

SURVEY OF THE SOUTH RIDGE OF THE WADI ISAL, 1981

by
Linda K. Jacobs

Introduction

The Wadi 'Isal¹ is located seven kilometres south of the Wadi Kerak and runs approximately parallel to it—that is, west-northwest. It has as its source several springs at its eastern end, which are near to the village of Kathrabba (Fig. 1), and it empties into the Ghor 'Isal and the Dead Sea, just south of the Lisan Peninsula.

Since it is one of the lesser *awdiyah* (wadis) in the series of east-west *awdiyah* (wadis) running into the Rift Valley, it is rarely mentioned or visited by travellers. Although Glueck (1939: 147) flew over the Wadi Isal and photographed the Roman road which runs along its south ridge and visited the Ghor 'Isal (1935: 6), he seems never to have actually visited the ridges on either side of the *wadi*. This is not strange, however, as he did not do much east-west exploring, and in fact very few of these east-west drainages have been surveyed. Little seminal work has been done in the south in particular.

Recently, however, this lack is being remedied by surveys of the Wadi el-Hasa (MacDonald, 1980) and by more general surveys of W. Jobling (1981) and M. Miller (1979). A survey of the Wadi 'Isal promised to be interesting for a number of reasons, not the least of which was the presence of the Roman road which Glueck photographed. The fact that the road was built at all marks the *wadi* (or at least its southern ridge) as a viable communication route between the highlands and the lowlands of Transjordan. In fact, the trek from the Ghor Isal to Kathrabba along the remains of this road is quite an easy one (Fig 1).

Combined with the variability of this communication route, the presence of Early Bronze Age sites, both in the lowlands (Rast and Schaub, 1974) and in

the highlands (Glueck, 1935; MacDonald, 1980), and indications of trade between them (McCreery, 1980a), led one to suspect that the Wadi Isal may have been a communication route as early as Early Bronze times. In addition, it seems that the location of the majority of Early Bronze Age settlements has yet to be discovered, as the number of burials at the Early Bronze Age cemeteries at sites in the Ghor seem not to be accounted for by the population of even a thousand-year settlement of these small sites. Thus, a primary goal of the survey was the location, mapping and collecting of Early Bronze Age sites in the Wadi 'Isal.

A second goal was methodological. Traditional survey methods in the Near East involve the discovery and identification of sites in one of two ways: 1) searching for mounds, or, 2) looking for likely spots for sites and investigating these. Although pragmatic in terms of covering a wide area in a short time span, these methods obviously have built-in biases which can only be evaluated by comparing their results with the results of a more intensive coverage. This can be accomplished by a random sampling of a large area in which a selection of quadrants are completely surveyed, or by the complete coverage of a smaller, delimited area. Only fifteen kilometres long, and limited on all sides by natural boundaries, the Wadi 'Isal was of a manageable size for a small team to cover in a limited amount of time.

We were thus trying to provide a yardstick by which to measure the results of other more traditional survey methods. In addition, settlement pattern studies are best-served by this approach, since *all* sites of a given period (not just the largest, most

¹ Or 'Asal or E'sal

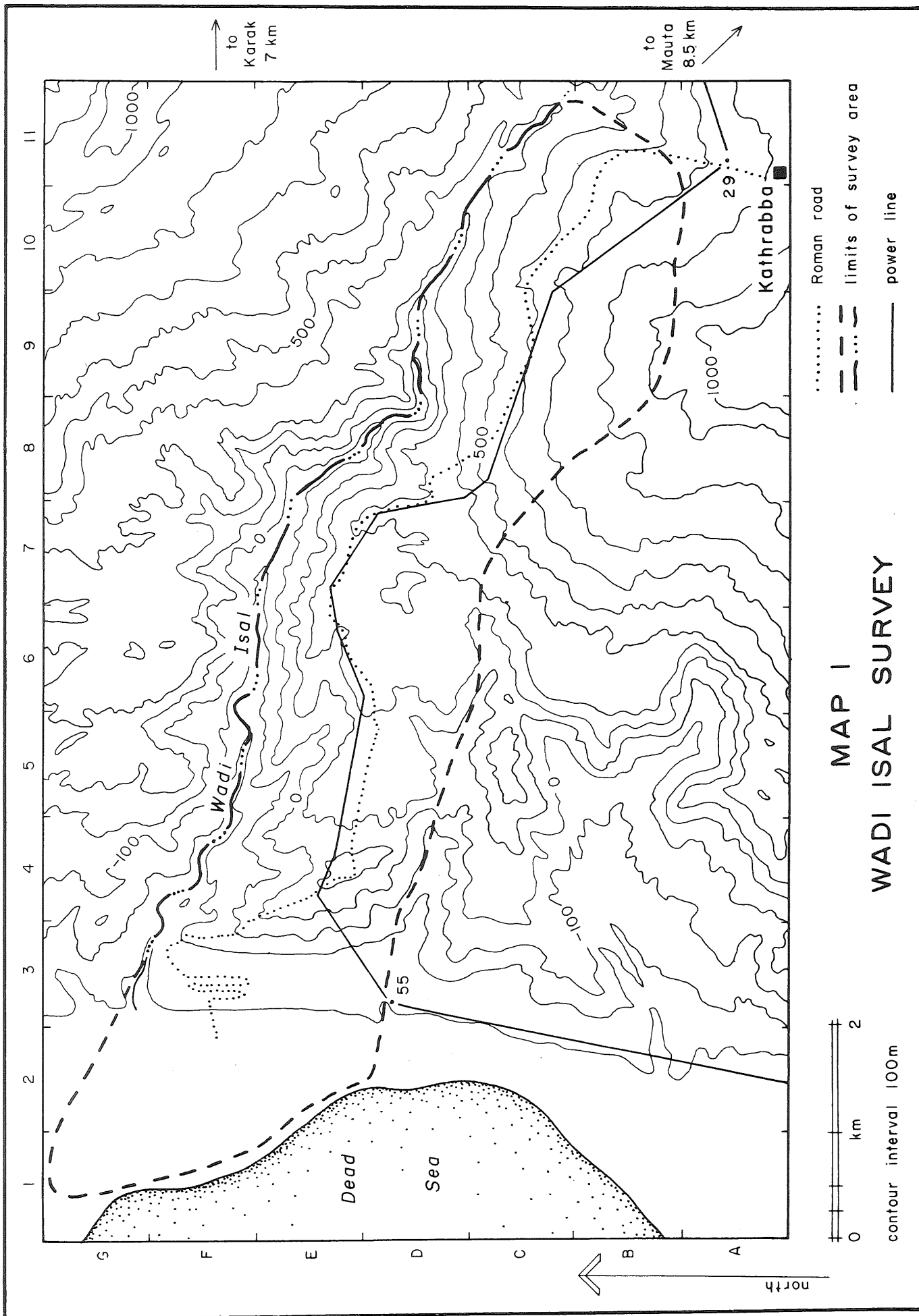


Fig.1

prominent ones) are located, and a study of the settlement pattern of Early Bronze Age settlements was a primary goal of the survey.

A third, and possibly the most immediately important goal of the survey was to add to the cultural inventory of sites of an area which is, and has been, the target of development in Jordan. The whole of the Wadi Araba region was at one time the subject of a vast and comprehensive development plan, which has since been broken down into smaller—but still monumental—projects. The first and largest of these—the Arab Potash Company's refinery—has changed the landscape radically, from the Ghor Kerak all the way south to Numeira (about fifteen kilometres), with the construction of a township, a paved road, a large refinery, water drilling, etc. More building is planned for the future. Some antiquities have been destroyed (McCreery, 1980b), others narrowly missed, while unknown numbers of others may have been covered by the massive building and earth-moving.

The breakdown of this comprehensive development plan has given us a temporary respite in the destruction of sites, but it is clear that this area must be surveyed before such development takes place. No decisions by developers or by the Department of Antiquities can be made without such inventories. Therefore surveys—hopefully with theoretical problems as their bases—should, in the author's view, receive the highest priority in the years to come (Jacobs and McCreery, 1980).

Thus this survey had three goals: a specific theoretical one—to define and explain settlement patterns and communication routes of the Early Bronze Age; a methodological one—to establish a reference by which to measure other survey results; and a pragmatic one—to provide a complete inventory of antiquities in a small part of a region slated for development.

The Environment

The Wadi Isal is one of many west-running streams which are fed by springs

and runoff which flow into the Dead Sea. Its rate of fall is 90.00 metre/1000.00 metres of horizontal run (Abel, 1967: 178), and thus it is constantly, if slowly, downcutting on its way to the sea. It has a perennial flow of water, as do several of the other major *awdiyah* (wadis) in the region.

Near the sea, the narrow *wadi* opens into the alluvial fan of the Ghor Isal, which lies at 400.00 metres below sea level. It is here that the first traces of the Roman road can be seen. Until recently, the dangers of winter flooding prevented occupation at the mouth of the *wadi*, as huge boulders and tons of silt were carried with great force into the *ghor*. Recent flood-control measures have lessened the danger, however. The *ghor* is strewn with medium-sized, water-rounded boulders, and many of the ancient builders utilized these. Further away from the mouth, one expects to find ancient remains, just as one finds modern Bedouin settlements; because of the yearly deposit of silt, however, few of these remains are evident. Only a few sites, built above the floor, have been found.

Just west of the *ghor*, the rocky talus slope mounts toward the first plateau, and on this talus, one finds more evidence of ancient human occupation. This talus slopes gently upward at first, and it is in this area that the sites are found; then suddenly the slope becomes quite steep. At this point, the Roman road makes a series of switchbacks (Fig. 1) to make its ascent to the first plateau at about 100.00 metres above sea level. This ascent of 500.00 metres from the *ghor* to the first plateau, occurs in a horizontal span of less than three kilometres, and is thus the most difficult part of the journey to the highlands.

Once one reaches the plateau, however, the ascent toward the east is much more gradual. Gently rolling hills are occasionally interrupted by small, deep *awdiyah* (wadis), but the Roman road traverses the route of least difficulty.

The western end of the plateau is barren and windswept. Most of the topsoil has been scoured from the hills, and no water source (except runoff) is available,

since the stream bed itself is practically inaccessible here. The area is not inhabited today—even Bedouin encampments are only found further east—and seems not to have been occupied in the past. Except for an occasional stone tomb and the Roman road, it is quite desolate.

The vegetation here is low and spiny and includes wild sage, camel thorn and other xerophytic plants. The only wild animals seen were jack rabbits, gerbils, lizards, and an occasional snake or scorpion.

As one walks east-southeast toward the village of Kathrabba, one climbs to an elevation of something over 700.00 metres above sea level—a gentle 600.00 metre climb over twelve kilometres. More springs are in evidence, the soil is plentiful if rocky, and the evidence for human use—both present and past—becomes increasingly abundant.

Cleared and plowed fields appeared further west than any other evidence of modern occupation. Although the crops had already been harvested by the time of the survey, people from Kathrabba listed the crops as wheat, chick peas, lentils, barley, melons, figs, olives, grapes, maize, and prickly pear. These are grown by dry-farming, although each of the three springs (two near power pole 36, one at pole 30—see Fig. 1) has been canalized and used to water the olive groves.

The rainfall on the plateau ranges 200-300 mm. per year (Abel, 1967), making this dry farming possible but marginal, but there is evidence—both ancient and modern—for water catchment systems to augment nature. Cisterns have been found at several sites, and in addition, more primitive systems, whereby channels cut into bedrock direct runoff into small basins in the rock. The dating of these latter are problematic, but they are certainly being used by modern Bedouin.

There are *no* settlements on the south ridge today at all, barring a few tents which the people of Kathrabba occupy in the

summer. But the villagers have their fields, here, and therefore modern artefactual remains are scattered throughout the eastern half of the survey area. This situation is not quite the same as in the past, when this ridge was more heavily used than today. However, one cannot say that it was ever densely populated or even densely travelled—despite the presence of the road and several standing buildings in the survey area.

