 1.65m (cairn 13) and are unique to these two cairns. For lack of better terminology, these two cairns will be referred to in this report as the "orthostat cairns".

The poor state of preservation of most of the cairns makes it difficult to judge whether they were robbed in antiquity³ or simply have suffered the effects of natural erosion which has stripped the area of its fertile top soil. The excavations carried out after the conclusion of the surface survey indicated that both nature and man have tampered with the burials over the years but the former seems to have inflicted the most damage. Another factor which has contributed to the demise of the cairns is a number of subsidiary burials which abut the cairns and are made of stones robbed from them.

Another interesting architectural feature was a large circular ring of stones approximately 25 meters in diameter with the remains of two cross walls connecting two rock platforms on the northwest and southeast edges of the circle (Cf. Fig.3). A poorly preserved cairn (30) was situated at the inner edge of the rock concentration in the northwestern section of the circle and what at one time may have been a cairn (G6/2) was located 3 meters directly north, abutting the inner edge of the circle. The outer ring of the circle is well preserved along the southwest edge but completely eroded or only faintly visible elsewhere. The wall appears to have originally been approximately one meter thick and no more than two or three courses high. A few coarse body sherds and a couple of diagnostic Chalcolithic sherds were found on the surface in and around the ring.

A very similar installation was found 200 meters to the northeast near orthostat cairn 13. It is not as well preserved as the above mentioned ring but appears to have been almost identical in terms of construction and dimensions. The wall which forms an almost perfect circle 25 meters in diameter was approximately

1 meter thick. The two roughly parallel crosswalls have a northwest-southeast orientation and consist of a single row of stones comparable in size to those used in the other installation. Two rock concentrations or "platforms" are located on the north and southeast edges of the circle but unlike the other installation, the crosswalls do not connect the platforms and there are no cairns within the circle.

The last significant architectural remains to be located were several walls found in the midst of Chalcolithic surface pottery along the proposed west access road route. Like most of the other architectural features on the site, the walls were seldom preserved above the foundation course but that course is in several instances quite well preserved.

3.0 The Soundings

The architectural and ceramic remains, although not abundant, were judged to be significant enough to merit further investigation following the completion of the surface survey. The project was not designed nor did time allow for full scale excavations but it was necessary to conduct limited soundings in an attempt to date the walls and cairns. Eleven local men were hired to work under the direction of the core staff in five major areas.

3.1 The Cairns Pl.LXXXV

The cairns, being the dominant architectural feature on the site, were an obvious candidate for further investigation and 12 of them were excavated with interesting but rather disappointing results. They were found to be burials frequently containing only a few poorly preserved bones. The large number of snail shells commonly found mixed in with the bones suggests that the remains may simply have been covered with rocks and were thus exposed to the elements until soil and snails gradually collected around them. Such an explanation would account both for the presence of the snail shells as well as the state of the badly weathered bones. All of the burials were disarticulated and contained no "grave goods" except in cairn

25b where 11 tiny beads but no bones were found and cairn 1 where sherds, apparently

from the same vessel, were found with the bones inside the cairn as well as on the surface outside the cairn. In some instances there were signs of burning of the soil upon which the bones were placed but the bones themselves showed no signs of having been burnt.

The lack of ceramic evidence precludes the possibility of dating the cairns at this point. Hopefully, bone samples submitted for C-14 analysis and sherds from cairn 1 undergoing thermoluminescence analysis will yield consistent dates.

3.2 The Large Ring in G6

Cairn 30 and the large stone ring of which it is a part (Cf. Fig. 3) were also investigated with somewhat more gratifying results. The soundings located two burials within cairns 30 as well as one burial 3 meters to the north (G6/2) and five burials in the platform on the southeast edge of the circle (G6/3A, B, C, D, E). Probes were also made against the two crosswalls. The crosswall probes and burials of cairn 30 and G6/2 yielded no pottery but two other burial cavities (G6/3B & C) produced a homogeneous group of 58 Chalcolithic sherds. Carbon 14 analysis of the bones and thermoluminescence analysis of the pottery will be used to check this date arrived at from the pottery reading. If in fact this large ring and the burials associated with it do stem from the Chalcolithic period, it is probable that the other cairns on the site which are similar in construction to cairn 30 should also be assigned a Chalcolithic date.⁴

