

by  
J.W. Hanbury-Tenison

## Introduction

A brief archaeological survey for Chalcolithic and Early Bronze sites in the Jarash region of northern Jordan took place in September 1984. The team members were Dr. Kate Fielden, the author, and Miss Iman 'Oweis representing the Department of Antiquities of Jordan. Money for the project came from the Wainwright Fund, the British Institute at Amman for Archaeology and History, the Meyerstein Fund, Manchester Museum and Magdalen College, Oxford. Thirteen days were spent in the field. The survey area covered five hundred square kilometres around Jarash; fifty nine sites were visited, and over nine hundred lithic and ceramic artefacts were recorded and drawn. The material is available for study at the British Institute at Amman.

The survey's aim was to revisit the thirty sites recorded in the Jarash region by Glueck, Kirkbride, and Mittmann,<sup>1</sup> from which Chalcolithic and Early Bronze I and II material had been collected but never fully published, and thereby test a question raised by R.T. Schaub at the Oxford conference on the Archaeology and History of Jordan in 1980.<sup>2</sup> Noting the very heavy concentration of EB I-II sites in the Jarash region located to the north and west of the "chalcolithic" sites, Schaub<sup>3</sup> suggested the area might provide a good example of the shift in settlement patterns between the Chalcolithic or EB IA, and the EB IB and EB II which he claimed to see in the rest of Palestine and Transjordan. The large number of known sites in the Jarash region suggested that the close

concentration of sites would give a more sensitive indication of settlement change than sites more widely scattered.

One site was covered by a military installation, and therefore inaccessible. Of the twenty nine remainder, twenty four had material from the Chalcolithic and Early Bronze I and II. During the course of the survey, thirty further sites were discovered or visited, fourteen of them with material from the Chalcolithic and Early Bronze I and II. So as to allow prompt and full publication, only material which was relevant to the research project was collected. All sites were noted, plotted, described, and photographed. Retrieval procedure was uniformly purposive. We do not claim to have realised the full archaeological potential of the Jarash region.

A few Upper Paleolithic scatters, and two very rich PPNB sites were found. Byzantine-Umayyad and Medieval pottery was found in quantities at almost every site visited, and there was a strong Late Iron showing. Classical material was poorly represented, as was Middle and Late Bronze material; there was no Early Iron or Pottery Neolithic. Several water mills remain in Wadi ez-Zarqa. Objects were systematically collected from the two Neolithic sites, and will be published separately.

I am again most grateful to Dr. Adnan Hadidi and his staff; in particular Mrs. Maha Jeyousi, for their help and support. I am indebted to Dr. and Mrs. Andrew Garrard and Mr. Stephen Hart of the British Institute at Amman, and to the directors of the Sydney-Wooster excavations at Pella for the loan of equipment.

1. N. Glueck, *Explorations in Eastern Palestine IV*, AASOR, 25-28, New Haven (1951); D.V.W. Kirkbride, 'Notes on a Survey of Pre-Roman Archaeological Sites Near Jerash, 1', BIA (1958), p. 9-20; S. Mittmann, *Beiträge zur Siedlungs-und Territorialgeschichte des Nördlichen Ostjordanlandes*. Weisbaden

(1970).

2. R.T. Schaub, 'The Origins of the Early Bronze Age Walled Town Culture of Jordan,' in *Studies in the History and Archaeology of Jordan*, 1, Amman (1982).

3. *Ibid.*, p. 74, Fig. 1.



architects of the international team working at Jarash.

## Environment

The Jarash region contains widely different physical and environmental conditions, with the immediate environs of Jarash being the pivot of the switch. To the west the hills rise rapidly to a height of 1200 metres; there is much water, the topography is broken by steep narrow valleys, and there is thick tree cover. To the east there is open steppe heading towards the desert, with wide valleys and vegetation concentrated around the numerous strong springs (Fig. 1 and Fig. 4 schematic section). Mean daily temperature for August is 30°C for Riḥab, 28°C for Jarash, and 24°C for the highlands between Suf and 'Ajlun.<sup>4</sup> Mean daily temperature for January is 10°C for Riḥab and Jarash, and 8°C for 'Ajlun.<sup>5</sup> There can be several night frosts in a bad year, but it may never snow all winter. Snow never settles as low as Jarash.

Mean humidity is at 50% in August for the whole area, and at 70% in January.<sup>6</sup> Mean annual precipitation is 600 mm in the 'Ajlun highlands, dropping steeply to 300 mm twenty kilometres east, but with a wet corridor in the high ground between Jarash and Riḥab.<sup>7</sup> Precipitation is greatest from late December to March, with the summer months entirely dry (Fig. 2).

Most of the survey area is a limestone rock, with sandstone in the river valleys, and a chalk/limestone conglomerate around Bal'amah and Riḥab.<sup>8</sup>

Most of the survey area has red Mediterranean soils, which makes the spotting of sites easy. Between Jarash and Riḥab the soils change to yellow Mediterranean, a transitional stage between red Mediterranean and yellow step-

invariably a crumbly sandy loam, but the red Mediterranean soils are more suited to arable cultivation, vegetables, fruits, olives, and forestry, while the yellow Mediterranean soils are better suited to dry arable farming and stock rearing.<sup>9</sup>

The vegetation shows a clear break between the steppe vegetation to the east of Jarash and the mixed pine and oak forests of the 'Ajlun highlands (Fig. 2). Directly to the east of Jarash there is intensive modern vegetable cultivation under plastic; further east vegetable cultivation is only directly beside water. Olives and grapes are grown in profusion over all the 'Ajlun highlands.

## Settlement Patterns

Four distinct periods of artefact assemblage were found: Chalcolithic, Proto-Urban, Early Bronze I, and Early Bronze II. A critique of the designations is given under the heading *Artefacts*: it suffices here to stress that the nomenclature is primarily one of convenience, and that almost all sites are, for the fourth millennium, single period only.

The survey showed a complete shift in settlement pattern between the Chalcolithic and the Early Bronze I. Almost without exception, the Chalcolithic sites are high up towards the top of south or west facing slopes, with access to water at some distance, and covering at least two hectares. Dhakhara el-Beida, site 01, lies at the top of the south-west facing slope of the ridge two kilometres north of Jarash. The houses are mono-cellular and roughly square, and are cut into the rock in short terraces along the gradient of the hillside, with the downslope side blocked by stone walls. This manner of architecture was unknown for the Chalcolithic until the recent excavations at Pella<sup>10</sup> and, from the survey findings, may have been fairly

4. MOTMD, *Climatic Atlas of Jordan*. Amman (1971), p. 19.

5. *Ibid.*, p. 12.

6. *Ibid.*, p. 71, 65.

7. *Ibid.*, p. 11.

8. GMJ, *Geological Map of Jordan* (1954),

1:250,000.

9. Bender, *Geology of Jordan*. Berlin (1974), p. 187-189.

10. A. McNicoll, et. al., *Pella in Jordan*, 1. Canberra (1982).

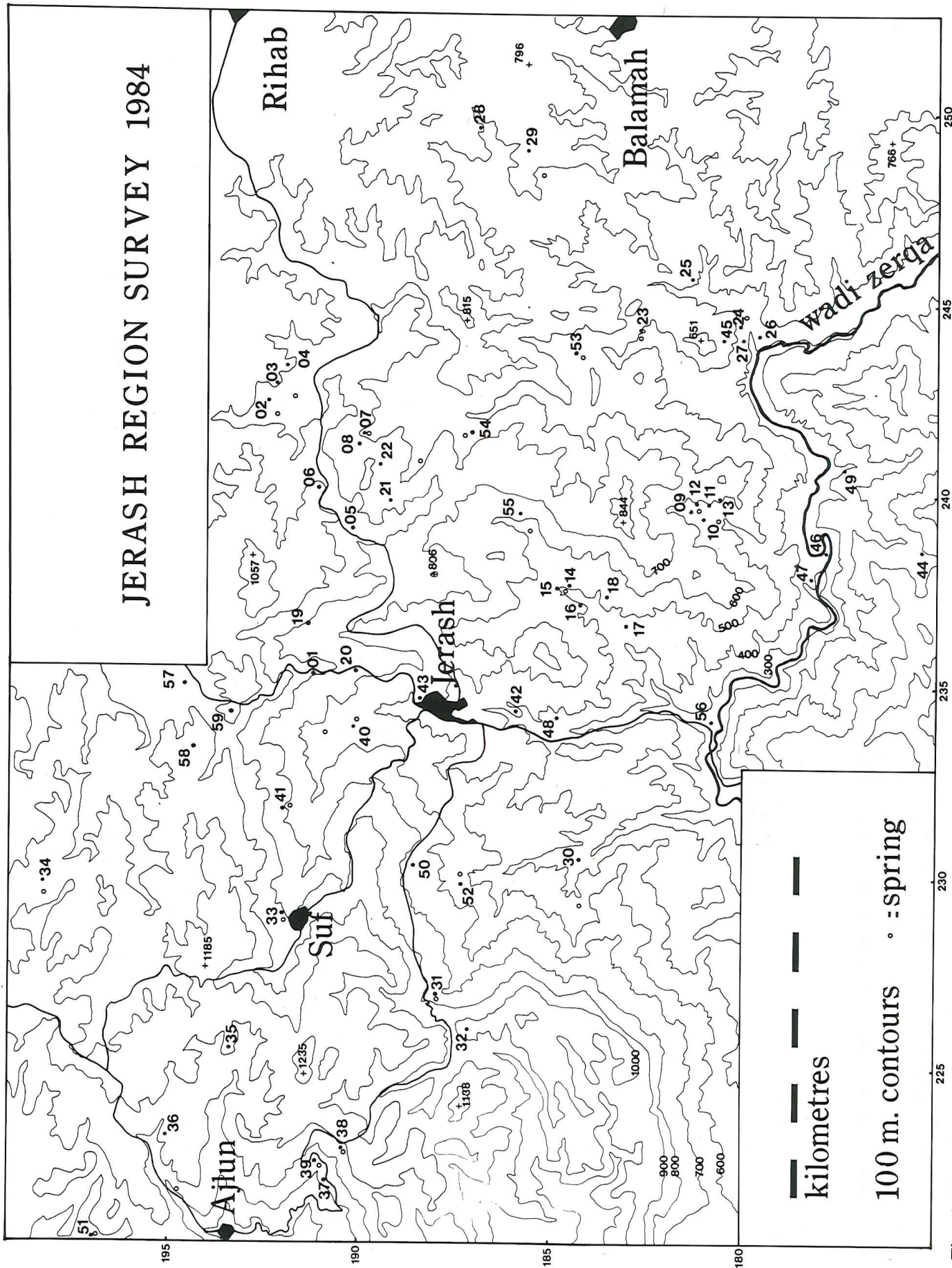


Fig. 1: Sites found on the Jerash Region Survey 1984.