Methodology

As stated above, the survey team² accomplished a complete coverage of a naturally delimited area which covered eighteen square kilometres. This area was defined on the north by the *wadi* floor itself; on the east by the source end of the *wadi* and the easternmost of several small feeder streams (the Wadi el-Jaya) which run into the Wadi Isal; on the south by the next major *wadi* (unnamed on the 1:50,000 map), and when that ended, by a major east-west ridge; and on the west by the line of vegetation which marked the edge of the Dead Sea (Fig. 1). As is clear, the only arbitrarily-chosen limit was the east-west ridge defining the southern edge of the survey area for a distance of about five kilometres.

The south ridge of the Wadi Isal is divided by the Roman road which runs along the highest part of the plateau; by a modern dirt track which runs approximately parallel to and sometimes on top of the Roman road; and by a power-line (installed to provide electricity to the potash project) for which the road was cut. The poles of this line are numbered (Fig. 1) and are spaced about 330.00 metres apart; thus the survey area was conveniently divided into quadrants defined by the numbered poles and the road or line itself. Bearings for each of the sites in the survey were taken from two of these poles, and the sites were numbered in the field according to the number of the nearest

² The survey team consisted of four people: the author; Miss Hilda Ayoub of the Department of Antiquities; Dr. John Alden; and Mrs. Greta

Kaltenbach. We worked in the field from 9 November-3 December, 1981, with a total of 19 working days.

pole. Our survey area thus stretched from pole 30 to pole 52—the westernmost pole on the plateau, and bearings were also taken on pole 53, the first pole in the *ghor* itself.

These field numbers have been changed in this report to a gridded numbering system to make their locations and numbers more closely correlated, but the pole numbers are given on all the maps (Figs. 1-10) in order to make clear some of the site descriptions that follow. Sites are marked on the map with symbols representing the periods of occupation—the larger of the symbols representing major occupations of that period.

How was the survey organized? The technique was a mixture—as always—of systematic coverage and compromises with topography. We proposed to walk in 50.00 metre wide transects and cover all of the area defined above. Because of the hardness of the crew, we were very successful in this goal, and except for certain necessary adjustments for sheer cliffs, farmers' fields, etc., we are confident that complete coverage was attained.

We tried to make no prejudgements about where sites might be located, and in that sense the survey was modelled on "New World" rather than traditional "Old World" survey methods. In the same vein, we did not define a "site" beforehand, since we simply did not know what we would find.³ In fact, there was not much difficulty in deciding which were sites and which were not, and in retrospect, a working definition seems to have been the presence of at least ten artefacts in a 10.00 x 10.00 metre area. Single pot breaks of course were not defined as sites. During the later analysis of the pottery, a total of eight sites were eliminated for having fewer than the requisite number of artefacts.

Although the crew as a whole walked in 50.00-metre transects, the author moved back and forth from site to site recording,

photographing and collecting. We did not make systematic collections of the sites, but simply picked up a selection of diagnostic and non-diagnostic artefacts, since we planned to return after preliminary analysis to do systematic collections of the Early Bronze Age sites found. The sites were generally so small, however, that we picked up *all* the diagnostic sherds we saw (rims, bases, decorated bodies) and many undecorated bodies as well. Evidence of stone tool manufacture—flakes, cores and tools—were also collected, as well as all other artefactual material including evidence for modern occupation.

We also made a concerted effort to trace the remains of the Roman road from the *ghor* eastward. In many places it has been completely obliterated and was impossible to find, but we did locate it at intervals along the survey route and to the south and east of Kathrabba. The 1:50,000 map of this region (Sheet + 3152 III) which is based on 1961 aerial photographs does show the Roman road, and the maps in this article are based on this map with certain corrections based on observations in the field. The road shows up very clearly on these photographs as a thin double line, so they are very useful in filling in the gaps where the road no longer exists.

Results⁴

A total of ninety sites were identified in the course of the survey and thirty-two "megalithic" tombs. The great majority of sites were Byzantine, with a much fewer number of Paleolithic, Chalcolithic, Iron II, Nabataean, Roman and Mamlūk. Artefacts from all these periods were found scattered throughout the survey area, but major occupations were few and concentrated in the middle and eastern portions of the survey area.

Interestingly, in terms of the goals of the survey, we found *no* Early Bronze Age

³ Dr. David McCreery asked me, about halfway through our field season, whether we were finding "sites" or "scatters". What is the meaning of this distinction?

⁴ Mr. Colin Gillett assisted me in identifying and dating the pottery from the survey. The maps were

drawn by Mr. Brian Byrd, and most of the pottery by Mrs. Anne Hastings. Housing was generously provided by Jacobs Engineering Co. in the Potash Township. I am grateful to all of these people for their help; all errors, however, are my own.

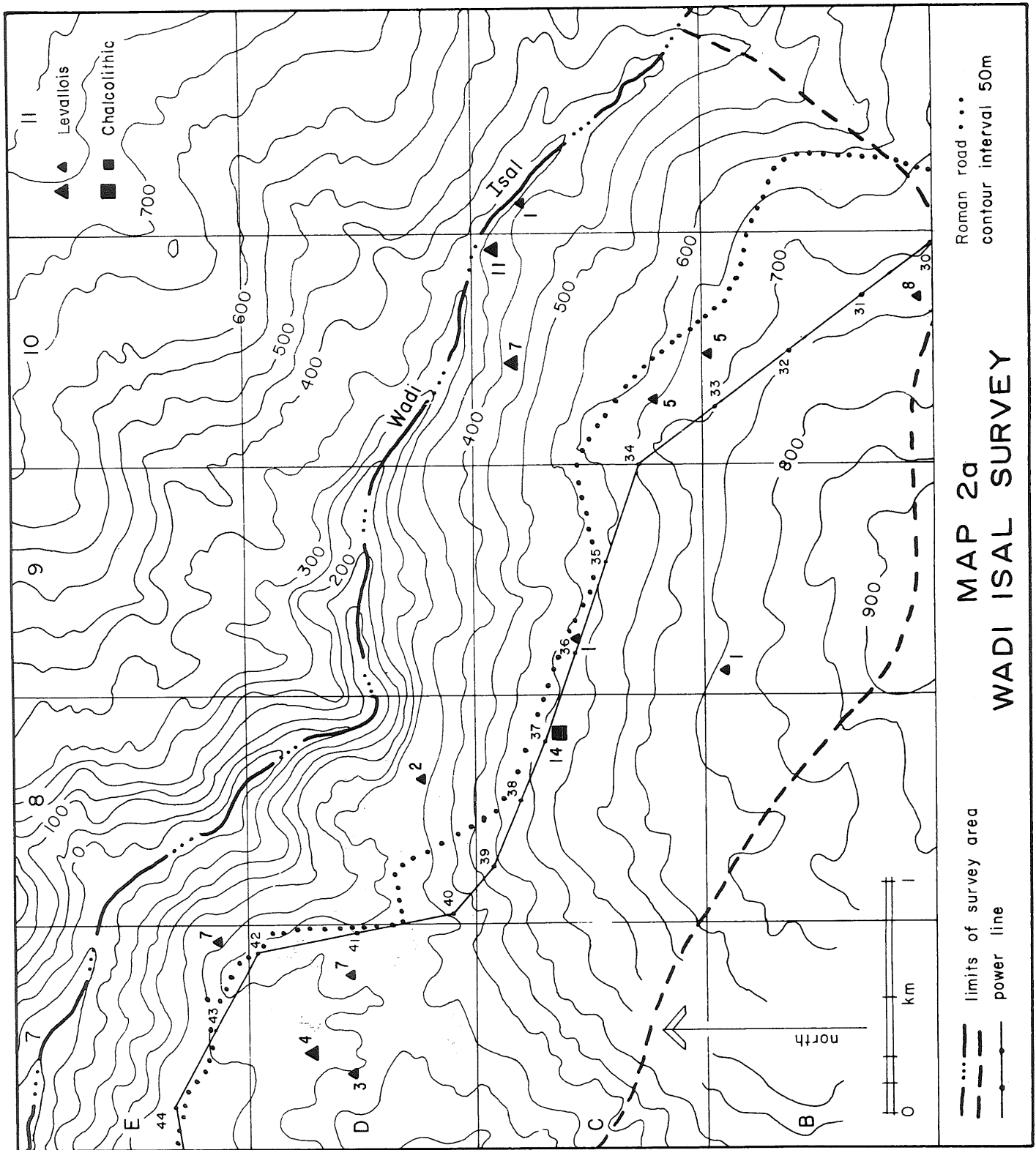
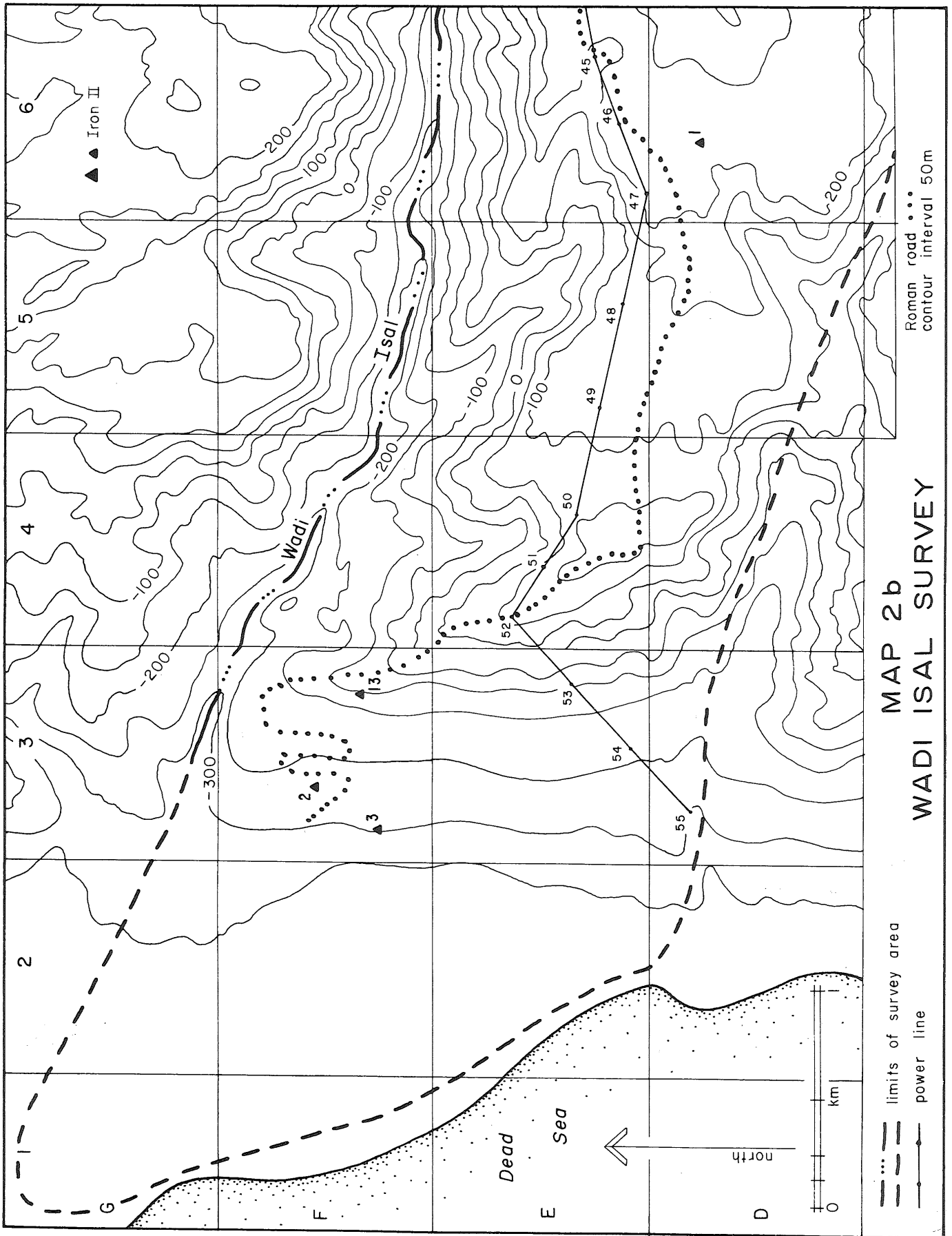