3.3 The Long Wall

Three probes were made on the long wall which runs along an eastwest line through the northern section of the township and then angles off to the southeast near T point on the center line (Cf. Fig. 1). Figure 2 is the top plan of the first probe (located in xx section F₂) showing the construction of the foundation course which has already been briefly described in section 2.2 of this report. Cuts were made through the wall in all three probes with similar results. Only the foundation course of stones was preserved, no evidence of a foundation trench was detected and only 3 nondiagnostic body sherds were recovered. We thus have no evidence for

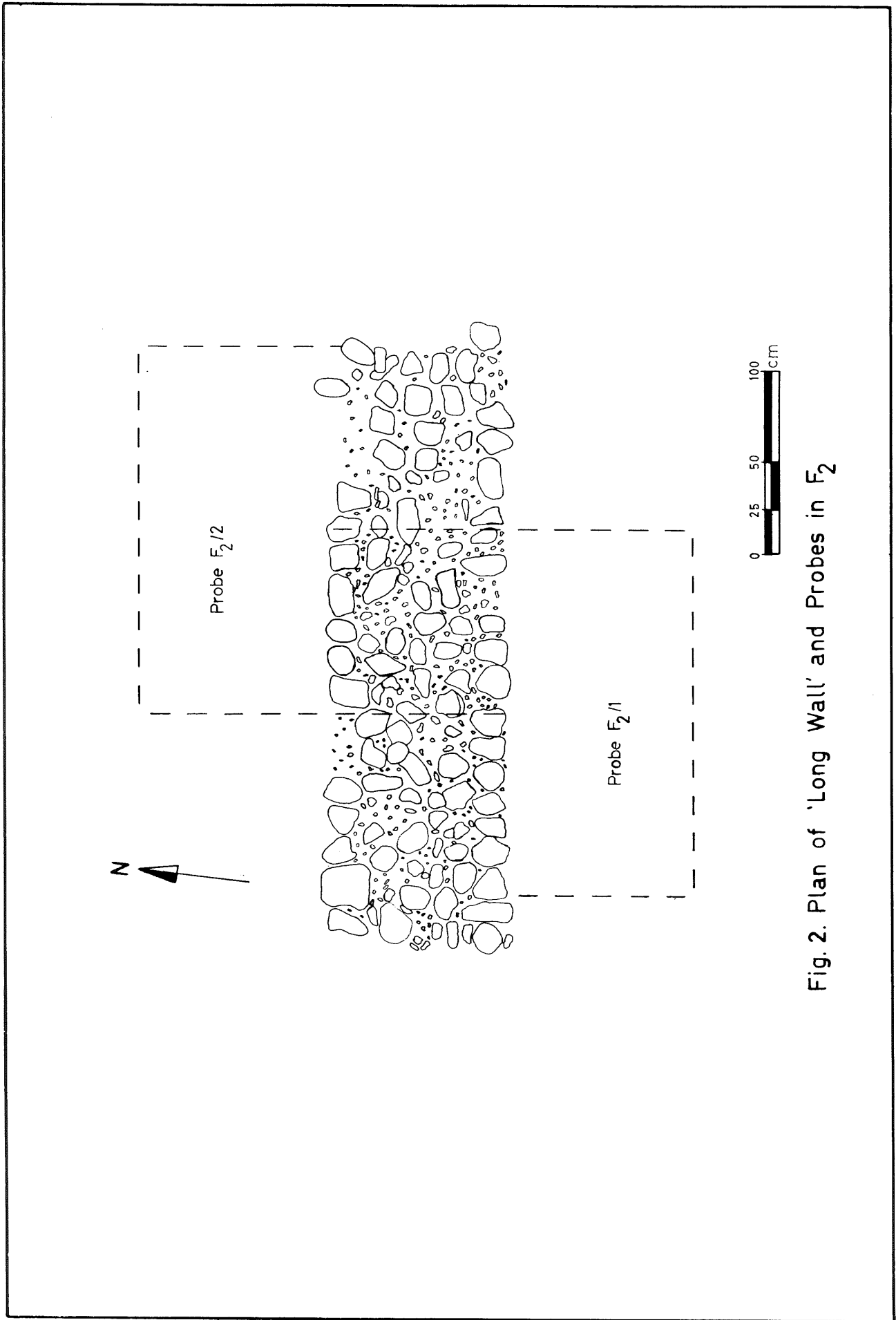


Fig. 2. Plan of 'Long Wall' and Probes in F₂

dating the wall and its function remains a mystery.

3.4 Area of Chalco-EB Pottery Concentration

Even though no architectural remains were visible on the surface, a small square was opened in the midst of an area (U₁) where a concentration of Chalcolithic and EB I-II pottery had been found in order to determine whether or not subterranean signs of occupation had been preserved. The first 10-15cm. of soil was wash containing gravel and a few scattered Chalcolithic and Early Bronze sherds. From 10-20cm. below the surface mud brick detritus and a couple of intact, white, unfired mud bricks were encountered. Although both pottery and charcoal were found embedded in the mud brick detritus, no clearly defined occupational layers or 'living surfaces' could be distinguished. Bedrock was found to lie just 20 cm. below the surface.

Although the evidence is scanty, the charcoal as well as 40 Chalcolithic and 26 EB I-II sherds recovered from the sounding indicate that there was at least limited occupation in this area. If, as seems to be the case, dwellings were made from sun baked bricks with a high marl content, it is understandable how the architectural features could erode away to almost nothing over the past 5,000 years. Nearby surface finds including a sandstone mortar and basalt saddle quern also attest to ancient occupation in this sector of the township.

3.5 Walls along the West Access Road

Since most of the Chalcolithic pottery was found concentrated in the northwest corner of the township and along the west access road, we decided to probe two walls in the foothills roughly 400 meters west of the township proper. The surface pottery around the walls was a homogenous group of coarse Chalcolithic body sherds.