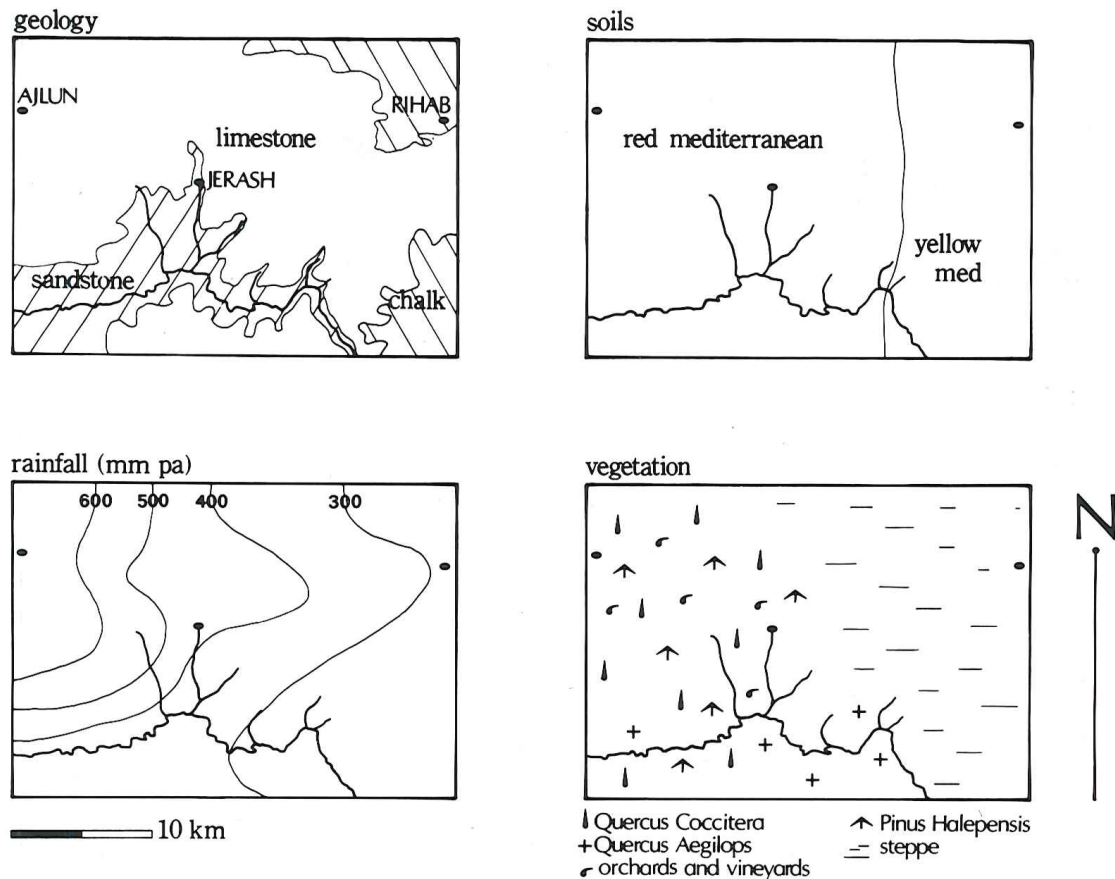


Fig. 2: Environmental context of the Jarash region.

common for the period in northern Jordan.

The Proto-Urban sites held an intermediary role. Sites 06 Umm B̄eimah, 13 Ḥaziyyeh, and 45 Jabal el-Muṭawwaq are on south or west facing high terraces, well away from water. The rest are closer to water, sometimes immediately beside it, though still on hill slopes, generally south or west facing, and all at least two hectares in extent (Fig. 3).

The Early Bronze I sites were much smaller and more numerous, and were on gentle slopes right down beside the water. While many of the Early Bronze I sites continued to be used in the Early Bronze II, only in the Early Bronze II did sites begin to be placed in defensible positions without regard to proximity to water: sites 32 Qaṣr Ṣabiḥi and 35 Zahr el-Khirbeh are the best examples.

Neither the Chalcolithic, nor Proto-Urban, nor Early Bronze I sites can be considered as defensible, all being positioned on slopes. The Chalcolithic and Proto-Urban sites, whether on the upper slopes of hills or beside the water, all seem

to have been located for the good view they offered.

The distribution of sites of the different periods is clear cut. The Early Bronze I and II sites were found all over the survey area, whereas the Chalcolithic and Proto-Urban sites were only found in the open land to the east of Jarash (Fig. 4). The locations of the Chalcolithic and Proto-Urban sites, all of which have a good view of the surrounding countryside, are not dependent on a water supply immediately at hand. They are extensive, and are in the rolling hills and wide open valleys of the steppe east of Jarash. All of the sites suggest a mobile society, essentially one with a pastoral livelihood. In contrast, the Early Bronze sites, situated close to or immediately beside a water supply, suggest a fixed settlement existence; one that became increasingly so with the adoption of defensive positions in the Early Bronze II. The distribution and location of the sites in the Chalcolithic/Proto-Urban and Early Bronze I and II indicate a switch from pastoral to arable farming between



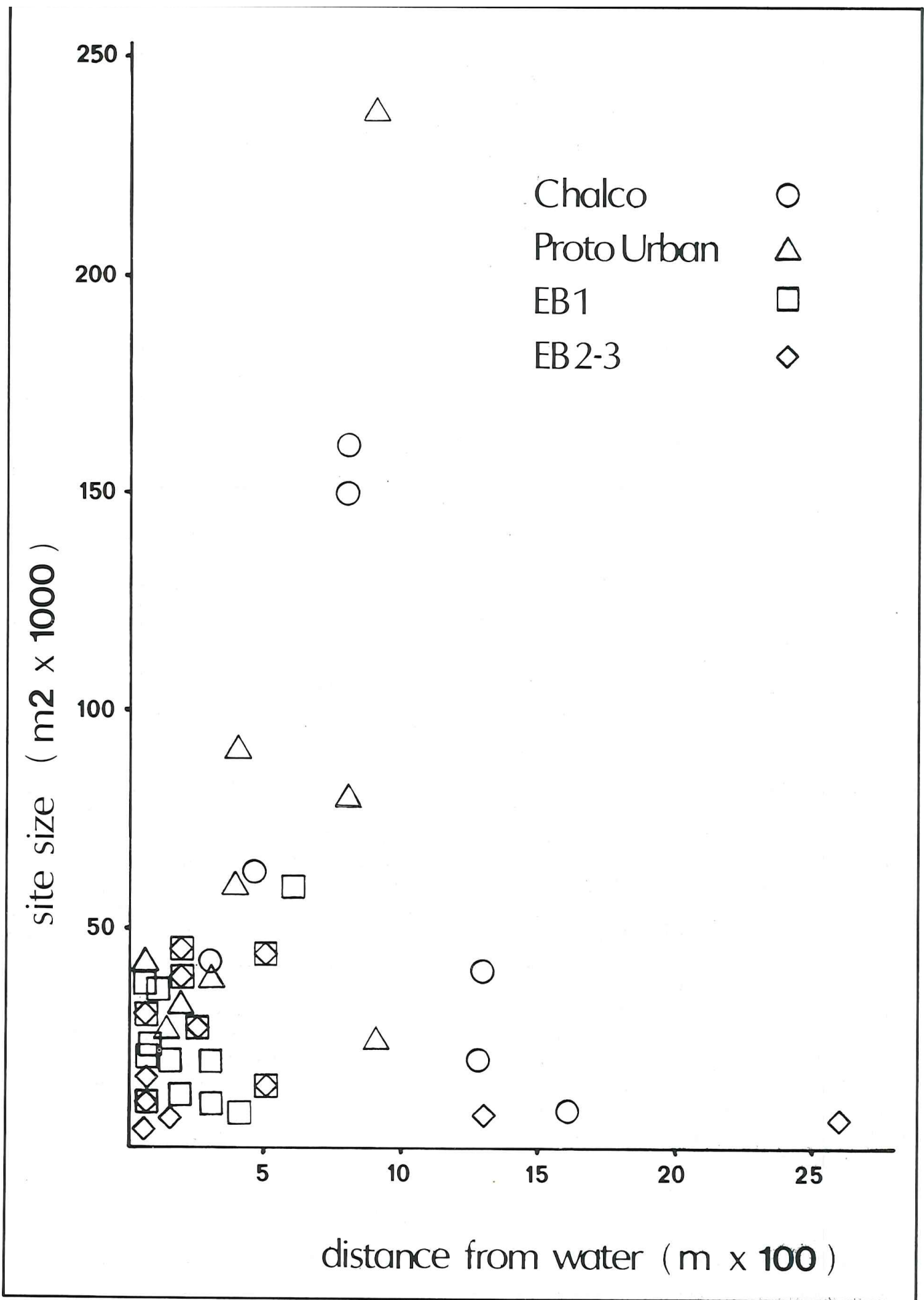


Fig. 3: Diagram showing size of site and distance from nearest water source.