Fig. 2



MAP 2b
WADI ISAL SURVEY

Fig. 3

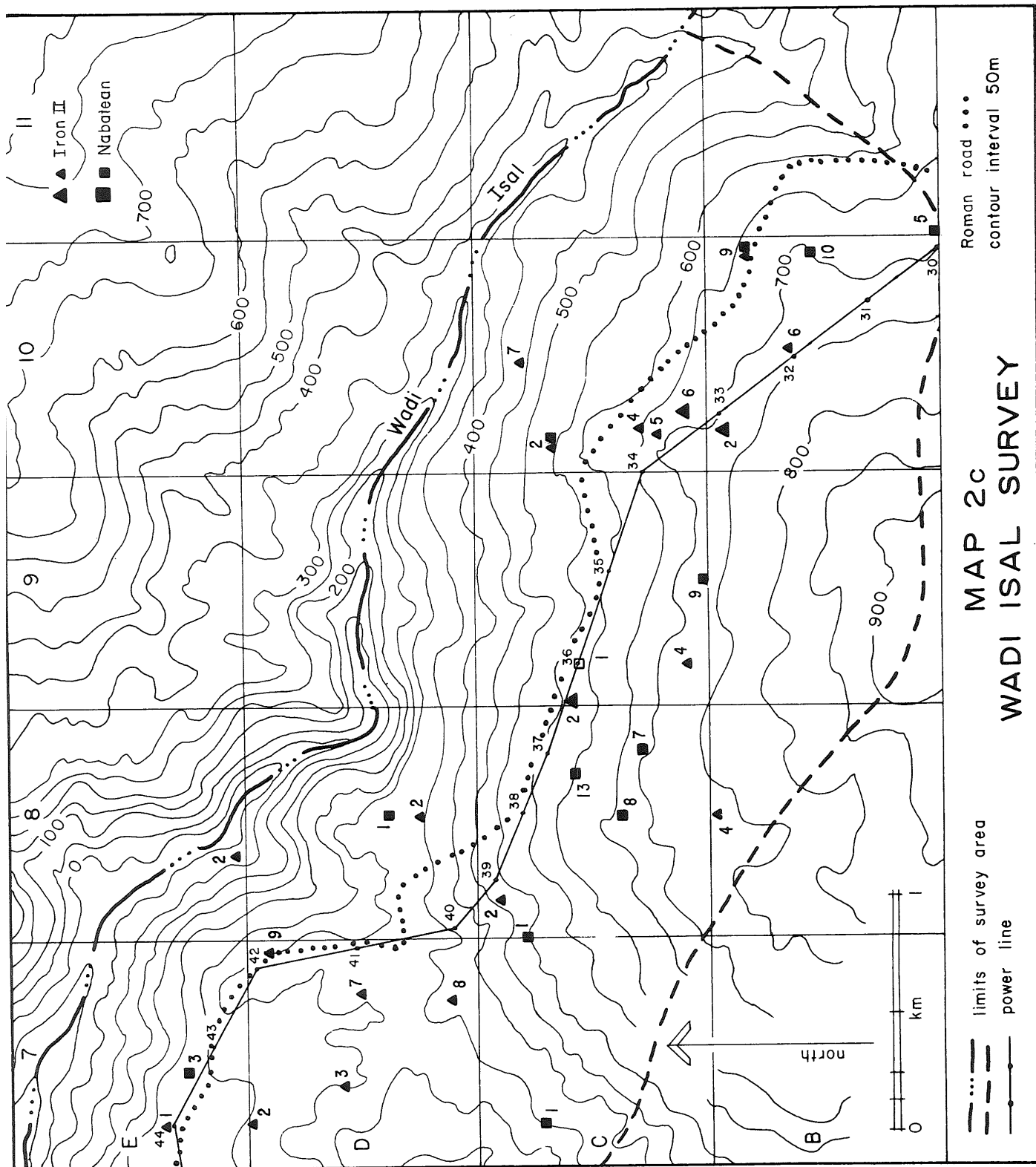


Fig. 4

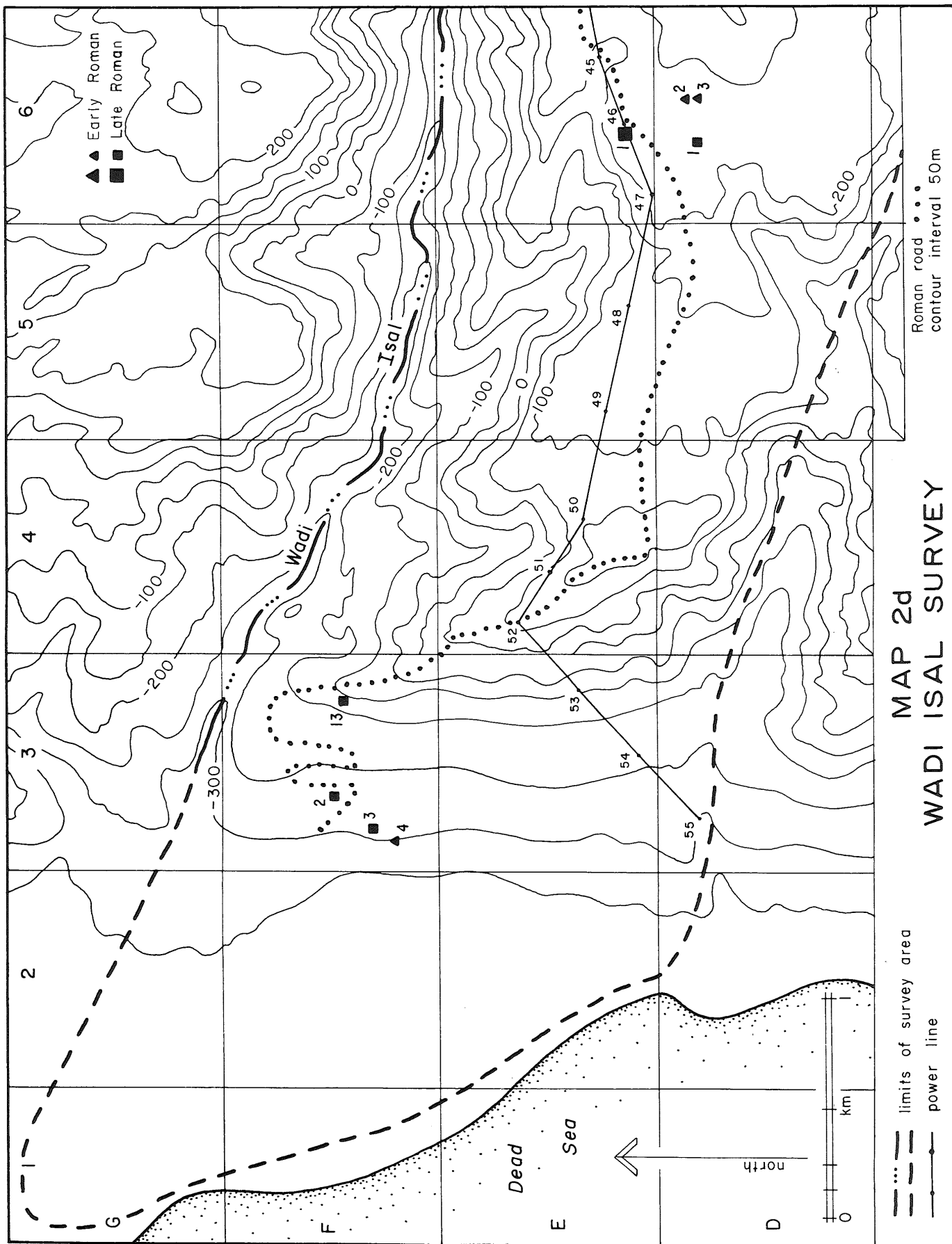


Fig. 5

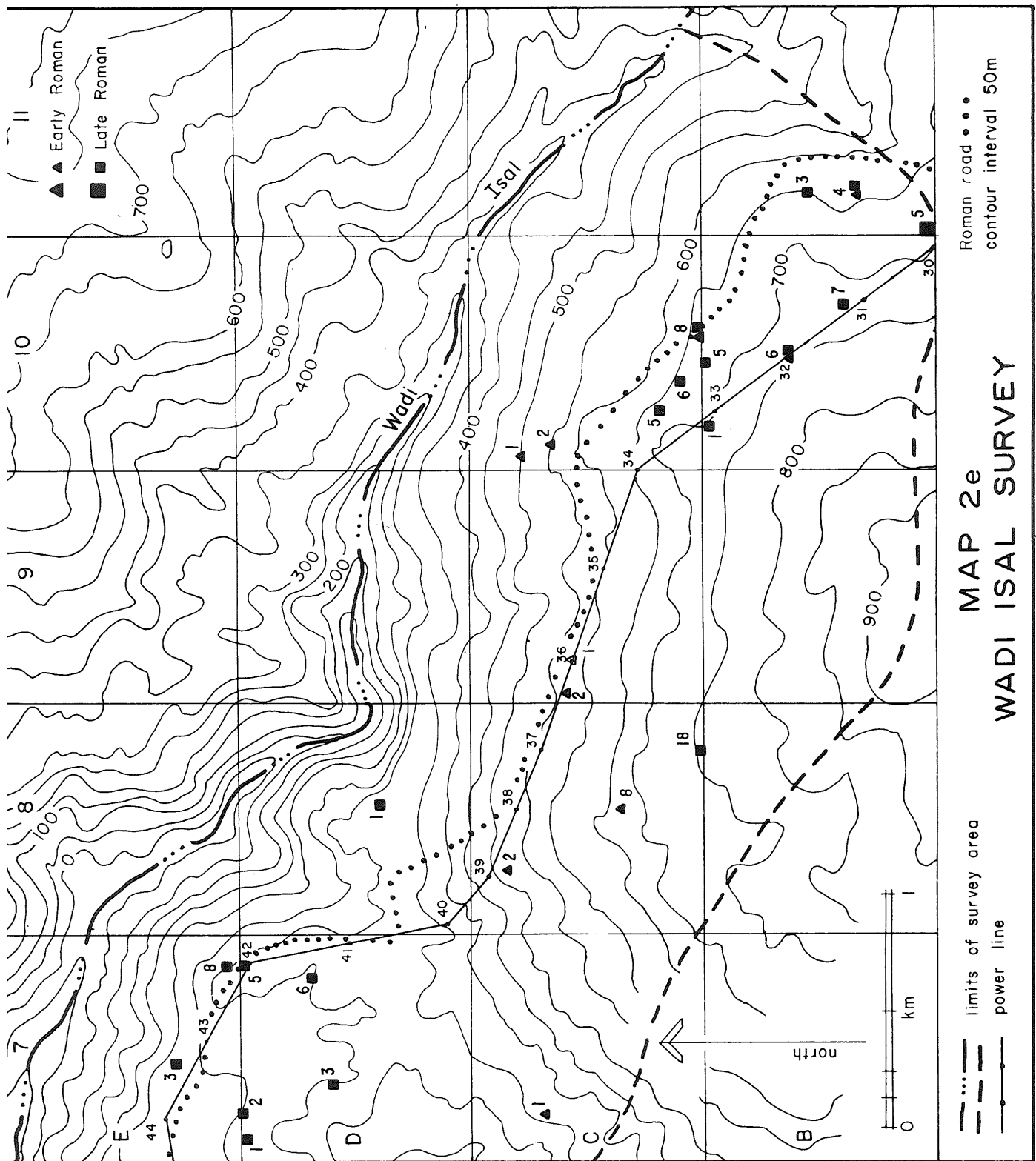


Fig. 6

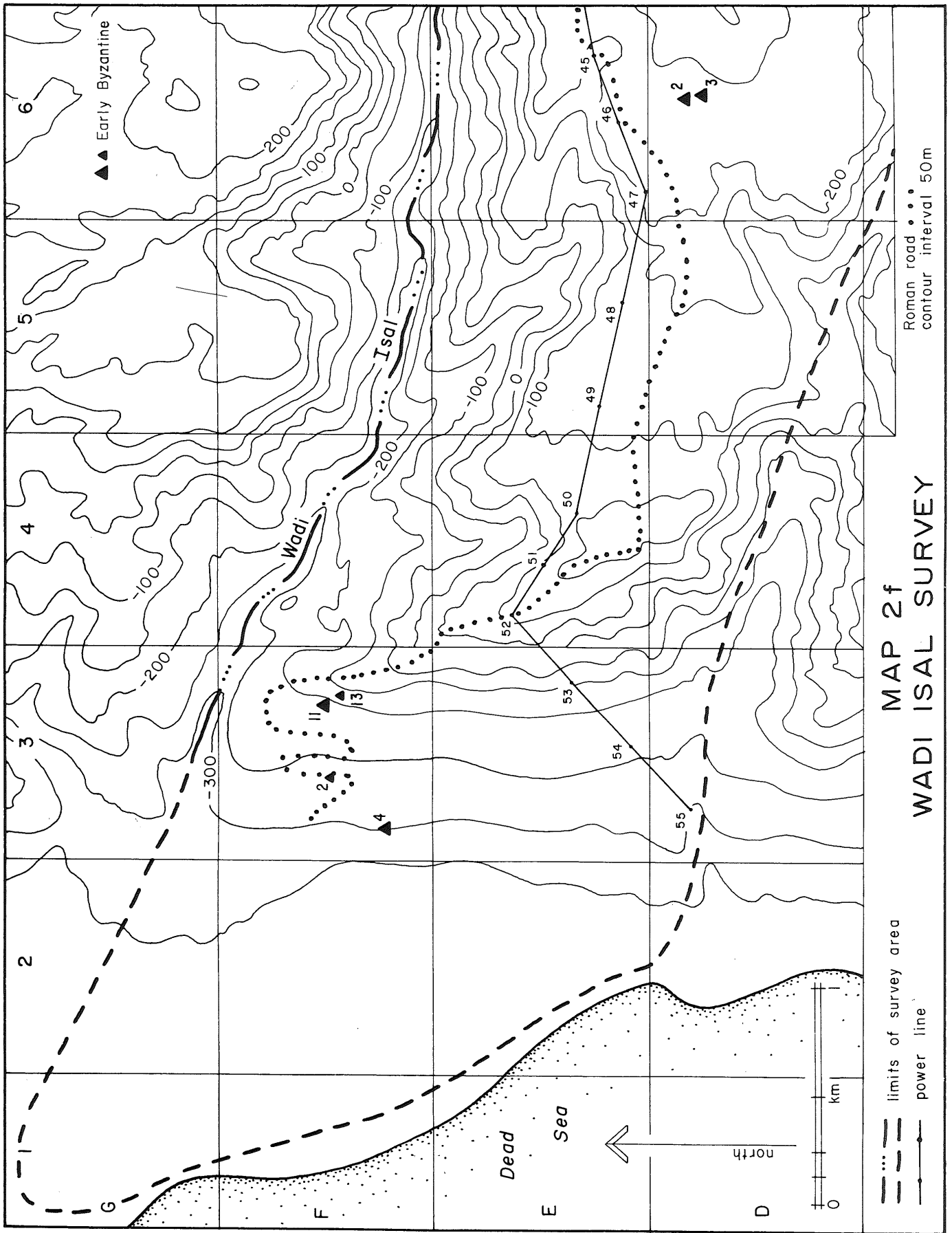


FIG. 7

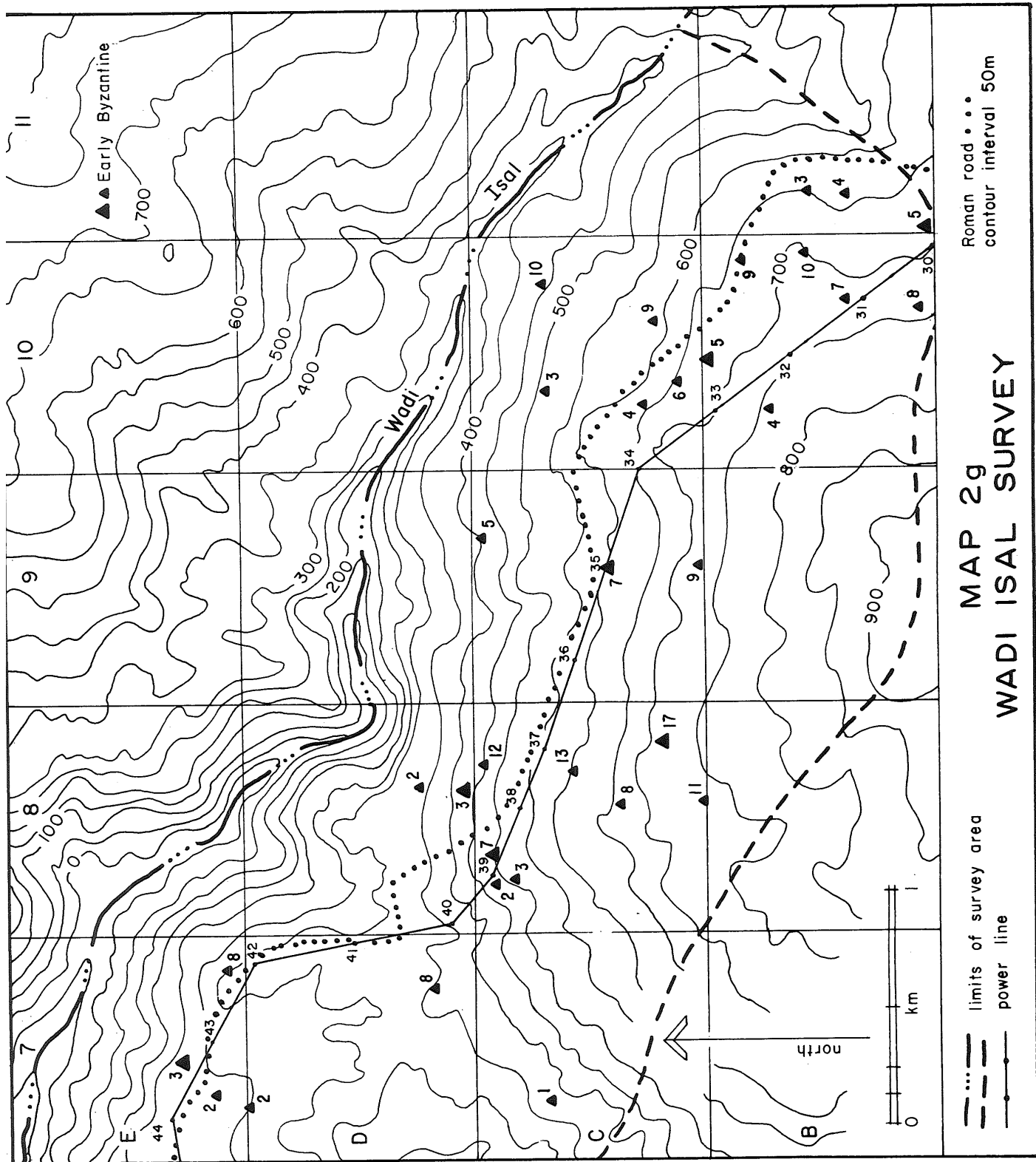


Fig. 8

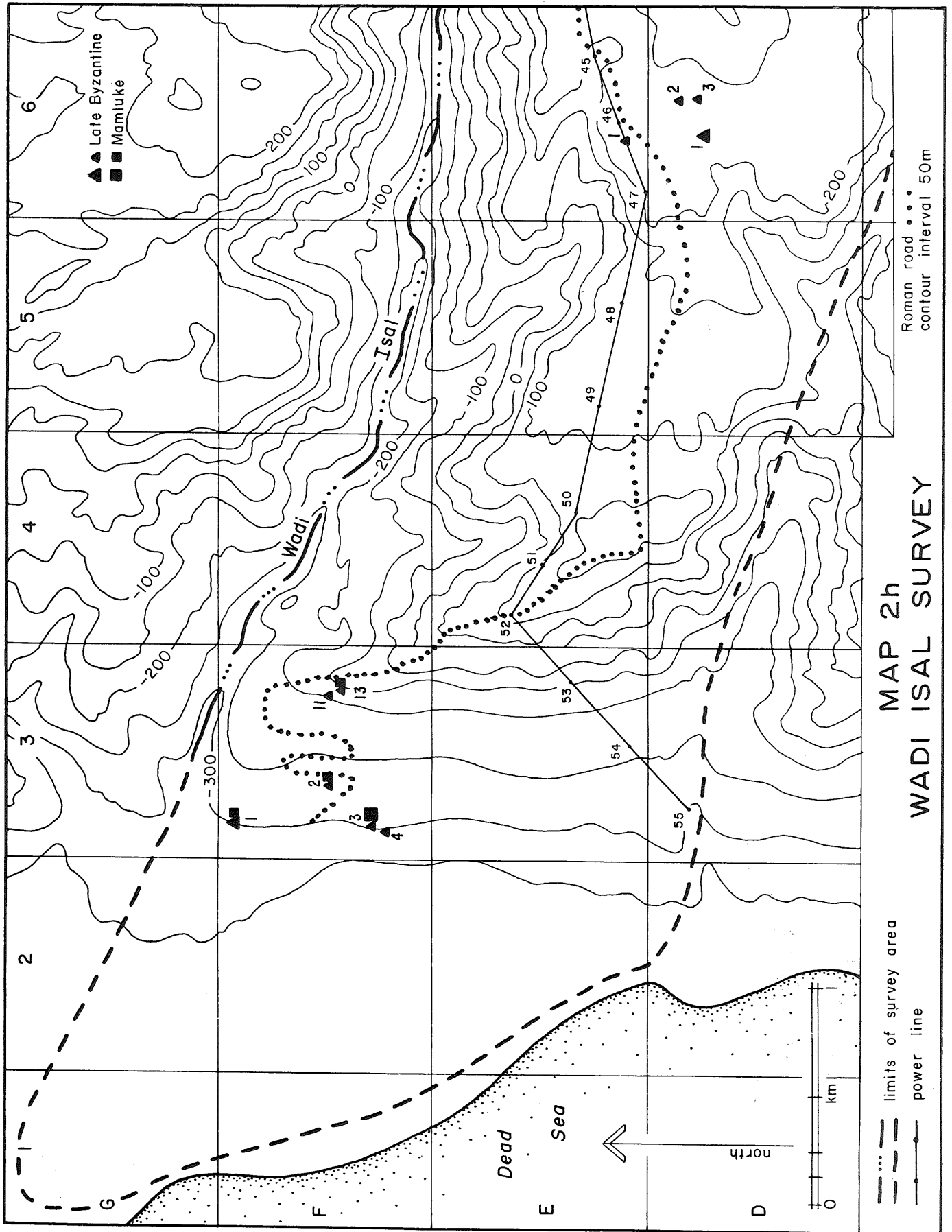


Fig. 9

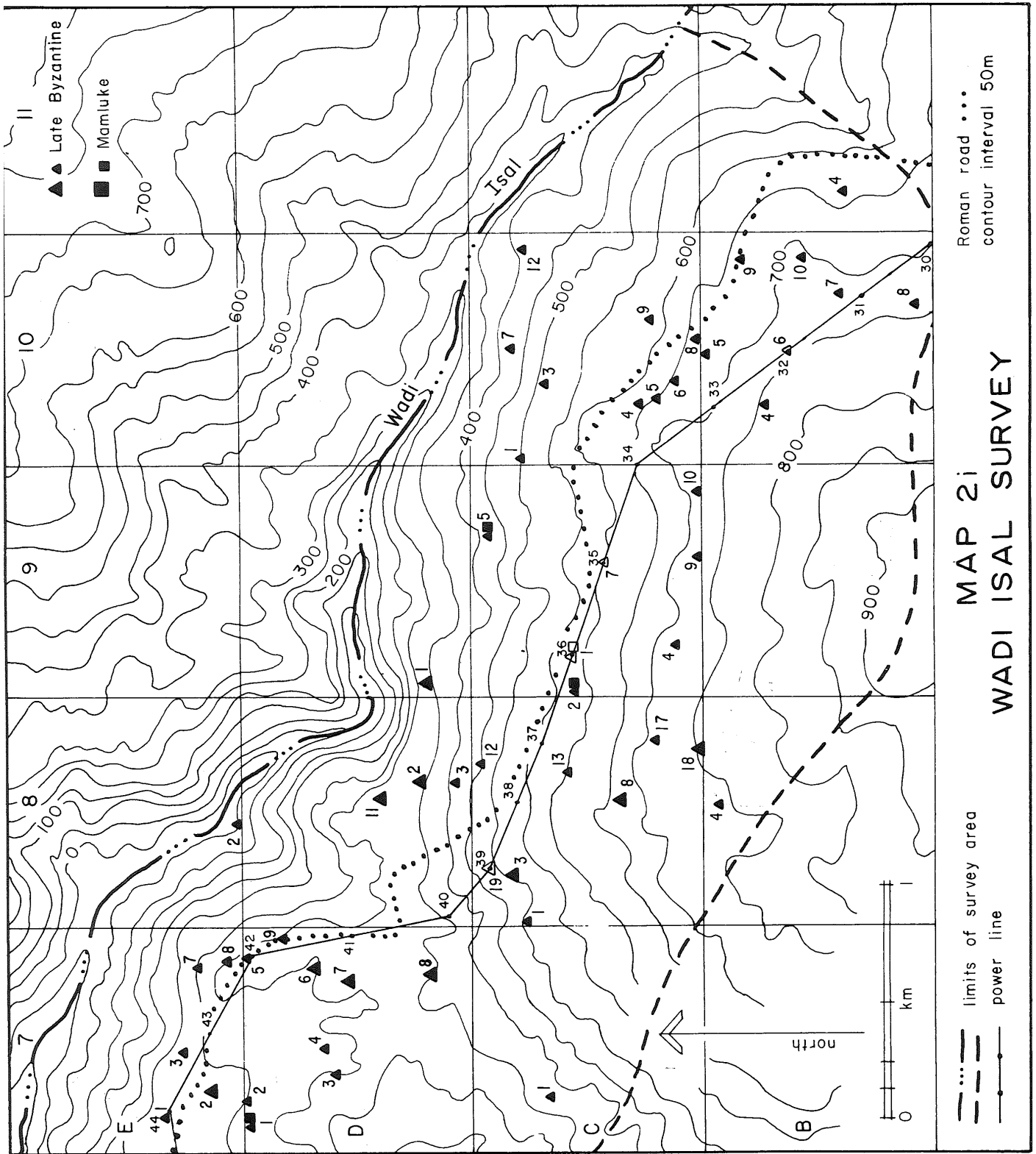


Fig. 10

sites at all, and in fact, only a very few sherds which might be Early Bronze. A large number of chaff- and grit-tempered sherds with characteristic Early Bronze decoration and forms were identified by Dr. James Sauer as being of recent local manufacture. Indeed several informants from Kathrabba told us the same thing and showed us the local source of clay (just north of pole 30). This pottery is no longer being made, however, so we were unable to see any examples of it still in use.

In addition to the absence of Early Bronze Age sites, there is no evidence for the *wadi* being used as a communication route either later or earlier than the building of the road—if the presence and location of sites is any indication of that type of use. As is clear from Maps 2a-2i (Fig. 2-10), sites do not cluster around the road (which is also the obvious route which would have been used before the road was built) any more than one would expect from the siting of the road on the flattest part of the ridge. In addition, there are very few sites, either of the Roman or Byzantine periods, which are actually in sight of the road, although this is not clear from the maps. Site F3-2 is a notable exception, which will be discussed below.

The great majority of sites identified are not settlements at all, but rather transient occupations at best. Fourteen sites out of ninety had evidence of structures—seven with standing buildings and seven with fragments of walls just discernible in the ground. Some of these latter may be modern or Ottoman structures, but their appearance on sites with predominantly earlier pottery encourages one to suppose their early date. The standing structures—all built with the same techniques—are certainly of Byzantine date.