The two roughly parallel walls with a northwest-southeast orientation are perched on the top of a small hillock with deep washes running east-west on the north and south sides

of the hill. If the walls were ever connected by crosswalls at the north and south ends, they have disappeared off the edge of the slopes and have washed away without leaving a trace. As the top plan indicates (Cf. Fig. 4) the two walls are approximately 2 meters further apart at the north end than at the south end. It seems doubtful therefore that the two walls were ever connected unless one envisions a building in the shape of a polygon rather than a rectangle.

The first two probes against the east wall were attempts to date and examine the wall's foundation course. We found that like the long wall examined within the township, the rocks visible from the surface wash in fact the only surviving course. Unlike the long wall on the site, we did find faint traces of a shallow foundation trench and numerous potsherds, most of which disintegrated when handled. Soft wind blown soil deposits were found east of the wall and a 25-35cm. layer of a gravel wash lie between the two walls. Ten centimeters above bedrock (25-35 cm. below the surface) a hard packed surface of mud bricklike material emerged. This surface, found west of the east wall at approximately the same level in probes 1 & 2 (cf. Fig.4), displayed characteristics typical of an occupational layer, i.e., sherds, worked flint and charcoal embedded in a hard packed, artificial surface.

Probe 3 was laid out between the two walls in order to examine their stratigraphical relationship. The attempt to follow the living surface found in probes 1 and 2 was only partially successful owing to the disturbance of this layer by erosional factors. Fairly well preserved sherds were found within one meter of the east wall but as the excavation progressed towards the west wall, the surface became increasingly difficult to follow and only disintegrated sherds were found. Two small pits cut into the sandy bedrock were found along the northwest balk near the center of the probe, one of which underlies the living surface and one of which clearly cuts it. The pits contained gray ashy soil and a few traces of disintegrated sherds but no salvageable diagnostic sherds. The pit underlying the living surface represents the only clear