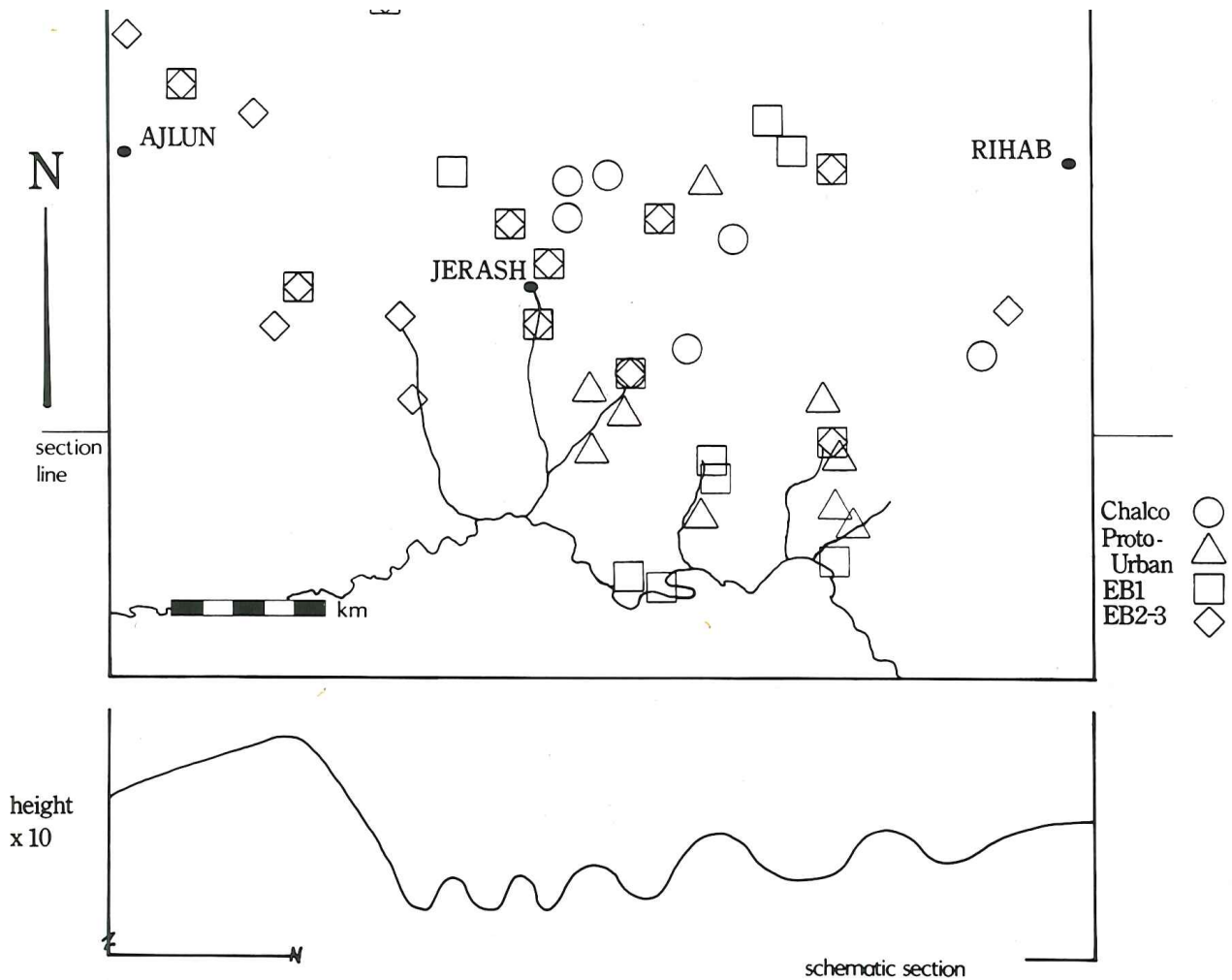


Fig. 4: Site distribution patterns; underneath a schematic section along latitude 1850, showing the west-east topographic variation.

the two periods.

Site 14 Tell er-Riyashi has material from the Chalcolithic and the Early Bronze I and II. No other site has continuity of occupation between the Chalcolithic, the Proto-Urban, or the Early Bronze I and II. Site 23 'Ain Qneyah clearly divides between a northern spur above the spring with Early Bronze material, and a low terrace to the south with Proto-Urban material. Lack of a strong body of artefacts from the lower site makes it difficult to be certain, but all indications suggest the two contiguous sites do not overlap, and the Proto-Urban settlement was completely abandoned before the shift to the Early Bronze I-III site a hundred metres to the north.

For the Jarash region at least, and I would suggest for the whole of Palestine

and Transjordan, there is no uninterrupted progression from the Chalcolithic to the Proto-Urban, or from the Proto-Urban to the Early Bronze I, despite the many and well-known elements of continuity throughout the fourth millennium. The most fundamental change, which is of economy, occurred between the Proto-Urban and the Early Bronze I, but the manner of life did not significantly change until the Early Bronze II, and the advent of the walled town culture. This matter is dealt with in detail in my thesis.<sup>11</sup>

#### Artefacts

Four stages of material culture were found during the Jarash survey: Chalcolithic, Proto-Urban, Early Bronze I and Early Bronze II. The designation of a site

11. J.W. Hanbury-Tenison, *The Late Chalcolithic to Early Bronze 1 in Palestine and Transjordan*.



as not Early Bronze was easy enough, since the material was distinctive, and each site had a homogenous assemblage. The distinction between Early Bronze I and II was slightly subjective, given that there is no excavated sequence for the period remotely nearby. Plain holemouth jars, small round ledge handles with thumb-impressed edges, and painted decoration were taken as diagnostic of the EBI, and more elaborate holemouth jars, wide plain ledge handles, hammer-rim bowls, flaring-rim jars, and wash decoration were taken as diagnostic of the EBII and EBIII. The Early Bronze sites had very little chert. No EBIV (EB/MB) sherds were found.

The Chalcolithic needs little introduction either. Again, a relative chronology is impossible, but the assemblage from all seven sites falls nicely into the Late Chalcolithic Transjordan group from Pella and Saḥab. Remarkable perhaps is the small amount of painted ware (whereas there is plenty at Pella), the small number of tabular scrapers despite the frequent use of cortical chert,<sup>12</sup> the impressions into the matrix of loop handles (Fig. 7:4, 33), and the trapezoid-section axes with cortex on the dorsal face (Figs. 7:10, 36, 60; 10:42). All the sites had quantities of basalt objects, notably querns, hoes, and pounders. No ledge handles or matt-impressed bases were found on Chalcolithic sites. No one site reproduced the assemblage of another, though all the sites were clearly of the same tradition. Jabal Dhakhirah, site 29, had such a quantity of cortical chert debitage and heavy scrapers that a specific functional exploitation of the site is possible. The assemblage variation may represent chronological, functional, or social differences; I suggest mainly the last.

Proto-Urban artefacts were found at eight sites. The material is highly distinctive, and is characterized by:

1. the heavy use of grog temper, and the thick slurry on both faces of the vessel;
2. a multiplicity of flaring-rim jars (Fig. 9:1-8 etc.);
3. impressions into the matrix of the vessel, and into squeezed-out bands (Figs. 6:51, 52, 54-56 etc.);
4. thumb impressions around jar bases (Figs. 6:44, 57; 10:17);
5. squat ledge handles;
6. a rich worked-stone industry, primarily of blades and scrapers.

The closest parallels come from excavations at Jawa, Umm Ḥammad,<sup>13</sup> and Pella. Specific similarities are:

1. holemouth jars with pushed-up lug handles (Fig. 9:26, 38);
2. basalt bowls with protruding knobs (Figs. 5:53; 9:59);
3. seal impression (Fig. 5:48);
4. the lithic industry, particularly the blades, tabular scrapers, and tongue scrapers (Fig. 9:44-46, 52-57);<sup>14</sup>
5. impressed round ledge handles;
6. impressed decoration;<sup>15</sup>
7. flaring-rim jars.

The parallels seem to be equally divided between Jawa and Umm Ḥammad; the link with Pella is only in the holemouth jars. It is curious that the links with Umm Ḥammad are throughout Stage 1, both before and after the arrival there of the Jawa type pottery<sup>16</sup>.

These parallels do not go beyond specific similarities; the whole body of the Jarash Proto-Urban objects is so far unique. The suggested similarities with the Bab edh-Dhra' EB I<sup>17</sup> may not bear the additional information. No PUC or PUD/Umm Ḥammad ware was found, and painted pottery only really picks up in the Early Bronze I. Although the Proto-Urban pottery has strong links with the Early Bronze I, the tradition is more Chalcolithic, notably in the lithic industry, and

12. Which goes against the argument that the northward fall-off in tabular scraper frequency was determined by increasing distance from source. See S.A. Rosen, 'Tabular Scraper Trade: A Model of Material Culture Dispersion', *BASOR*, 249 (1983), p. 79-86.

13. S.W. Helms, *Jawa: Lost City of the Black Desert*. London (1981); S.W. Helms, 'Excava-

tions at Tell Umm Hammad esh-Sharqiya in the Jordan Valley 1982', *Levant*, XVI (1984), p. 35-54.

14. Alison Betts, personal communication.

15. Helms, 1984, *ibid.*, Fig. 10:11.

16. *Ibid.*, p. 47.

17. Schaub, *Ibid.*, p. 74.

with the pottery in the open forms and the loop handles. This parallels the site locations, where the Proto-Urban and Chalcolithic sites share the same pattern, despite the former's riverine inclination.

The Jarash region is on the direct route between Jawa and Umm Ḥammad, but clearly we are not dealing with the same population as either of these sites. The assemblage variation between the eight sites, similar to the variation between the Chalcolithic and, to a lesser extent, the Early Bronze I sites, reflects different families and different preferences.