The majority of the sites were small flint and sherd scatters, often no larger in area than 200.00 square metres, with no other remains. These may be Bedouin encampments, but it seems more likely that they are even less permanent—perhaps shepherds' stopping places or harvest-time camps.

A) The Middle Paleolithic Period

Three sites with predominantly Levallois-Mousterian material were found on

the survey (Sites C10-7, C10-11, and D7-14), while Levallois flakes and tools were found in small numbers at 11 other sites (Fig. 11: e-n). Sites C10-7 and C10-11, as well as other Levallois scatters, are located near the *wadi* bottom on flat areas which seem to be Pleistocene river terraces. The largest Mousterian site (C10-11) is on a flat ten metres above the present *wadi* floor, on a triangle of land around which the river bends. Its densest area of scatter is about forty metres in diameter, but the scatter of Levallois material is continuous to at least as far as Site C11-1, on the next flat of jutting land 125 metres to the southeast (Fig. 2, Map 2a). This may represent one very large site whose centre portion has been cut away by the river.

The tools are mostly formed from fine-grained quartzite and chert and include Levallois points (Fig. 11: e, f, j-1) and blades. Levallois cores and flakes were also collected. An Acheulean handaxe, made from mottled brown chert (Fig. 11:0) was also found on the site, but its isolation in terms of other tool types, makes it likely that it was washed down from elsewhere. No other Acheulean material was found on the survey, however.

B) The Chalcolithic Period

The Chalcolithic Period is represented by only one site, admittedly an impressive one-site C8-14 (Fig. 2, Map 2a). This site was cut by the new powerline road on the north, and a small part of its lower (northern) slope was bulldozed to install pole 37. The slope south of the pole is plowed and planted in wheat; it is on this lower part of the site that much of the flint material was found (Fig. 11: a-d).