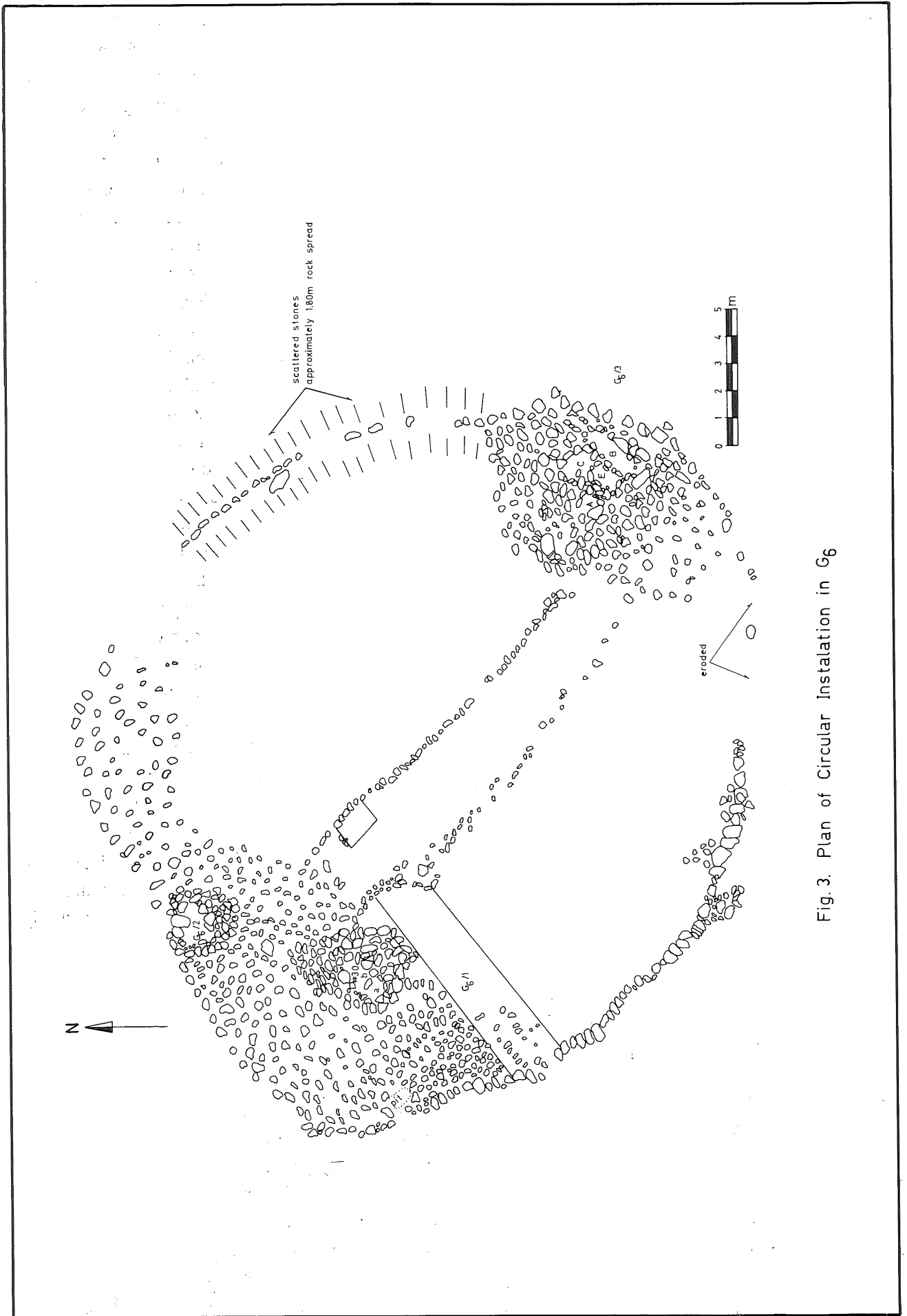


Fig. 3. Plan of Circular Installation in G6

evidence of occupation which precedes the living surface and the east wall associated with it. The disturbance caused by natural erosion and the pit cutting through the living surface makes it impossible to relate the two walls stratigraphically with any degree of certainty.