### Conclusions

The transition from the Late Chalcolithic to the Early Bronze I took much longer than has been assumed, and the excavations at Umm Ḥammad are of major importance to the understanding of the period. The basic change in manner of life came not with migratory waves in the Proto-Urban, but with the building of

walled towns and the growing rigidity of social movement towards the end of the Early Bronze I.

### *Notes on the artefact descriptions and drawings*

The following abbreviations have been used; *HMJ* for holemouth jar, *VSB* for V-shaped bowl, *ext* and *int* for exterior and interior, *SF* for soft fired, *WM* for wheel made, *rd* and *bd* for rim and base diameters, *dec* for decoration. A selective testing suggested that all the wares were between 2 and 4 Mohs; I have considered soft fired those under 3 Mohs, but the distinction was subjective. Unless otherwise stated, all sherds are hand-made and medium fired (3 to 4 Mohs). Each description is preceded by the sherd's catalogue number. The site numbers are in heavy type above the sherds on the drawings.

J.W. Hanbury-Tenison



Fig. 5

*Site 01- Dhakhara el-Beida:*

1. 01-12: large VSB; medium coarse fabric with chert and limestone temper, light red throughout, SF, rd 33.
2. 01-11: large VSB; medium coarse with chert and limestone temper, red/brown throughout, SF, rd 40?
3. 01-14: large VSB; quite well mixed with chert and limestone temper, brown throughout, SF, rd 15.
4. 01-32: small jar; orange throughout, poorly mixed, incised parallel lines exterior, SF, rd 12.
5. 01-30: HMJ; pale buff throughout, poorly mixed, chert temper, SF, rd 15.
6. 01-31: roll-rim jar; buff throughout, poorly mixed, chert temper, SF, rd 32.
7. 01-16: flat base; brown int. red ext. well mixed, small chert grits, traces brown paint ext. SF, bd 9.
8. 01-17: flat base; coarse fabric, pinkish buff throughout, chert and limestone temper, wet smoothed ext. SF, bd 15.
9. 01-18: flat base; coarse fabric, buff throughout, chert and limestone temper, SF, bd 20.
10. 01-34: flat base; buff throughout, poorly mixed, coarse chert and limestone temper, SF, bd 6.
11. 01-22: round section loop handle; pink throughout, chert and limestone temper, SF.
12. 01-20: triangular section loop handle; buff throughout, chert and limestone temper, SF.
13. 01-19: triangular section loop handle; coarse fabric, red faces and brown core, SF.
14. 01-42: bs; coarse fabric, buff ext. orange int. large chert and limestone grits, applied band of thumb impressed dec. ext. SF.
15. 01-43: bs; orange ext. buff int. large chert and limestone grits, poorly mixed, impressed dec. ext. SF.
16. 01-45: bs; buff throughout, large chert and limestone temper, poorly mixed, applied band of thumb impressed dec. ext. SF.
17. 01-03: pointed chisel; triangular section, lateral flaking, worn edges, broken proximal end.
18. 01-46: burin; pale grey chert, heavy retouch on both edges, invasive burin flaking on ventral and dorsal faces, broken proximal end.
19. 01-52: burin; roughly faceted platform, retouched edges on both faces, invasive burin flaking on ventral and dorsal faces.
20. 01-48: bi-face blade; smooth purple chert, puncted platform backed on dorsal face, cortex at distal end, micro-retouch both edges ventral.
21. 01-06: backed blade; smooth grey chert, cortex on back, retouch both faces, snapped ends.
22. 01-10: borer; dark brown chert, retouch both edges dorsal face, broken proximal end.
23. 01-57: bi-face chopper; oval pebble with cortex crust, pale purple chert, heavy invasive retouch on both edges, both faces.
24. 01-59: adze; pale brown/purple chert, polished end, cortex on ventral face, slightly worn edges.
25. 01-01: axe; grey rough limestone, ground but unsmoothed.
26. 01-56: fenestrated base of pedestal bowl; basalt.

In all, eight axes/chisels/adzes were picked up. A much larger collection of lithics was made at the site by Mrs. Helbaek<sup>18</sup>.

*Site 02- Khirbet Meṭwi:*

27. 02-01: plain ledge handle; buff/pink throughout, quite well mixed, chert and limestone temper, wet smoothed ext.
  28. 02-04: tabular scraper; smooth pale brown chert, faceted platform, broken distal end and right side.
  29. 02-06: bowl; orange faces, buff core, quite well mixed, fine chert temper, SF, rd 11.
- Three more large plain ledge handles were found.

*Site 03 - Khirbet Meṭwi:*

30. 03-01: HMJ; red faces, buff core, well mixed, chert and limestone temper, some basalt, rd 16.
31. 03-04: flat base; coarse fabric, red/buff throughout, chert and limestone temper, bd 20.

---

18. Kirkbride, *ibid.*, p. 15-18.

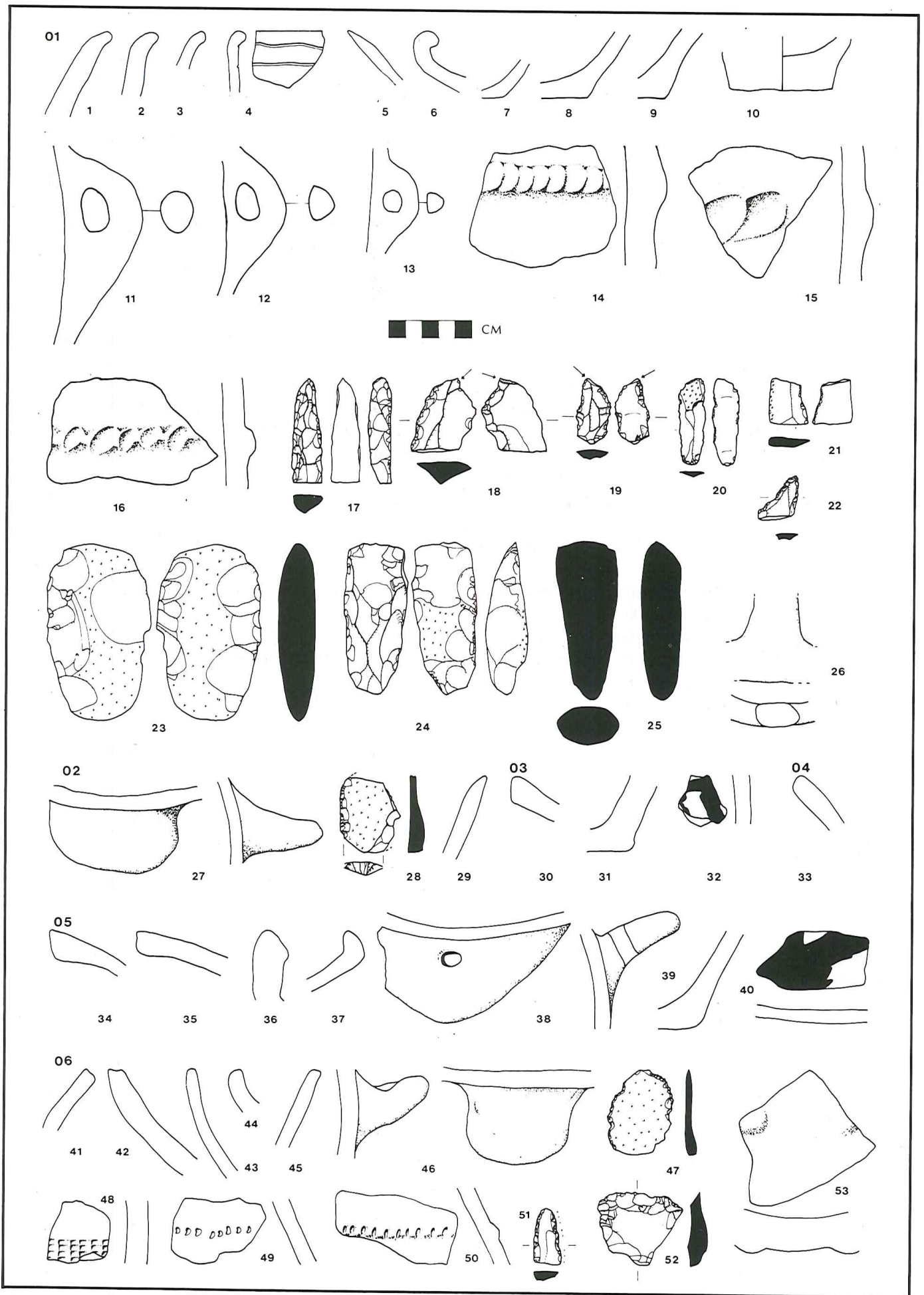


Fig. 5:



32. 03-09: bs; coarse fabric, chert and limestone temper, red faces, slightly reduced core, dark red paint ext.

*Site 04 - Duqmusa:*

33. 04-01: HMJ; brown throughout, poorly mixed, large chert and limestone temper, rd 16. One bs with grain wash pale brown painted dec. was found.

*Site 05 - Hweishan:*

34. 05-02: HMJ; coarse fabric, red buff throughout, chert and limestone temper, wet smoothed ext. rd 18.

35. 05-11: HMJ; coarse fabric, red faces, brown core, chert temper, rd 18.

36. 05-13: jar; brown faces, reduced core, quite well mixed, limestone, grog, and some chaff temper, rd 28?

37. 05-12: bowl; brown faces, reduced core, quite well mixed, limestone and some basalt temper, WM? rd 34?

38. 05-09: ledge handle; coarse fabric, red faces, buff core, chert temper, hole pierced through centre of handle.

39. 05-08: flat base; coarse fabric, orange faces, brown core, chert and small limestone temper, wet-smoothed ext. bd 20.

40. 05-10: bs; red faces, brown core, chert temper, dark red paint ext.