On a flat summit, approximately 30.00 metres north-south by 25.00 metres east-west is the remains of a stone-lined cistern. It is on this flat, and on the slope immediately surrounding it that most of the pottery is concentrated. The pottery scatter covers an area of about 600.00 square metres, while the total site is probably 900.00 metres in area—all of which has flint debris in varying density. Close to the road on the northwestern edge of the site is the stone foundation of what seems to be a small rectangular structure 4.70 metres north-south x 2.50 m. east-west, with walls

Figure 11

Site	Description
a. C8-14	Stemmed point, brown chert
b. C8-14	blade, grey chert
c. C8-14	blade, grey chert
d. C8-14	point, beige chert
e. C10-11	point, brown and beige chert
f. C10-11	point, grey-brown chert with blue veins
g. C10-11	blade, beige and white mottled chert
h. C10-11	point, grey chert
i. C8-14	blade, grey chert
j. C10-11	point, brown and beige chert
k. C10-11	point, whitish grey chert
l. C10-11	point, dark grey chert with white mottling
m. C10-11	blade, brown chert
n. C10-11	blade, mottled grey-brown quartzite
o. C10-11	handaxe, brown chert with beige veins

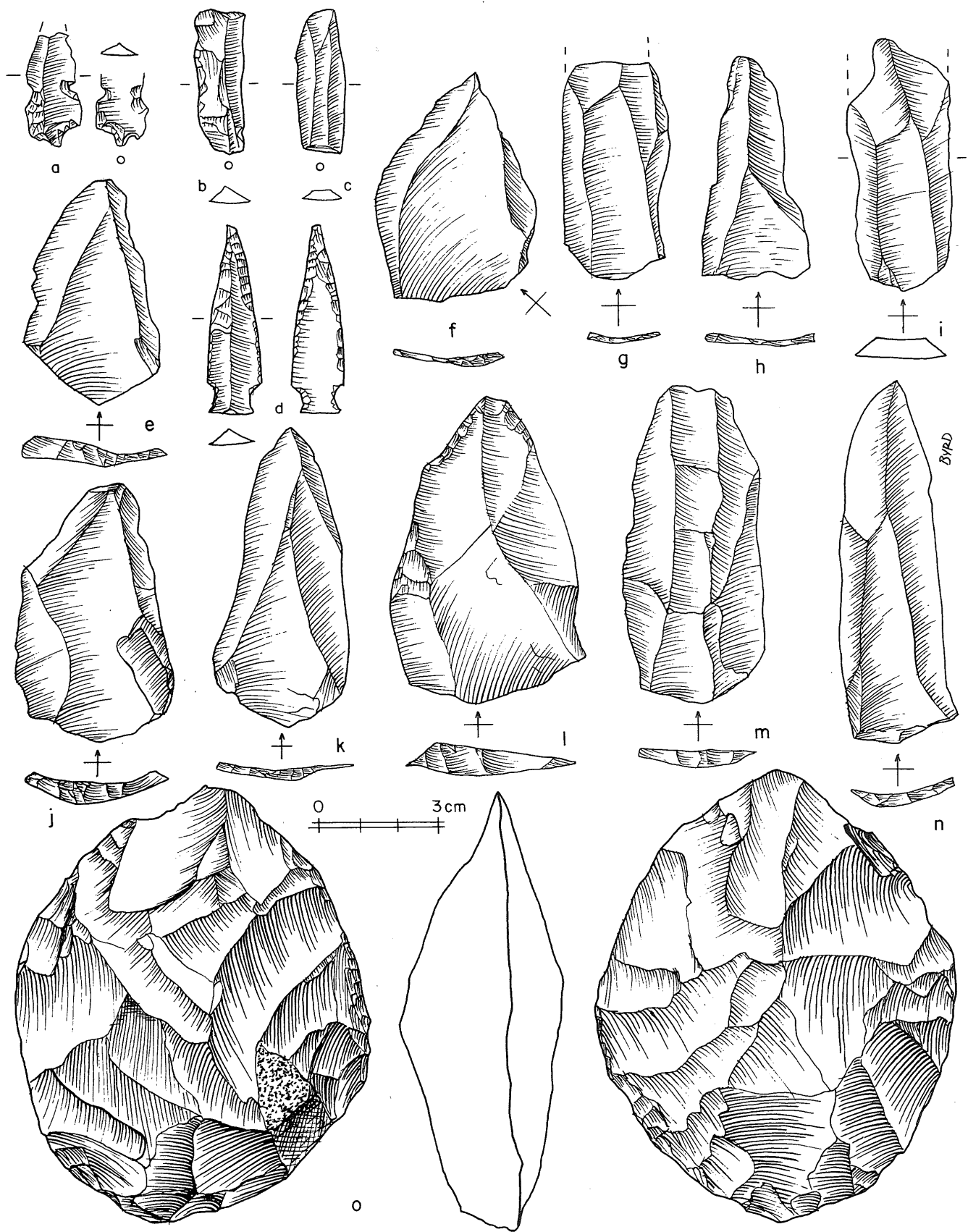


Fig. 11

0.60 m. thick.

There seems to be an approximately equal amount of Early and Late Chalcolithic material on the site, and the flint all seems to be Chalcolithic or later in date. Typical Chalcolithic forms and decorations are used in this grit-tempered, well-fired ware (Fig. 12). In the early Chalcolithic, mat-impressed bases in red-slipped pinkish ware, rope mouldings and nose lugs are all present. Sherd spindle whorls were also found, as well as limestone grinding stones. None of the so-called "hallmarks" of the Chalcolithic are present, however, such as churns, chalices, painted decoration, cornets, or pedestalled bowls (Amiran, 1969); this absence can be explained by the distance of the survey area from the better-known Chalcolithic sites, and, possibly by the small size of the sample.

Very little Chalcolithic material was found elsewhere on the survey, and all of the material thus identified was done with misgiving, as there were found only isolated pieces, which were usually small and non-diagnostic. Chalcolithic pottery was tentatively identified at two other sites, C10-7 and D7-8.