Having only a couple of days left to finish the project, we decided to clear as much of the area as possible in order to recover a diagnostic corpus of sherds for dating purposes. We did find a number of rims, handles and bases, almost all of which came from the living surface adjacent to the east wall at a depth of 25-35 cm. Evidently the wall had protected these sherds from the wash which had inundated most of the area between the two walls and carried away the center section of the west wall. Most of the sherds found in the gravel wash between the walls were treated with PVA before being removed but even this precaution often proved fruitless as many of the sherds had been reduced to dust.

4.0 Conclusions

4.1 The Surface Survey

From the pottery and flint implements collected during the surface survey, a rough outline of the history of human activity at the A.P.C. township site can be deduced. Paleolithic flint tools concentrated along the ancient beach lines were found in sufficient quantities to indicate a substantial presence during this period but not necessarily occupation. The small area 200 meters southwest of Field I from which 92 Paleolithic flints were collected represents a much denser concentration of artifacts from this period than anything found within the boundaries of the township and could be interpreted as a small but fulfilled Paleolithic site. No evidence was found to indicate occupation during the Mesolithic or Neolithic periods but the pottery and walls found at the northwest corner of the township site and along the west access road suggest a well established though probably small Chalcolithic settlement.

Pottery concentrated near the eastern end of the northern section of the township (Cf. Fig.1)

indicates that this was an area of limited occupation during the Chalcolithic and EB I-II periods. A few EB III-IV sherds were found scattered about the site but not in sufficient quantities to suggest occupation during those periods.

No pottery or artifacts dating from the Middle Bronze Age through the Hellenistic Period were found. A total of 17 Nabatean and 106 Byzantine sherds probably represents transient presence at the site during those periods. The relatively large number of Byzantine sherds is not surprising since there are three known Byzantine sites within 5 kilometers of the township. An absence of pottery from the Islamic periods to modern times indicates that again there was very little human activity at the site from the end of the Byzantine Period until the mid-20th century. Four broken EB IA pots and a basalt vase found lying on the surface between the H and J points on the center line almost certainly represents some of the pottery robbed from the Bab edh-Dhra' cemetery shaft tombs in recent years.

It should be emphasized that the preceding sketch of human activity derived from the surface survey, applies only to the township proper and not to the Ghor edh-Dhra' as a whole. If a thorough survey of the Lisan and the area between the Wadi Kerak and Wadi Numeria were conducted, pottery and artifacts from periods not represented at the township site would doubtless be found. Evidence confirming this to be the case was found by the author in February 1978 in the form of Neolithic pottery and flint implements collected near 'Ain Weida' a in the Wadi edh-Dhra' just 2 kilometers east of the township.

4.2 The Soundings

The results of the soundings confirm the outline of human activity in the area which the surface material suggests and makes further refinement of the site's history possible. The excavations established that the areas of Chalcolithic and Early Bronze pottery concentrations were in fact occupational areas and