*Site 06 - Umm Bteimah:*

41. 06-04: bowl; orange throughout, limestone and grog temper, wet-smoothed faces, SF, rd 20.

42. 06-05: HMJ; orange throughout, limestone and grog temper, wet-smoothed faces, SF, rd 25.

43. 06-03: HMJ; orange throughout, limestone temper, poorly mixed, wet-smoothed faces, SF, rd 11?

44. 06-17: HMJ; orange throughout, limestone and grog temper, poorly mixed, wet-smoothed faces, SF, rd 25?

45. 06-15: bowl; orange faces, buff core, limestone temper, poorly mixed, SF, rd 42.

46. 06-20: squat ledge handle; orange faces, slightly reduced core, chert and limestone temper, slightly rolled up edge, SF.

47. 06-23: tabular scraper; unprepared platform, uneven retouch.

48. 06-22: seal impression? buff throughout, limestone and grog temper, impression into matrix of sherd.

49. 06-02: bs; pale buff throughout, poorly mixed, limestone and grog temper, incisions into sherd matrix ext. SF.

50. 06-01: bs; pale buff throughout, poorly mixed, limestone and grog temper, incisions on band squeezed from matrix ext. SF.

51. 06-08: backed blade; smooth brown chert, snapped proximal end, sheen on both faces of blade edge.

52. 06-14: scraper; pale grey chert, unprepared platform, broken.

53. 06-07: bowl; projecting knobs ext. basalt.

Fig. 6

*Site 11 - Haziye:*

1. 11-01: bowl; well mixed, red faces, slightly reduced core, chert, limestone and grog temper, rd 7.

2. 11-03: bowl; coarse fabric, poorly mixed, buff faces, slightly reduced core, chert and limestone temper, some basalt, rd 30.

3. 11-04: bowl; coarse fabric, core brown, int. face red, ext. face buff, chert and limestone temper, rd 16?

4. 11-06: HMJ; coarse fabric, grey/buff faces, reduced core, much chert temper, rd 21?

*Site 12 - Haziye:*

5. 12-01: HMJ; coarse fabric, red/buff throughout, chert and limestone temper, rd 22?

This sherd is pretty worn; I am not certain whether the slight protruberance under the rim is the remains of a pushed-up lug handle (see Fig. 9:26) or a ridge. The rest of the material from the site is

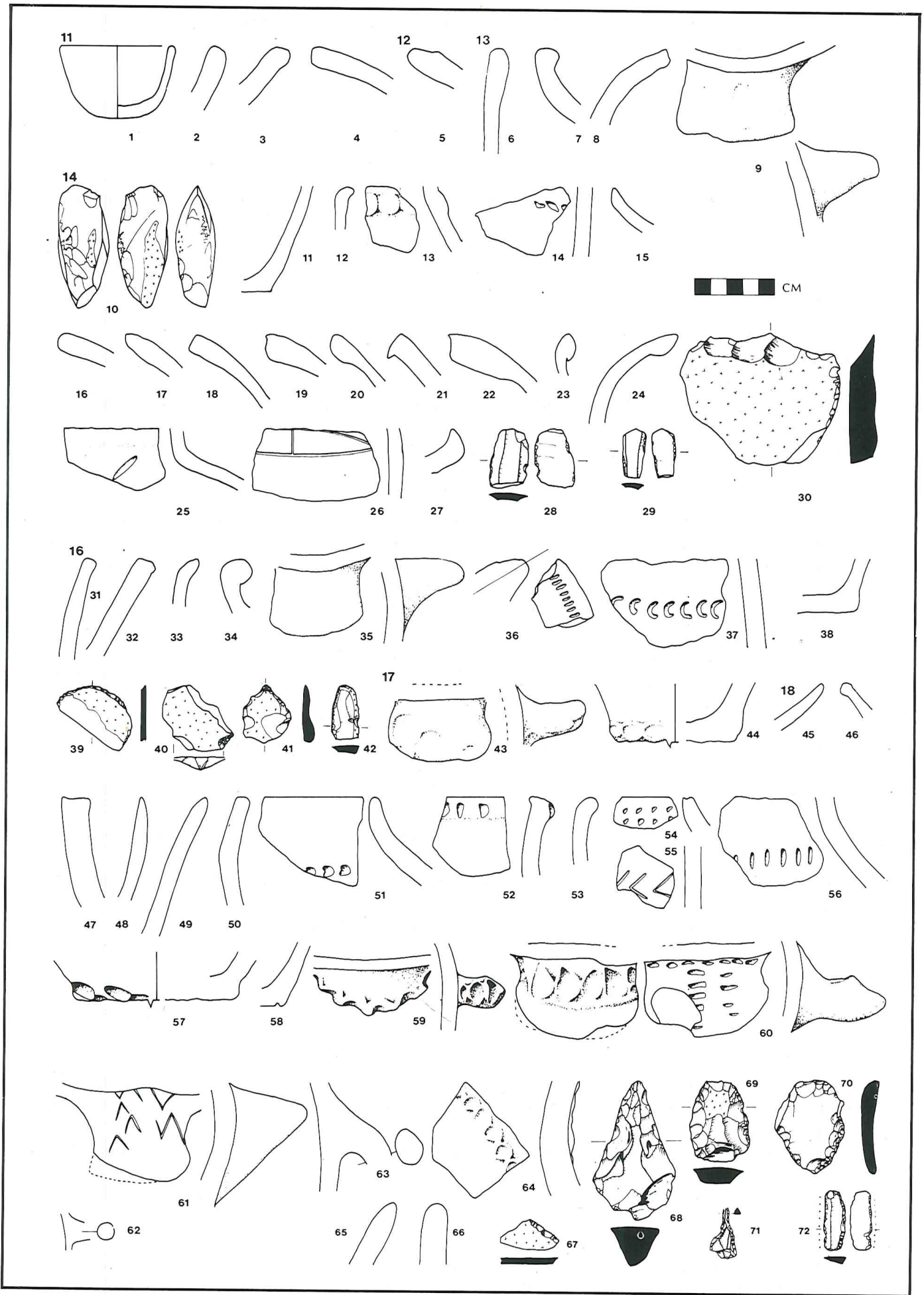


Fig.6:



40. 16-18: tabular scraper; faceted platform, side much broken, but traces of even invasive retouch on dorsal face.
  41. 16-17: borer; tabular chert on dorsal face, platform much damaged, sides broken, but traces of invasive even retouch on dorsal face.
  42. 16-20: blade; midrib removed, cortex on back, uneven retouch on blade edge both faces, snapped proximal end.
- Also was found a round ledge handle with light thumb indentations around the edge: fragment only.

*Site 17 - Mansub:*

43. 17-02: squat ledge handle; buff throughout, chert, grog, and some chaff temper, light thumb impressions on upper surface, wall of vessel broken, wet-smoothed faces.
44. 17-01: flat base; buff throughout, coarse fabric, chert temper, thumb impressions around base of vessel wall, bd 16.

*Site 18 - Khirbet Mansub:*

45. 18-54: bowl; buff throughout, limestone and grog temper, wet-smoothed faces, SF, rd 7.
46. 18-08: HMJ; orange throughout, limestone temper, poorly mixed, rd 22.
47. 18-52: jar; orange throughout, chunky limestone and grog temper, poorly mixed, wet-smoothed faces, SF, rd 38.
48. 18-53: bowl; orange throughout, limestone and grog temper, wet-smoothed faces, burnt ext. rd 38.
49. 18-01: bowl; orange faces, slightly reduced core, grog and some limestone temper, wet-smoothed faces, rd 20.
50. 18-02: jar; orange throughout, grog and some limestone temper, poorly mixed, wet-smoothed faces, SF, rd 22?
51. 18-03: HMJ; orange throughout, chert and grog temper, incisions ext, rd 29.
52. 18-48: jar; buff throughout, well mixed, much small basalt, chert, and some grog temper, wet-smoothed faces, red brown slip both faces, incisions into matrix on rim, rd 38.
53. 18-06: jar; orange throughout, grog and limestone temper, poorly mixed, wet-smoothed faces, SF, rd 13.
54. 18-17: HMJ; orange faces, buff core, chert temper, incisions into matrix ext. wet-smoothed faces, SF, rd 24.
55. 18-40: bs; orange faces, reduced core, grog and limestone temper, wet-smoothed faces, incisions into matrix ext. SF.
56. 18-38: bs; orange faces, reduced core, grog and limestone temper, wet-smoothed faces, incisions into matrix ext.
57. 18-18: flat base; orange faces, slightly reduced core, grog and limestone temper, thumb impressions around base of vessel wall, bd 20?
58. 18-56: flat base; orange throughout, grog and limestone temper, poorly mixed, wet-smoothed faces, vessel wall unevenly joined to base, SF, bd 12.
59. 18-20: round ledge handle; buff faces, reduced core, limestone, chert, and grog temper, deep thumb impressions around edge, SF.
60. 18-63: squat ledge handle; orange throughout, grog and limestone temper, wet-smoothed faces, thumb impressions into squeezed up matrix on top of handle, incisions into matrix on underside.
61. 18-62: squat ledge handle; orange throughout, limestone and grog temper, wet-smoothed faces, incisions into matrix on underside.
62. 18-37: round section loop handle; orange throughout, grog and limestone temper, SF.
63. 18-61: oval section loop handle; buff throughout, grog and limestone temper, SF.
64. 18-67: bs; buff throughout, well mixed, much small basalt, chert, and some grog temper, red slip both faces, dark brown wash ext. applied band on impressed dec ext.  
The ware and wash suggest an EBII date, though no other sherds of this date were found at the site.
65. 18-69: bowl; basalt, rd 25.
66. 18-12: bowl; basalt, rd 14.
67. 18-47: tabular scraper fragment; dark brown chert, very broken.
68. 18-27: axe? pale grey chert, steep invasive retouch on dorsal face, bashed at proximal end.
69. 18-41: scraper; light brown chert, steep invasive retouch all round, striking platform shattered, cortex on dorsal face.

survey.