C) The Iron II Period

Iron II material was found scattered at twenty-four sites in the survey area, and it predominated at three of these sites (B10-2, C9-2, and C10-6). This pottery (Fig. 13) is characterized by pastel wares in light orange, pale green, and buff, with somewhat large sized white grit temper. The surface is slightly rough and often lightly slipped in buff. The most common forms are jars with plain rounded rims and bowls with folded rims, and low ring or flat bases. Unlike the Byzantine sites described below, very little flint material is found on sites with predominantly Iron II pottery.

On all three of these sites, remains of structures are visible. C9-2 is a small but prominent hillock directly south of the power line between poles 36 and 37. On the highest part of the hill is a stone circular structure—probably a later tomb, since it is similar to other such structures in the survey area—and the remains of several stone walls which form a small rectangular room on the west side of the summit.

Site C10-6 is just north of the power line and close to Pole 33. It is on a small hillock whose summit and upper slopes have been recently cleared of stones which have been piled in one corner of the site. It consists of two terraces—an upper flat area 60.00 m. east-west x 10.00 m. north-south, and a lower terrace which rings this upper flat on its north side. The pottery is dense on both terraces but slightly more dense on the lower; either the pottery has washed down, or the disturbances on the upper site has destroyed some of the artefactual evidence. On the upper flat, four stones aligned in a northeast-southwest direction may be the remains of a wall.

Just south of pole 33 (which has actually been placed on the lower slope of the site) is Site B10-2, also on a hill. The site is 80.00 m. north-south x 60.00 m. east-west. Heaped stones seem to be the remains of north-south walls, but their exact orientation was indecipherable.

D) The Nabataean and Roman Periods

Although the road which connects the lowlands with the highlands via the south ridge of the Wadi Isal is called Roman by Glueck, Roman sites do not constitute the majority of sites in the survey area. Forty-three sites with Roman pottery on them are located on Map 2d (Fig. 5). Only two of these sites (B11-5 and E6-1) can be said to have a predominance of Roman pottery, which seems to indicate that the Roman use of the area was not heavy. This leads one to suspect that the road may not be Roman at all—a possibility which will be discussed further below.

In the analysis of pottery, the sites were divided into the Early and Late Roman periods on the basis of the presence or absence of certain diagnostic characteristics, such as sandwich firing (Early Roman), sigillata glazing (Early Roman), general predominance of pastel colors over fire orange (Early Roman), etc. The presence of these characteristics led to the identification of Early Roman pottery on thirteen sites and Late Roman pottery on twenty-four sites. However, the small number of diagnostic sherds and the overlap in wares and types between the Early and Late Roman periods makes this kind of distinction dubious, especially in

Figure 12: Chalcolithic

Site	Description
a. C8-14	bowl with rope moulding on body and rim; reddish yellow (5YR 7/6) with possible red slip. Grey core, white grit temper with chaff impressions on surface.
b. C8-14	jar; reddish-yellow (7.5 YR 8/4) with white grit temper.
c. C8-14	bowl; reddish-yellow (7.5 YR 8/4) with white grit temper.
d. C8-14	base with mat impression on exterior; ext. pinkish yellow (2.5 YR 5/8), int. very pale brown (10YR 8/3). White grit temper.
e. C8-14	base with exterior mat impressions; pink (5YR 7/4).
f. C8-14	handle; pinkish grey (7.5 YR 7/2) with very pale brown slip (10YR 8/4). White grit temper.
g. C8-14	handle; reddish yellow (7.5YR 7/6) with grey core. White grit temper with chaff impressions on exterior.

Figure 13: Iron II

Site	Description
a. C10-6	jar; pink (5YR 8/4) with white grit temper
b. C10-6	jar; white (2.5YR 8/2) with white grit
c. C10-6	bowl; light red (2.5YR 6/6) with white (2.5 YR 8/2) slip. White grit temper.
d. C10-6	bowl; ext. pink (5YR 8/4), interior pink (10YR 8/4), with white grit temper
e. C11-5	jar; pink (10YR 8/4) with white grit temper
f. C10-6	jar; light red (2.5 YR 6/8) with white grit
g. C10-5	base; exterior reddish yellow (5YR 8/6), interior grey (5YR 6/1). White grit temper.
h. C9-2	bowl; light red (2.5YR 6/8) with red (2.5 YR 5/8) slip. White grit temper.
i. C10-5	bowl; pink (7.5 YR 7/4), with white grit temper.
j. C10-6	jar; reddish yellow (5YR 7/6) with pink (7.5YR 8/4) slip. White grit.
k. C10-6	jar; pink 10YR 8/2).

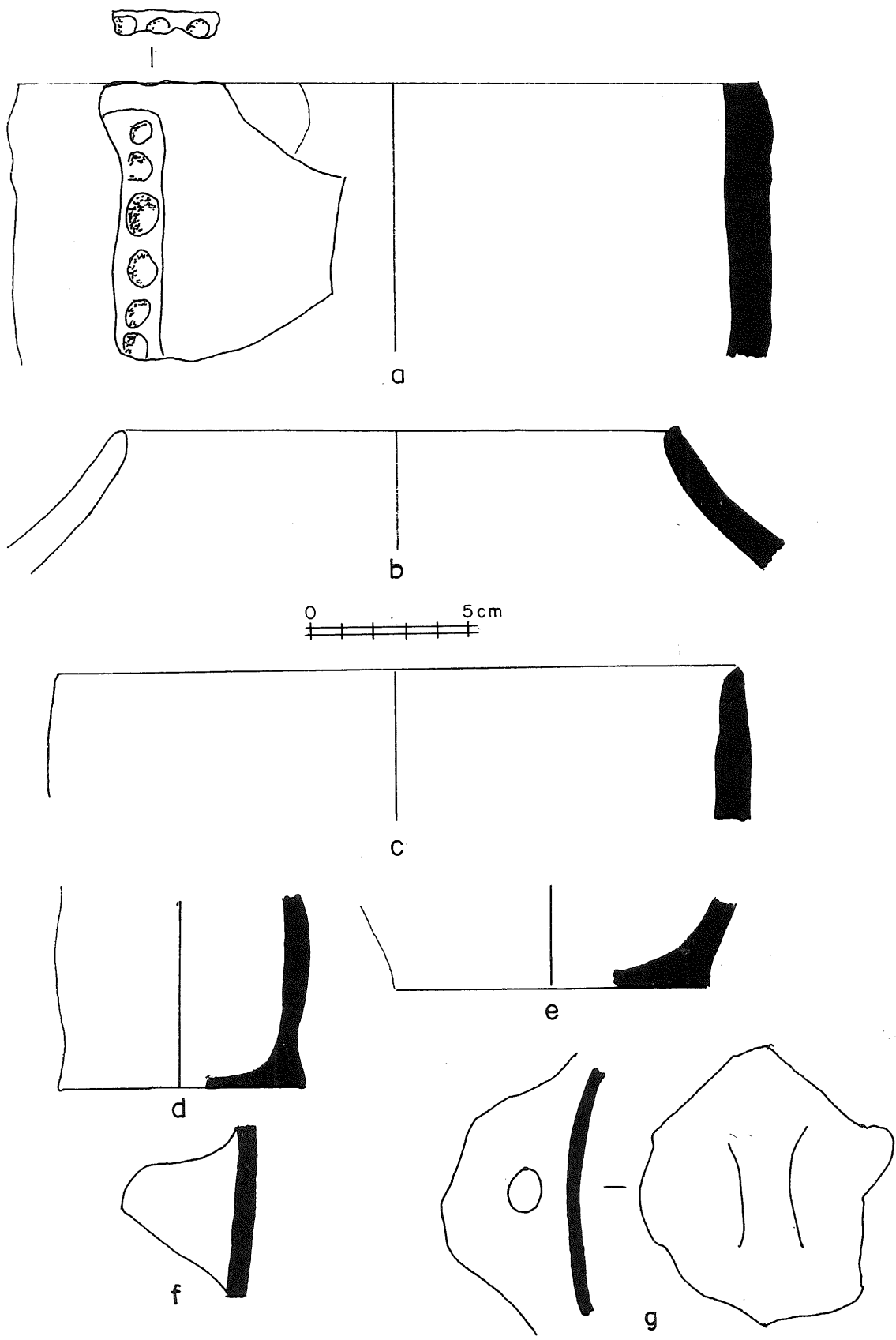


Fig. 12

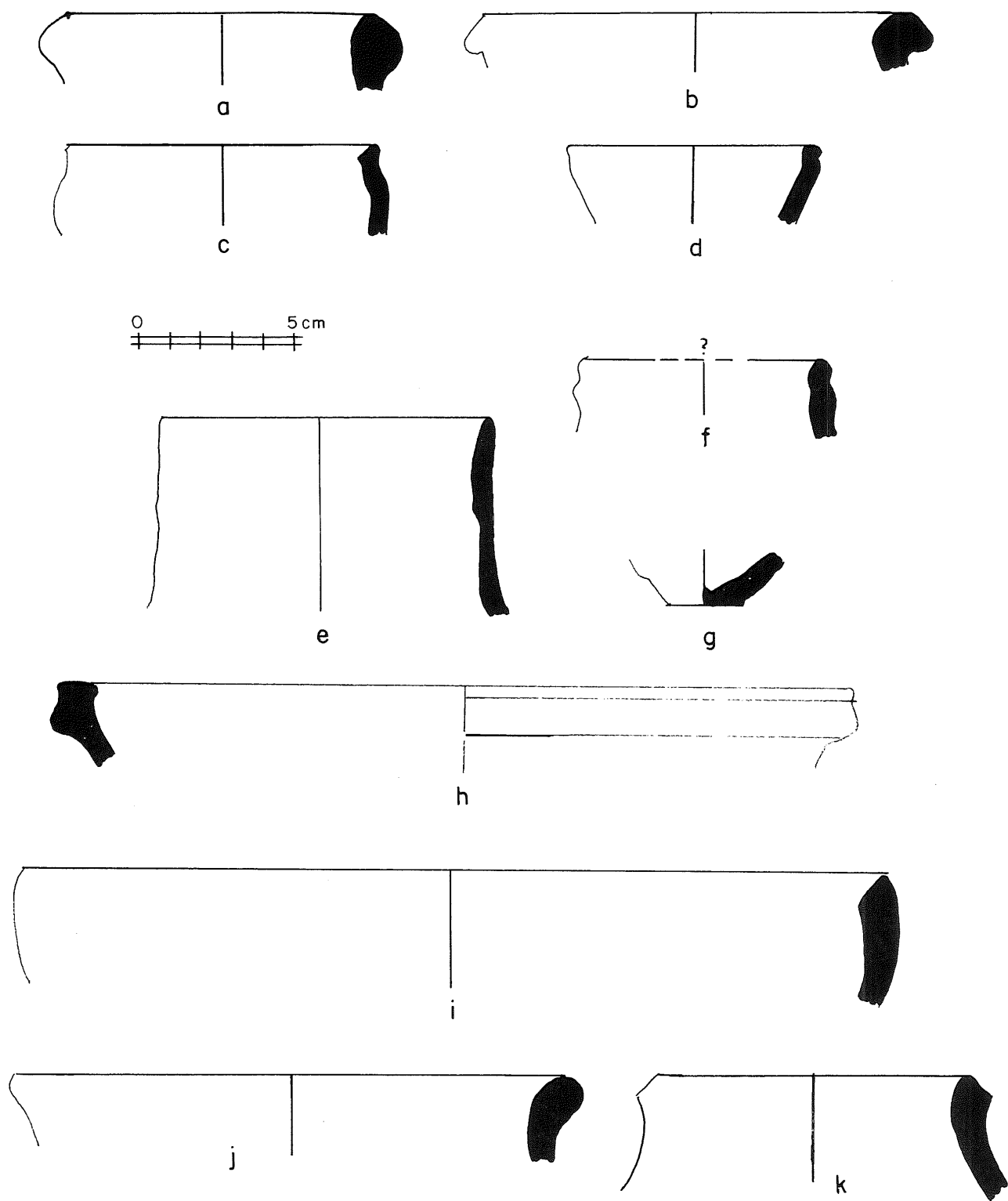


Fig. 13

unstratified samples from surveys. This Early-Late division, therefore, should be treated with skepticism.