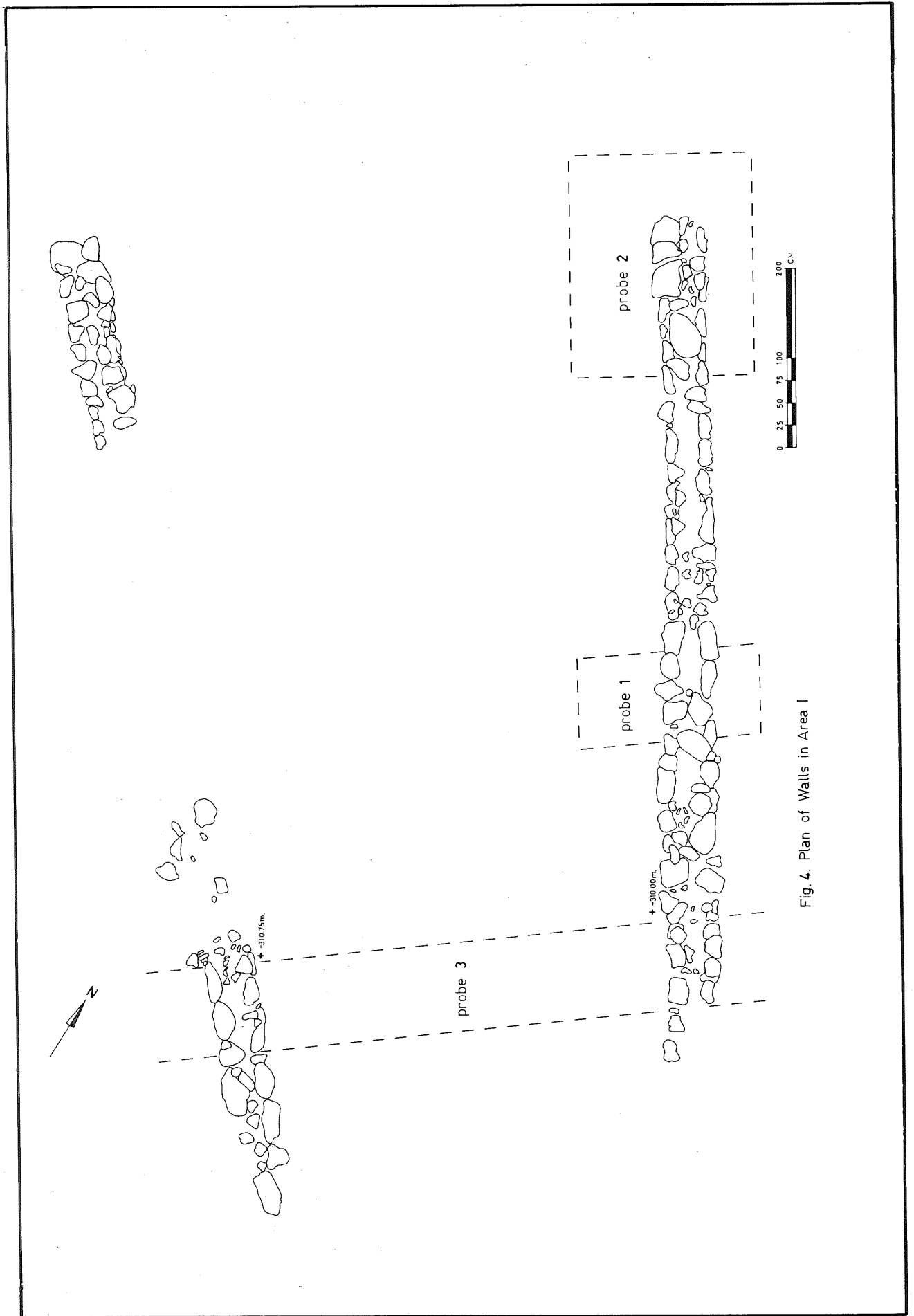


Fig. 4. Plan of Walls in Area I

that these are apparently the only periods of occupation at the township site. This fact suggests the distinct possibility that the cairns and long wall were constructed during either the Chalcolithic or EB I-II periods. Since the cairns are burials and the dominant burial practices in this region during the EB I-II periods as reflected in the nearby Bab edh-Dhra' cemetery were subterranean shaft tombs or semi-subterranean mud brick charnel houses⁵, it would seem that a Chalcolithic date for the cairns is most likely⁶. Such a date is further suggested by the fact that all of the pottery, some 58 sherds from the soundings of the large circular ring G₆ (Cf. Fig.1 & 3). were Chalcolithic in date. At the present time, there is no clear evidence for determining either the date or function of the long wall which runs through the site.

The sherds recovered from the probes against the walls located along the west access road constitutes a homogenous corpus of mostly coarse ware pottery with large calcite inclusions and typical Chalcolithic forms such as steep angled, simple rims, rope molding decoration and loop handles. Absolutely no paint was found on any of the sherds. Although isolated parallels can be found for some rims and handles, according to our pottery expert Dr. James A. Sauer, the assemblage as a whole is atypical. Thus a great deal of comparative research lies ahead before a detailed report on the exact nature and date of the Chalcolithic pottery can be published.