*Site 13 - HaziyeH:*

6. 13-01: jar; red faces, slightly reduced core, limestone and grog temper, wet-smoothed ext. SF, rd 34?
7. 13-03: roll-rim jar; well mixed, grey/buff throughout, chert and some grog temper, rd 16.
8. 13-02: jar; orange faces, slightly reduced core, limestone, grog, and some chert temper, wet-smoothed faces, SF, rd 26?
9. 13-05: squat ledge handle; coarse fabric, buff faces, brown core, limestone, chert, and grog temper, wet-smoothed ext. SF.

*Site 14 - Tell er-Riyashi:*

10. 14-13: axe; polished end, cortex on both faces, broken proximal end.
11. 14-34: flat base; red face ext. buff face int. slightly reduced core, grog, basalt, limestone, and mica temper, red paint ext. SF, bd 8.
12. 14-04: VSB; red throughout, numerous small basalt grits, poorly mixed, SF, rd 13.
13. 14-08: bs; buff throughout, orange face ext. coarse limestone grits, impressed dec. on band squeezed from matrix, SF.
14. 14-32: bs; buff ext. red int. limestone and basalt grits, incised dec into matrix ext. SF.
15. 14-27: HMJ; red faces, reduced core, limestone and some chaff temper, poorly mixed, SF, rd 24?
16. 14-16: HMJ; dark buff throughout, chert and some grog temper, poorly mixed, SF, rd 17.
17. 14-23: HMJ; dirty buff throughout, small chert and limestone grits, blunt scratches around inner rim, rd 17.
18. 14-22: HMJ; dirty buff throughout, slightly reduced core, much small chert and some limestone temper, poorly mixed, rd 21.
19. 14-25: HMJ; red faces, buff core, much chunky chert and limestone temper, poorly mixed, smoothed rim, SF, rd 22.
20. 14-21: HMJ; red ext. buff core and int. much chert and some grog temper, poorly mixed, SF, rd 25.
21. 14-15: HMJ; dark brown throughout, quartz, chert, limestone, and some grog temper, poorly mixed, SF, rd 14.
22. 14-02: HMJ; red/brown to buff throughout, many small basalt grits, quite well mixed, rd 28.
23. 14-26: jar; buff throughout, many tiny basalt grits, well mixed, rd 28.
24. 14-01: jar; buff, small basalt grits, some grog, well mixed, rd 28.
25. 14-09: bs; red/brown throughout, quartz, limestone, and grog temper, well mixed, incision into matrix ext.
26. 14-11: bs; light buff faces, slightly reduced core, small basalt grits, incision into matrix ext.
27. 14-24: hammer-rim bowl; buff throughout, large chert grits, poorly mixed, SF, rd 30?
28. 14-39: bi-face blade; brown/purple chert, snapped both ends.
29. 14-40: bi-face blade; brown/purple chert, puncted platform, broken distal end, uneven retouch.
30. 14-12: tabular scraper; coarse grey chert, chunky, bashed platform.

Numbers 10-15 inclusive are Chalcolithic.

*Site 16 - Er-Riyashi:*

31. 16-03: jar; pinkish red throughout, limestone and some chert temper, wet-smoothed faces, rd 40?
32. 16-04: bowl; red throughout, limestone, chert, and grog temper, poorly mixed, wet-smoothed faces, rd 45?
33. 16-05: jar; buff faces, brown core, chert temper, well mixed, wet-smoothed faces, rd 18.
34. 16-01: roll-rim jar; coarse fabric, chert, limestone, and grog temper, buff throughout, rd 23.
35. 16-11: squat ledge handle; pale red throughout, chert and grog temper, SF.
36. 16-13: ledge handle fragment? dark grey, slightly reduced fabric, poorly mixed, chert temper, some grog, traced red paint ext. incisions into matrix.
37. 16-15: bs; brown faces, slightly reduced core, chert and limestone temper, incisions into matrix ext.
38. 16-09: flat base; coarse fabric, limestone, chert, and grog temper, red/buff throughout, bd 16.
39. 16-16: tabular scraper; proximal end broken, even retouch.



70. 18-42: scraper; pale grey chert flake, shattered edges and platform.
71. 18-26: borer; smooth purple chert, steep retouch dorsal face, broken both ends.
72. 18-70: backed blade; pale brown chert, truncated both ends, light sheen on edge both faces. Several other backed blades with sheen, some bi-face blades, rough blade-scrapers, and axes (as 18-27). Several plain squat ledge handles.

Fig. 7

*Site 19 - Majara:*

1. 19-10: jar; orange faces, buff core, quartz, limestone and mica temper, brown slip ext. rd 26.
2. 19-28: HMJ; buff throughout, limestone and some chert temper, poorly mixed, SF, rd 17.
3. 19-09: VSB; pink/buff faces, buff core, much chert and limestone temper, wet-smoothed ext. and rim int, SF, rd 42.
4. 19-12: triangular section loop handle; red faces, orange/buff core, chunky chert temper, some grog, traces dark red paint ext, impressions into matrix on handle ridge.
5. 19-13: oval section loop handle; buff throughout, chert temper, SF.
6. 19-30: frag loom weight? buff faces, reduced core, chert and grog temper, brown paint ext, SF.
7. 19-11: bs; dirty buff throughout, chert temper; poorly mixed, impressions into matrix ext.
8. 19-33: axe; smooth purple chert, invasive longitudinal flaking at distal end, cortex all round at handle.
9. 19-05: trapezoid blade; snapped both ends, retouch both faces dorsal.
10. 19-14: axe; rough light brown chert, cortex on dorsal face.
11. 19-34: scraper; pale grey chert; faceted platform, uneven retouch.
12. 19-35: frag pierced disk? pale grey chert, invasive retouch dorsal face only, abrupt flaking on edges of central hole(?).
13. 19-37: backed blade; brown chert, unprepared platform, dorsal end snapped, uneven repeated retouch.
14. 19-39: borer; smooth dark grey/blue chert, shattered bulbular end, cortex on dorsal face.

*Site 22 - Şahari:*

15. 22-05: VSB; orange int, buff ext and core, much chert and limestone temper, poorly mixed, SF, rd 30?
16. 22-01: jar; orange faces, buff core, limestone and some grog temper, wiped rim and neck both faces, poorly mixed SF, rd 36-40?
17. 22-04: VSB; orange throughout, much grog, and some chert and limestone temper, poorly mixed, SF, rd 36.
18. 22-06: VSB; orange/buff throughout, chert, and some grog and mica temper, poorly mixed, SF, rd 40.
19. 22-53: VSB; orange throughout, grog, chert, and limestone temper, poorly mixed, SF, rd 28.
20. 22-54: VSB; buff throughout, grog, chert, and limestone temper, rd 23.
21. 22-56: VSB; as 22-54, rd 22.
22. 22-57: bowl; as 22-54, rd 15.
23. 22-07: bowl; orange/buff throughout, chert temper, poorly mixed, rd 36.
24. 22-69: horizontally-pierced lug handle; orange/buff core, slightly reduced faces, chert and limestone temper, poorly mixed, SF.
25. 22-64: flat base; buff throughout, quite well mixed, chert and limestone temper, overlapping edge, bd 8.
26. 22-61: flat base; buff throughout, chert and limestone temper, SF, bd 13.
27. 22-62: flat base; as 22-61, bd 10.
28. 22-73: VSB; reddish/buff throughout, chert temper, some limestone and grog, quite well made, paint on rim both faces, incisions into matrix ext, SF, rd 27.
29. 22-76: VSB; buff throughout, chert temper, painted rims both faces, rd 18.
30. 22-75: VSB; as 22-76, rd 14.
31. 22-24: bs; buff throughout, coarse chert, limestone, and grog temper, poorly mixed, SF, thumb impressions on applied band ext.
32. 22-22: bs; orange throughout, small chert temper, incisions into matrix ext, well mixed.
33. 22-26: round-section loop handle; orange faces, grey core, coarse chert and grog temper, poorly mixed, impressions into matrix, SF.