Similarly with Nabataean sites. There are certain characteristics of Nabataean ware and form which belong to no other period, such as rouletted bases, very thin, hard red ware, and Nabataean-style painting. Thus the presence of these traits were taken to indicate a Nabataean presence (or Nabataean affiliations). In this way, twelve Nabataean sites were identified (Fig. 4, Map 2c). However, the overlap between Nabataean and Roman wares makes it difficult to distinguish the two periods with certainty, especially on the basis of so few diagnostic sherds. Thus, we have probably erred on the side of ascribing too few sites to the Nabataean period, and perhaps a slightly larger Nabataean presence should be assumed.

Only two Roman sites (B11-5 and C8-17) had any architectural remains. C8-17 seems to be a predominantly Byzantine site, and it will be discussed below. The remains at B11-5 consisted of a large square structure, 12.00 m. x 13.00 m., within which was what appeared to be a square well or cistern (4.00 x 4.00 m.) built against the west wall. Its attribution as a well or cistern was based on information from the villagers of Kathrabba, who said it was "more than thirty metres deep", but other than this testimony, there is no way to determine its function.

The structure and the well itself seem to have been built with similar techniques. The walls consist of two rows of dry-laid stones which are dressed on their exterior face only. The interstices between the stones were filled with rubble. The walls of the main structure are one metre thick; the wall surrounding the well could not be measured because of its collapsed state.

Both Nabataean and Late Roman pottery were found on this site in substantial numbers, so it is possible to attribute the building to the earlier period and assume its continued use in the later. However, the similarity of building technique with all the other standing buildings of the survey may indicate a later date.

Based on the admittedly dubious distinction between the Nabataean and Early and Late Roman sites in this survey, the mean distance from the "Roman" road was calculated for all periods to try to determine a) the date of the road and/or b) whether the location of the road influenced settlement patterns on the south ridge.

These figures would suggest that the Late Roman sites were more directly related to the road (if distance is a function of separateness) than sites occupied during other periods, and indeed one can see in Map 2e (Fig. 6) that Late Roman sites are clustered around the road at its eastern end, in the middle of the survey area and in the *ghor* (Fig. 5, Map 2d). Other indications, however, argue for an even later date for the road, and these will be discussed in the following section.

The presence of an equal number of Nabataean and Early Roman sites in the survey area, and the fact that both types of pottery occur together on only two sites, indicate that this area, despite its location, was not an exclusively Nabataean province. In fact, the very few numbers of Nabataean sherds (three sites have only one sherd each) indicate more contacts with the north than with the south, although once again it should be emphasized that the very few diagnostic sherds make any comparison of this kind difficult.

E) The Byzantine Period

Table 1: Distance Of Nabatean-Roman Sites From Road

<i>Period</i>	<i>No. Of Sites</i>	<i>Mean Distance From Road (m.)</i>	<i>Max. Dist. (m.)</i>	<i>Min. Dist. (m.)</i>
Nabataean	13	328.45	1000	10
E. Roman	13	260.38	1000	5
L. Roman	24	219.79	700	5

By far, the greatest number of sites was occupied during the Byzantine period, apparently the most populous period in all Transjordan. Sixty-nine sites had Byzantine pottery on them, and bearing in mind again the difficulties of distinguishing Early from Late Byzantine pottery based on few diagnostic sherds, the great majority of these (63) were occupied during the Late Byzantine period (Figs. 9, 10). Forty sites had Early Byzantine wares on them, and only six of these were abandoned during the subsequent period.

The separation between Early and Late Byzantine is as problematic as that of the Early and Late Roman (Sauer, 1973, Staller, 1949); however, a division was made on the presence or absence of the following (rough) criteria:

- 1) incised wavy lines (Late)
- 2) white paint on brownware (Late)
- 3) orange ribbed wares (Early)
- 4) grey ribbed wares and ridged handles (Early)
- 5) certain diagnostic forms.

Although the characteristics of Late Byzantine wares also grade into the Umayyad wares, the absence of any clearly Umayyad sherds on the survey led us to assign these types to the Late Byzantine period.

Only eleven of the forty Early Byzantine sites had major Early Byzantine occupations, but these were significant in that four of the standing buildings located during the survey were on these sites.

Site B11-5, already described above in the Nabataean-Roman section, also had a large amount of Early Byzantine pottery. No pottery was found inside the structure or in the walls, so it is difficult to date the building itself, but as we said above, the similarity of construction techniques with other buildings relates it to the Byzantine period.

Site C8-17 consists of a large stone building 16.00 m. east-west x 5.00 m. north-south, which was built in a technique similar to that of Site B11-5 — i.e., large, rough-cut stones dry-laid in two rows with rubble core. The north wall of this one-room building formed a terrace wall on the

down-slope. Attached to this building on the south is another simple structure 11.00 m. east-west x 7.00 m. north-south. The walls of this structure are built of dry-laid uncut rubble. There may be a doorway connecting these two rooms at the southeastern corner of the building, or the smaller structure may be a modern addition. The roughness and size of the second room leads one to surmise its use as a courtyard or animal pen.

Although no pottery was found inside either of these two rooms or in the walls themselves, a large number of Early Byzantine sherds was found outside the east wall.

Forty metres southeast of the building is a cistern cut down into bedrock and lined at the top with large cut limestone blocks. Next to it, a large rock-cut basin with a drain leading into the cistern is hewn out of bedrock. This may be a water catchment device or (based on ethnographic information) an animal trough. Most of the pottery found near the cistern was on the downhill (north) slope, and most of it was Late Byzantine, with some Roman and Nabataean sherds as well.

Two structures in the Ghor Isal have predominantly Early Byzantine pottery near them, and one of these, Site F3-2, seems to be closely related to the road. This site consists of a large 12.50 m. x 7.00 m. building located only four metres from a section of the road on a high point of the talus slope overlooking the *ghor*. It is built in the technique already described. This site seems to be the one mentioned by Glueck (1935: 6) as the "Qasr Esal", since the building is surrounded by a pile of back dirt which he says was the initial attempt by the Turks to build a police post using the ancient foundation. However, he gave its size as 16.00 m. square and did not mention the close proximity of the road, so its identification remains in doubt.

Its situation overlooking the *ghor* and the road seems to imply its use as a watch post or a customs or toll station. In addition, its clear relationship with the road makes one assume that the road was built or at least continued in use during the Early Byzantine period. The absence of

Roman milestones along the road also seems to imply that it was built after the Roman period (Thomsen, 1917: 58).

The second Early Byzantine structure in the Ghor Isal (Site F3-4) is somewhat out of the ordinary mould. This is the westernmost site in the survey area, having the appearance of a large mound of stones on the otherwise featureless *ghor*. Although the construction technique is the same as all the other buildings described, this seems to consist of a series of exterior walls stepping down what may or may not be a natural hill. The main structure is 22.00 m. east-west x 12.00 m. north-south. On the south side, at least two additional walls are visible, each one two metres from the one next to it. The walls themselves are only 0.80 m. thick, which is slightly narrower than the standard one metre of other buildings. On the north side, a possible doorway is lengthened into a passageway by these added walls. The actual number of these walls and their function (extra protection? retaining walls?) remain a mystery. However, the site's position seems to imply that it is a watch post, unless the road passed near this site in the past.

Structures which are associated with Late Byzantine pottery include C10-12, D7-1, and F3-1. Site C10-12 consists of a largely destroyed three-room structure whose exterior dimensions are 15.00 m. east-west x 9.50 m. north-south. Built in the same technique as all the other buildings, this structure is the furthest from the ancient road, at least in terms of accessibility, since it is located on top of Site C10-11, the Paleolithic site close to the *wadi* bottom. Several tombs thirty metres south of the building have been robbed, but they seem to have been contemporary with the building, judging by the pottery nearby.

Site D7-1 is the only Byzantine structure whose construction varies from the norm. This is a nearly square one-room "house" 14.00 m. east-west x 11.00 m. north-south built of one row of dry-laid uncut field stones. There is a doorway in the south wall. Eighty metres northeast are two circular structures about 5.00 m. in diameter which might have been animal

pens. Apart from the pottery which cannot be distinguished from other Later Byzantine sites, this building seems of a totally different character than the others. Perhaps there is a functional difference; this may be a house site or a campsite.

The last Byzantine structure is one in the Ghor Isal which Glueck (1935:6) calls a *birkeh*, and around which he found Nabataean, Byzantine, and Arabic sherds. This consists of a large square, 35.00 m. on a side, which is located at the mouth of the *wadi*, and a water channel which runs from inside the *wadi* itself, around the "reservoir" and waters the gardens in the *ghor*. The reservoir has walls more than 3.00 m. high and 2.50 m. thick, which are built in the usual Byzantine style. The reservoir is currently used as garden space, and the water channel, which has been recently restored, no longer brings water to it.

On all of the Byzantine sites, both with and without structures, the pottery is accompanied by an almost equal abundance of flint. The vast majority of the flint is in the form of flakes; tools are exceedingly rare on these sites. Occasionally, we found an unretouched blade, but these were also rare. It seems that these people were using the sharp edges formed from knocking off simple flakes, with no preparation of the stone beforehand, and no alteration of the flakes afterwards to produce real tools. This practice seems to be in line with the hypothesis that most of these sites were transient occupations at best.

Following our hypothesis that the road was built after the Roman period, we calculated the mean distance from the road the Byzantine sites.

If we compare this Table to Table 1, it is clear that the Late Roman sites cluster more closely to the road (mean distance 219.79) than either the earlier or later sites. However, the clear association of Site F3-2 with the road, and the absence of milestones leads one to place the road in the early Byzantine period. These two lines of evidence, combined with the transitional nature of the pottery between the Late Roman and the Early Byzantine, lets us date the building of the road to the

Figure 14: Nabatean, Roman, Byzantine

Site	Description
a. B11-5	bowl; reddish yellow (7.5 YR 7/4), white grt. L. Roman
b. B11-5	bowl; light reddish brown (5YR 6/4) with white grit temper. L. Roman
c. C10-11	bowl; light red (2.5 YR 6/8), (L. Roman).
d. B11-5	bowl; light red (2.5 YR 6/8), white grit temper (L. Roman)
e. B11-5	bowl; grey (10YR 5/6) with white grit. L. Byz.
f. F3-3	bowl; reddish brown to dark grey (2.5YR 4/4 - 5 YR 4/1) exterior, int. reddish brown (2.5 YR 4/4). White grit temper. L. Byzantine
g. C10-11	bowl; exterior pink (5YR 7/4), interior reddish yellow (5YR 6/8). White grit. L. Byzantine
h. C8-17	jar; reddish yellow (5YR 7/6) with white grit temper. L. Byz.
i. C8-13	jar; reddish yellow (5YR 7/6). Nab.
j. C10-5	handle; surface reddish grey (10YR 5/1), body, pinkish white (5YR 8/2). Late Byz.

Figure 15: Mamlūk

Site	Description
a. F3-3	jar; pink (7.5 YR 7/4) with sand and grit temper.
b. F3-3	jar; red (2.5YR 4/6) with white grit temper.
c. F3-3	jar; pink (5YR 7/3), smokestained. White grit temper.
d. F3-3	jar; light reddish brown (5YR 6/4) with white grit temper.
e. F3-3	bowl; reddish yellow (5YR 7/6) with reddish brown (2.5 YR 4/4) paint. Black core. White grit.
f. F3-3	jar; red (2.5 YR 4/6) with traces of dark red (2.5 YR 5/6) glaze. White grit temper.
g. F3-3	jar; grey (10 YR 4/1) or smokestained?. white grit.
h. F3-3	bowl; light grey (10 YR 7/2). White grit.