Extensive occupation of the northern Jordan Valley during the Chalcolithic period is a well documented fact⁷ and surveys conducted in the 1960s located numerous caves containing Chalcolithic remains along the western edge of the

Dead Sea⁸. On the other hand, surveys by Fritz Frank in 1932⁹, Nelson Glueck in 1934¹⁰ and more recently by Drs. Thomas Schaub and Walter Rast in 1973¹¹ make no mention of finding evidence of Chalcolithic occupation in the Southern Ghor along the east edge of the Dead Sea. The Chalcolithic walls and pottery found on and around the A.P.C. township site thus represents the first reported evidence of Chalcolithic occupation in this area.

All of the material from the survey and sounding is presently housed at the American Center of Oriental Research in Amman where it is being processed for final publication.

Acknowledgements

The author wishes to express his gratitude to several individuals and organizations without whose help this project would never have materialized. A word of thanks is due to the personnel at the American Embassy in Amman, in particular the staff of USAID and Ambassador Thomas Pickering for their interest in the project and financial assistance. The cooperation and hospitality extended by the Arab Potash Company was also greatly appreciated. Dr. James A. Sauer, director of the American Center of Oriental Research has given freely of his time and expertise in the pottery reading and has provided valuable guidance for the project from its inception to the present time. Dr. Edward F. Cambell, our A.S.O.R. contact in the U.S., has saved us much time and worry by personally taking care of all stateside arrangements. The Department of Antiquities, under the direction of Dr. Adnan Hadidi, was a pleasure to work with. Dr. Hadidi's personal interest in the project, his patience and generosity have been a constant source of encouragement.

David W. Mc Creery

Notes

1. Once the detailed study of the pottery and artifacts has been completed, another final report will be issued.
2. During the course of our survey, the Department of Antiquities carried out a salvage excavation at a Byzantine cemetery located several hundred meters due west of the Bab edh-Dhra' cemetery where several graves had been opened up by bulldozers preparing a base camp for highway construction workers.
3. No evidence of recent digging was found around any of the cairns.
4. Mr. Vincent Clark who excavated several cairns himself and oversaw the excavation of all the other cairns is working on a separate report devoted wholly to their excavation and interpretation. Hopefully by the time his article appears (also in *ADAJ*) the laboratory analyses will be completed.
5. Cf. Paul W. Lapp, *The Tale of the Tell*, ed. by Nancy Lapp, Pittsburgh: The Pickwick Press, 1975. pp. 104-110. And Paul W. Lapp, "The Cemetery at Bab edh-Dhra', Jordan," *Archaeology*, Vol. 19, 2, 1966. pp. 104-111.
6. The results of the C-14 analysis of bone material recovered from the cairns will provide the necessary control for testing this hypothesis.
7. Cf. Mo' awiyah Ibrahim, James Abbot Sauer and Khair Yassine, "The East Jordan Vally Survey, 1975," *BASOR*, 22, 1976. pp. 41-66. And R. de. Vaux "Palestine during the Neolithic and Chalcolithic Period," pp. 498-538 in *The Cambridge Ancient History*, Vol. 1. Part 1, eds. I.E.S. Edwards, et. al., Cambridge: Cambridge University Press, 1966.
8. Y. Aharoni, N. Avigad. P. Bar-Adon, and Y. Yadin, "The Expedition to the Judean Desert, 1960," *IEJ*, Vol. 11, 1-2. 1961. pp. 1-52. Cf. also Y. Aharoni, "The Caves of Nahal Hever," *Antiqot*, Vol, III, 1961. pp.148-62.
9. Fritz Frank, "Aus der Araba 1: Reiseberichte," *ZDPV*, Vol. 57, 1934. pp. 191-280.
10. Nelson Glueck, "Explorations in Eastern Palestine, II," *AASOR*, Vol 15, 1935.
11. Walter E. Rast and R. Thomas Schaub, "Survey of the Southeastern Plain of the Dead Sea, 1973," *ADAJ*, Vol. 19, 1974. pp.5-53.