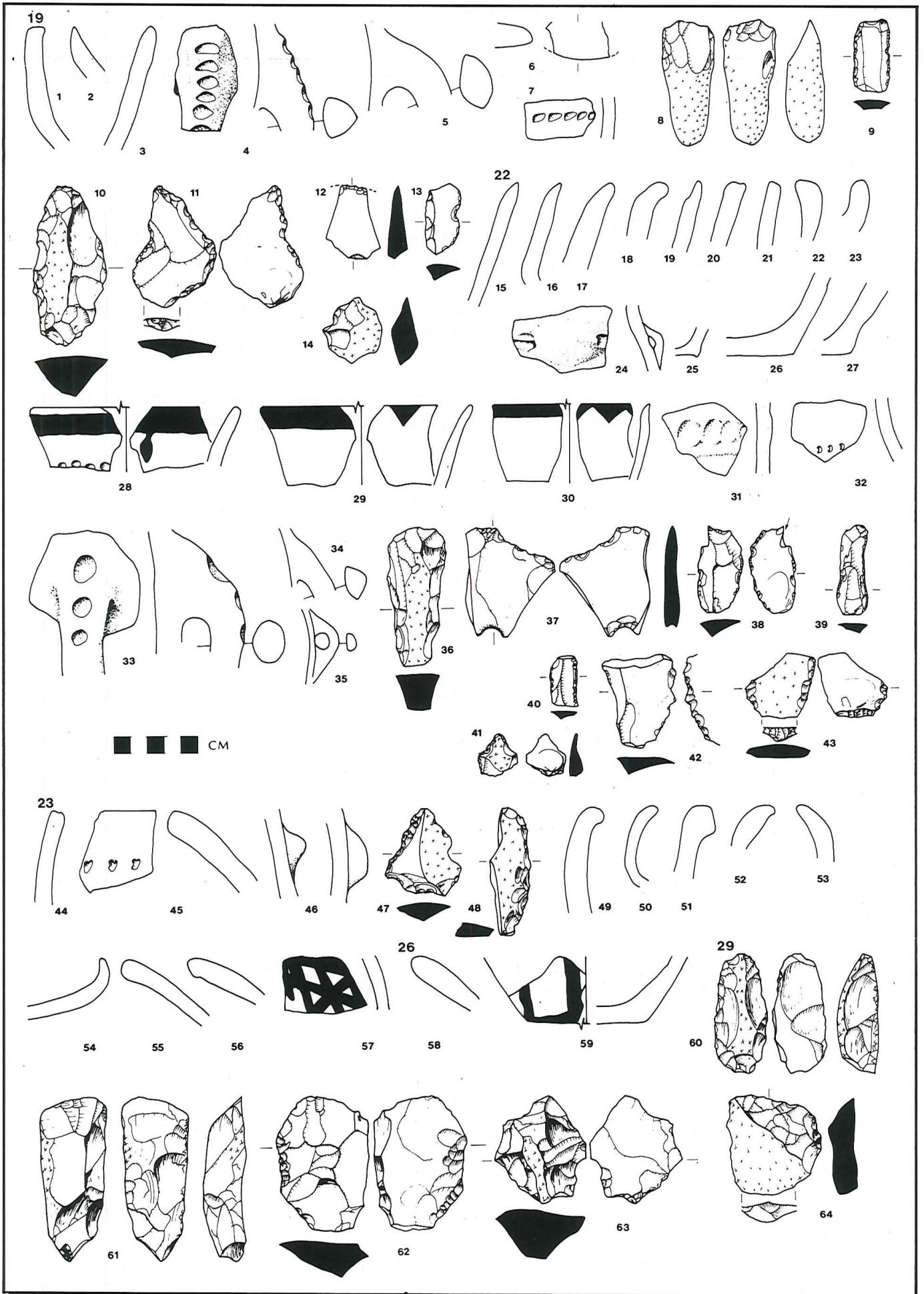


Fig. 7:



34. 22-16: triangular-section loop handle; orange throughout, chert, limestone, and grog temper, SF.
35. 22-72: oval-section loop handle; orange throughout, chert and limestone temper, SF.
36. 22-45: axe; dark brown mottled chert, abruptly truncated proximal end, steep lateral flaking, cortex on dorsal face.
37. 22-30: pierced disk; pale grey chert, ground central hole dorsal, uneven retouch on edge both faces.
38. 22-46: burin; dark grey chert, unprepared platform, shattered proximal end, uneven retouch on edge both faces.
39. 22-40: bi-face blade; smooth purple/light brown chert, faceted platform (shattered), multiple retouch on dorsal face edges.
40. 22-50: backed blade; snapped ends, light brown smooth chert.
41. 22-34: borer; smooth purple chert, faceted platform, cortex on dorsal.
42. 22-37: scraper; dark brown chert, unprepared platform, truncated distal end, rough retouch ventral face.
43. 22-31: tabular scraper; faceted platform, broken distal end.

*Site 23 - 'Ain Qneyah South:*

44. 23-01: jar; buff throughout, very fine chert and limestone temper, poorly mixed, wet-smoothed faces, SF, rd 20.
45. 23-02: HMJ; buff throughout, chert and grog temper, wet-smoothed faces, impressions into matrix ext, SF, rd 15-20?
46. 23-07: ledge handle; buff throughout, grog and limestone temper.
47. 23-05: scraper; cortex on flake back, heavy retouch, blunted proximal end.
48. 23-08: tabular scraper frag; unprepared platform? broken.

Despite the small collection, the five objects here, plus the unillustrated material, suggest a pure Proto-Urban site.

*Site 23 - 'Ain Qneyah:*

49. 23-11: jar; reddish faces, brown core, much basalt, and some chert and limestone temper, rd 16?
50. 23-13: jar; red throughout, basalt and chert temper, WM, rd 14.
51. 23-14: jar; as 23-13, rd 16.
52. 23-20: jar; coarse fabric, red faces, brown core, chert temper, rd 25?
53. 23-22: bowl; buff throughout, basalt and limestone temper, rd 28.
54. 23-19: bowl; red faces, slightly reduced core, basalt and chert temper, poorly mixed, wet-smoothed faces, rd 34.
55. 23-16: HMJ; buff throughout, chert and limestone temper, rd 22.
56. 23-17: HMJ; as 23-16, rd 20.
57. 23-35: bs; red/buff throughout, basalt and chert temper, brown paint ext.

There seems to be no Proto-Urban material from the northern slopes of the site.

*Site 26 - Tell Meghaniyeh:*

58. 26-01: HMJ; red throughout, slightly reduced patches, much chert temper, poorly mixed, rd 22.
59. 26-02: flat base; buff throughout, basalt temper, red paint ext.

*Site 29 - Jabal Dhakhirah:*

60. 29-09: axe; light brown chert, steep flaking all round, cortex on dorsal.
61. 29-07: adze; rough pale purple chert, cortex on both sides.
62. 29-11: scraper; pale grey chert, unprepared platform, removed bulb.
63. 29-14: scraper; dark grey chert, blunted distal end ventral face.
64. 29-15: scraper; dark grey chert, cortex on flake back, faceted platform.

Fig. 8

*Site 29 - Jabal Dhakhirah (cont.):*

1. 29-16: scraper; pale grey chert, unprepared platform, heavy backing.
2. 29-12: scraper; shattered platform, cortex on dorsal face.
3. 29-20: borer; smooth dark brown chert, puncted platform.

4. 29-28: backed blade; pale brown chert, blunted distal end, multiple retouch on edge.
5. 29-23: trapezoid blade; unprepared platform struck from cortex, blunted distal end, uneven retouch.
6. 29-26: blade; cortex on back, shattered platform, blunted ends.
7. 29-30: backed blade; cortex on back, snapped both ends, rough brown chert.
8. 29-32: bi-face blade; dark brown chert, unprepared platform, snapped ends.
9. 29-01: jar; pale buff throughout, chunky chert temper, quite well mixed, SF, rd 44.
10. 29-02: flat base; orange faces, slightly reduced core, limestone and basalt temper, bd 14.
11. 29-03; oval-section loop handle; buff faces, slightly reduced core, chert, limestone, and grog temper, groove along handle edge.
12. 29-04: triangular-section loop handle; as 29-03.
13. 29-05: bs; orange ext, dirty buff int, coarse chert, limestone, and grog temper, impressions into matrix ext.

Three bs had traces of brown paint. None of the numerous chert blades had sheen on the edges. There were many large scrapers, and much debitage from tabular chert on the western ridge of the hill.

*Site 30 - Ras el-Kweim:*

14. 30-02: wide ledge handle; red faces, brown core, well mixed, small chert and limestone temper.
15. 30-01: HMJ; buff throughout, coarse fabric, chert and limestone temper, rd 16.

*Site 31 - Sakib:*

16. 31-07: HMJ; red face int, core and face ext buff, coarse chert temper, rd 20.
17. 31-04: jar; red faces, brown core, chert temper, well mixed, WM, rd 20.
18. 31-05: jar; as 31-04, rd 11.

Several other HMJ and flaring-rim jars.

*Site 34 - Sakhra:*

19. 34-12: HMJ; buff faces, slightly reduced core, chert and limestone temper, wiped rim ext, rd 19.
20. 34-15: HMJ; slightly reduced throughout, chert and limestone temper, wiped rim ext, rd 20.
21. 34-17: HMJ; orange throughout, chert and limestone temper, rd 33.
22. 34-19: HMJ; slightly reduced throughout, very poorly mixed, coarse fabric, chert and limestone temper, rd 20?
23. 34-14: HMJ; as 34-15, rd 20.
24. 34-22: jar; reduced throughout, poorly mixed, chert and limestone temper, brown paint ext, rd 17.
25. 34-23: jar; orange throughout, well mixed, chert, limestone, and basalt temper, rd 25.
26. 34-33: wide ledge handle; buff faces, slightly reduced core, chert and limestone temper, poorly mixed, brown wash ext, impression into matrix under handle.
27. 34-27: round ledge handle; orange throughout, well mixed, limestone and some basalt temper, thumb impressions into matrix around handle edge.
28. 34-28: bs; slightly reduced throughout, chert and limestone temper, knob applied ext, red/brown wash ext.
29. 34-04: backed blade; snapped proximal end, cortex on back.
30. 34-01: tabular scraper; faceted platform, broken distal end.

Several rough chert blades and scrapers.

*Site 35 - Zahr el-Khirbeh:*

31. 35-01: jar; light red faces, grey core, coarse fabric, chert, grog, and limestone temper, light brown slip ext, rd 20-30?
32. 35-03: jar; light red faces, slightly reduced core, coarse fabric, much chert temper, rd 22.
33. 35-04: as 35-03, rd 10.
34. 35-05: HMJ; red/buff faces, buff core, chert temper, poorly mixed, rd 12.
35. 35-08: HMJ; grey/buff faces, grey core, chert temper, rd 22.
36. 35-14: oval-section loop handle; red throughout, coarse fabric, chert, limestone, and grog temper, incisions into matrix ext under handle.
37. 35-18: trapezoid blade; snapped ends, sheen on both edges, both faces.