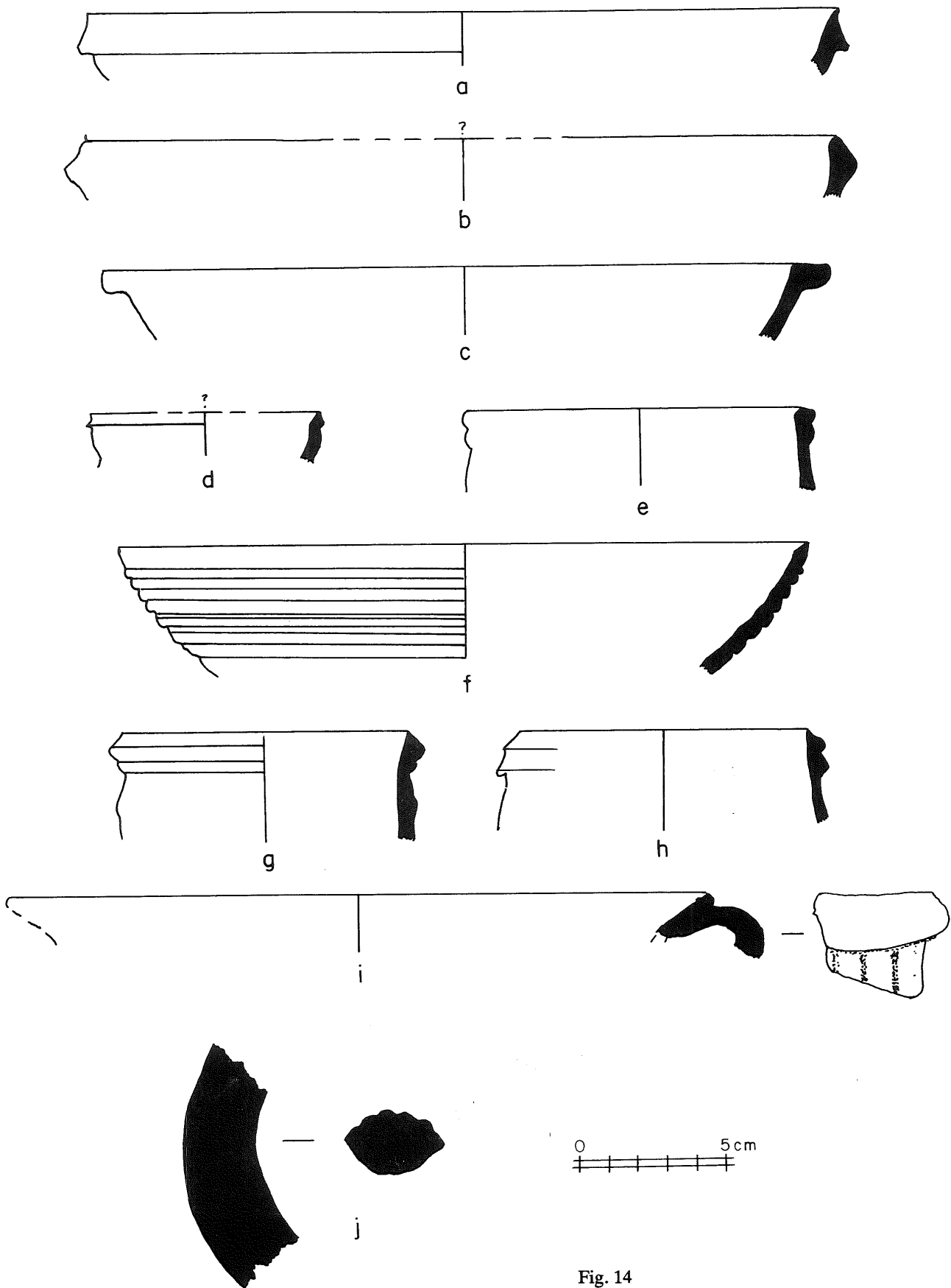


Fig. 14

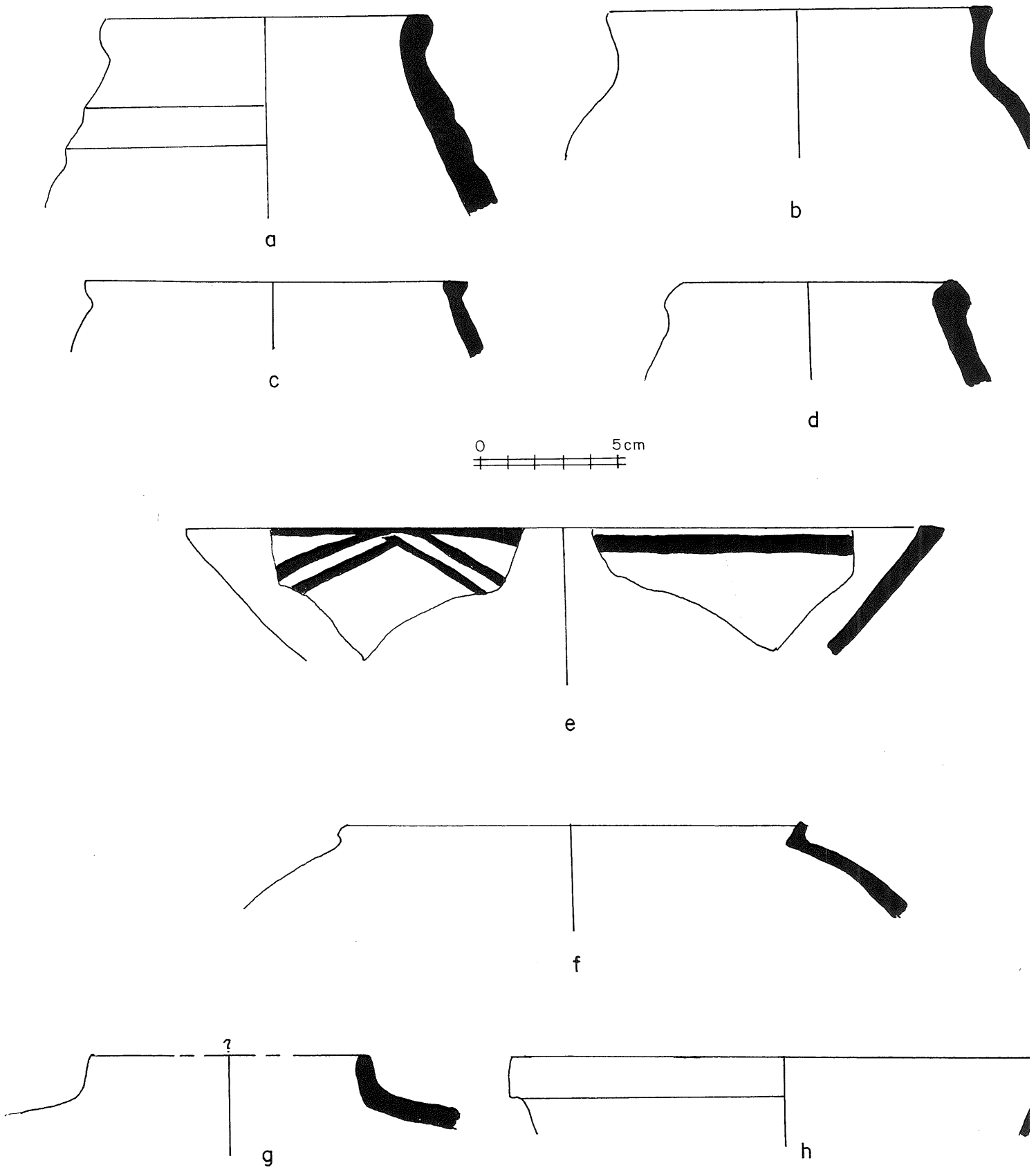


Fig. 15

Table 2: Distance Of Byzantine Sites From Road

<i>Period</i>	<i>No. Of Sites</i>	<i>Mean Distance From Road (m.)</i>	<i>Max. Dist. (m.)</i>	<i>Min. Dist. (m.)</i>
Early Byzantine	40	274.45	1000	5
Late Byzantine	63	272.45	1000	10

very end of the Roman period or the beginning of the Byzantine—perhaps early in the fourth century.

F) The Mamluk Period

Although ten sites with Mamlūk pottery were identified (Fig. 10, Map 2i), only one of these can be said to have a substantial Mamlūk occupation—Site F3-3 in the Ghor Isal. This situation contrasts markedly with the north ridge of the *wadi* which has several large Mamlūk settlements.

Site F3-3 is a small mound 90.00 m. north-south x 30.00 m. east-west, located directly on the alluvial fan. The site has modern tombs on top, but the vast majority of its pottery is Mamlūk (Fig. 15), with a lesser but substantial amount of Late Byzantine as well. A coin found on the site dates to the reign of “King Nasr”—probably a late twelfth century monarch.

Mamluk pottery from the survey is typically low-fired grit-tempered ware, with a very thick dark grey core. Some of it is painted with dark red in geometric designs. In addition to the pottery and the coin, a carnelian bead and over fifty pieces of glass were found. With the exception of two glass bracelet fragments found on Site C9-1, this was the only glass found on the survey, and so must be associated with the Mamluk (rather than the Byzantine) occupation.

G) Later Remains

The pottery described above as being of recent local manufacture was found at thirty-seven sites in the survey area. At the one site where it predominated (Site C9-6), no flint scatter was associated with this pottery (a rare occurrence in this survey), and this lends credence to the supposition that it is modern. All of these sherds may have been brought to the sites by the Kathrabbans (or their parents) themselves, rather than being evidence of

heavier use in the recent past. In fact, however, the number of sites with these so-called “Late Ottoman” sherds outnumbers those sites (11) with more obviously modern remains, such as China ware, plastic, shotgun shells, etc. These latter bespeak a more international orientation in even the remote parts of Jordan, and at the same time imply that the south ridge is being used less now than in the recent past.

H) Tombs

Thirty-two stone structures, presumed to be tombs, were discovered scattered throughout the survey area, usually situated on high places. These were nearly uniform in size and construction but varied slightly in design. Typically these tombs were circles of large stones (always larger than one man could carry alone), 5.00-6.00 m. in diameter. Sometimes these would have a particularly large “headstone” in the ring. Usually the interior of the circle was sunken and littered with land snail shells, indicating the presence of organic material. In only one of the tombs, however, were human bones actually visible.

Variations in design included two-chambered tombs with a central dividing wall (5 examples); circles with two large stones standing on end facing each other in the center (2); a mound of stones completely or partially filling the interior of the circle (3); a rectangular structure within the circle (1); and in two cases, a simple rectangular structure, approximating the shape of a coffin, with no circle surrounding it.

Very few sherds were found near these tombs and *no* sherds were found within them, so their dating is problematic. However, given the density of Byzantine sites in the survey area, and the presence of a few Byzantine sherds

near four of the tombs, perhaps we can date them to that period. Staller (1949: 17) describes numerous stone circles in the Mt. Nebo region, which are smaller than ours (one diameter given is 3.30 metres), but which he also assumes to be tombs. Some of these he assigns to the Chalcolithic period, based on their proximity to dolmen fields, but it seems more likely that these represent a different style used by a different (later?) people. Their age, however, must remain in question.

Conclusions

The most striking result of our survey is the total absence of Early Bronze sites in the area, despite the presence of such sites both north and south of the Wadi Isal in the highlands and the lowlands. It is obvious that one must look elsewhere, both for the Early Bronze communication

route (the Wadi Kerak?) and for the smaller of the Early Bronze village settlements.

Methodologically, the results are matched, in the order of magnitude of number of sites identified, by E.B. Banning's systematic survey of the Wadi Ziqlab (this volume). These figures will be useful as reference data for surveys to come.

Clearly, the Wadi Isal has always been a marginal occupation zone, occupied only when the density of population in other, more desirable, parts of Palestine became too great. The limitations presented by lack of water and adequate topsoil were apparently not compensated for by its relative ease of access. This is still true today.⁵

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