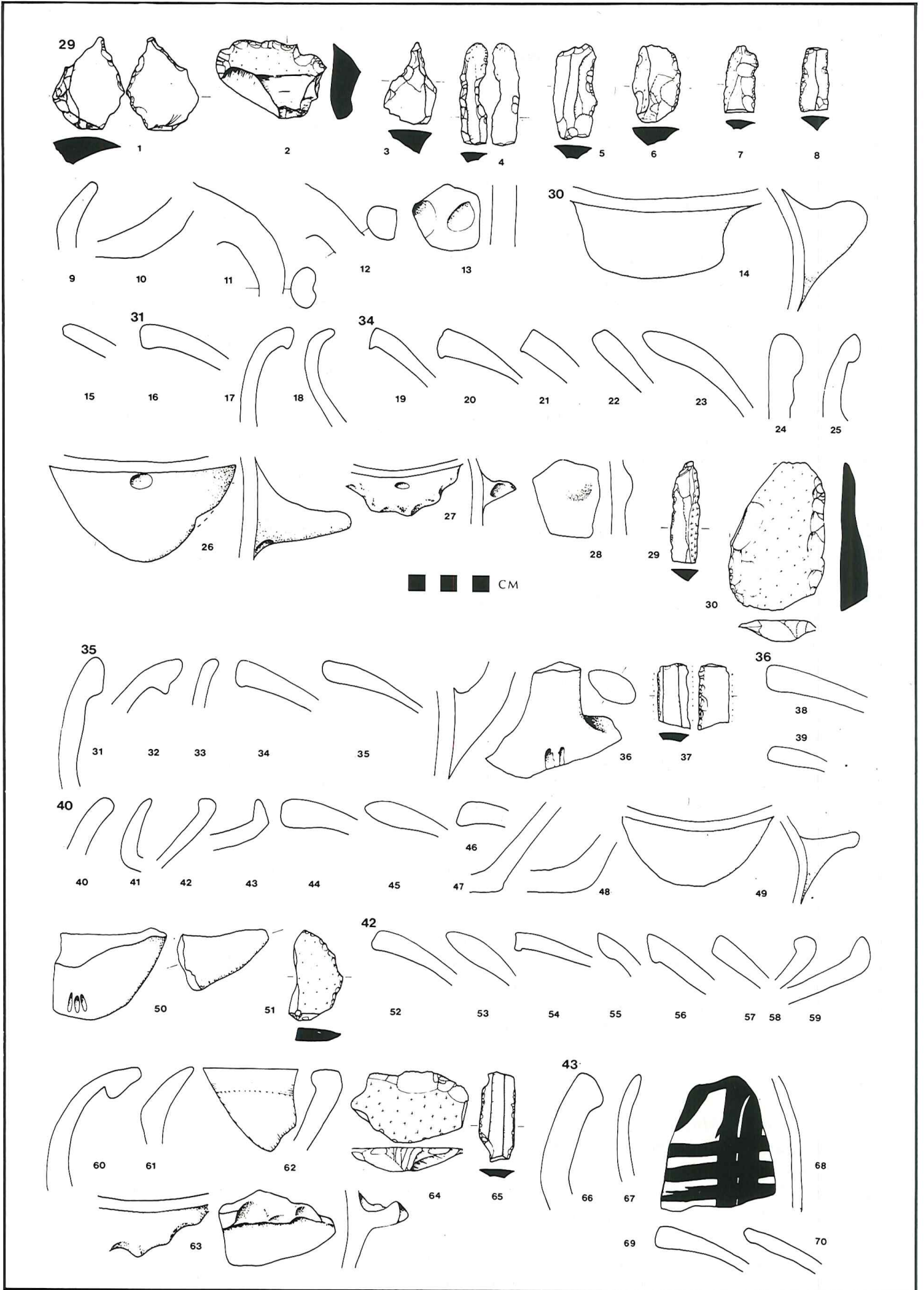


Fig. 8:

*Site 36 - Khirbet Muzabal:*

38. 36-01: HMJ; brown/red faces, brown core, chert and grog temper, wet-smoothed faces, rd 18.
39. 36-02: HMJ; as 36-01, rd 15.

*Site 40 - el-Birketein:*

40. 40-06: jar; light red throughout, chert, grog, and limestone temper, rd 20-30?
41. 40-07: jar; red/buff faces, grey core, chert, grog and limestone temper, wet-smoothed neck ext, WM, rd 8.
42. 40-11: bowl; as 40/07, rd 16.
43. 40-13: bowl; red faces, brown core, chert and limestone temper, rd 21.
44. 40-16: HMJ; red throughout, coarse fabric, much chert temper, rd 22.
45. 40-17: HMJ; red/buff faces, grey core, chert temper, rd 18.
46. 40-21: HMJ; as 40-17, rd 18.
47. 40-24: flat base; grey face ext, red face int, brown/grey core, grog, limestone, and chert temper, red/brown wash ext, bd 16.
48. 40-23: flat base; red/buff throughout, coarse fabric, chert temper, bd 14.
49. 40-27: wide ledge handle; light red faces, brown core, coarse fabric, chert, grog, and limestone temper, some chaff.
50. 40-25: wide ledge handle; red/buff faces, slightly reduced core, chert temper, incisions into matrix on handle underside.
51. 40-30: tabular scraper frag; very broken, shattered proximal end.

*Site 42 - Khirbet Khaled:*

52. 42-01: HMJ; orange/buff throughout, chert, limestone, and mica temper, rd 18.
53. 42-03: HMJ; buff face int, orange face ext, chunky chert and limestone temper, poorly mixed, rd 23.
54. 42-06: HMJ; buff throughout, chert, limestone, and mica temper, poorly mixed, rd 13.
55. 42-07: HMJ; buff throughout, chert and limestone temper, poorly mixed, rd 20?
56. 42-08: HMJ; orange throughout, chunky chert and limestone temper, rd 18.
57. 42-11: HMJ; orange face ext, buff face int and core, chert and limestone temper, rd 17.
58. 42-14: bowl; buff throughout, well mixed, limestone and basalt temper, red/brown paint int and ext, rd 28.
59. 42-16: bowl; orange throughout, poorly mixed, basalt and limestone temper, rd 45.
60. 42-17: jar; orange faces, heavily reduced core, chert and limestone temper, rd 23.
61. 42-18: jar; orange int, buff ext, basalt and limestone temper, nasty texture, poorly mixed, rd 18.
62. 42-14: bowl; as 42-14, combed ext, rd 41.
63. 42-28: round ledge handle; orange faces, buff core, thumb impressed edge.
64. 42-30: tabular scraper; faceted platform, broken edges.
65. 42-31: trapezoid blade; grey/brown chert, snapped ends, retouch.

*Site 43 - Tell Jarash:*

66. 43-01: jar; buff face ext, grey face int and core, chert temper, rd 22.
67. 43-02: jar; buff throughout, chert temper, wet-smoothed faces, rd 12.
68. 43-11: bs; red throughout, basalt and limestone temper, red paint ext.
69. 43-03: HMJ; red/buff faces, grey core, chert temper, poorly mixed, rd 16.
70. 43-04: HMJ; as 43-69, rd 14.

Fig. 9

*Site 45 - Jabal el-Mutawwaq:*

1. 45-31: jar; orange faces, reduced core, limestone and grog temper, poorly mixed, wet-smoothed, rd 24.
2. 45-33: jar; orange faces, reduced core, chunky limestone and grog temper, poorly mixed, wet-smoothed faces, rd 30.
3. 45-34: jar; pale buff throughout, limestone and grog temper, wet-smoothed faces, rd 28.
4. 45-40: jar; orange throughout, limestone and grog temper, wet-smoothed faces, rd 24.
5. 45-42: jar; pale buff throughout, limestone and grog temper, wet-smoothed faces, rd 21.
6. 45-30: jar; orange faces, slightly reduced core, limestone and grog temper, sandy texture,



- wet-smoothed faces, poorly mixed, rd 38.
7. 45-29: jar; pale buff throughout, limestone and grog temper, wet-smoothed faces, rd 37.
  8. 45-43: jar; as 45-29, rd 18.
  9. 45-41: jar; dark orange throughout, chert temper, slightly harder fired than the norm, rd 22.
  10. 45-01: jar; orange faces, slightly reduced core, limestone and grog temper, incisions into rim top, applied pushed-up lug with blind eyes pierced on either side, SF, rd 32?
  11. 45-02: jar; pale buff throughout, limestone and grog temper, poorly mixed, SF, rd 16.
  12. 45-49: jar; orange, limestone and grog temper, wet-smoothed, rd 26.
  13. 45-50: jar; as 45-49, rd 10.
  14. 45-62: bowl; buff face ext. reduced core and face int. quite well mixed, small basalt and limestone grits, wet-smoothed ext. rd 12.
  15. 45-58: bowl; buff throughout, limestone and grog temper, wet smoothed faces, rd 11.
  16. 45-82: HMJ; orange throughout, limestone and grog temper, poorly mixed, wet-smoothed faces, incisions into matrix ext. rd 18.
  17. 45-80: jar; orange throughout, burnt ext. limestone and grog temper, applied band impressed dec ext. rd 23.
  18. 45-95: bowl; orange throughout, limestone and grog temper, poorly mixed, SF, rd 9.
  19. 45-76: HMJ; buff throughout, limestone and grog temper, poorly mixed, wet-smoothed faces, incisions into band squeezed out from matrix, SF, rd 48?
  20. 45-37: HMJ; very hard fired, chunky limestone and grog temper, rd 30.
  21. 45-61: HMJ; orange throughout, chert and basalt temper, quite well mixed, evenly made (WM?), wet-smoothed faces, rd 15.
  22. 45-63: HMJ; orange/buff throughout, chert, basalt, and limestone temper, quite well mixed, wet-smoothed faces, rd 8.
  23. 45-68: HMJ; buff throughout, chunky chert and limestone temper, wet-smoothed faces, poorly mixed, rd 19.
  24. 45-69: HMJ; as 45-68, rd 20.
  25. 45-70: HMJ; buff throughout, limestone and grog temper, poorly mixed, wet-smoothed faces, rd 18.
  26. 45-72: HMJ; orange/buff throughout, chunky chert and limestone temper, pushed-up lug under rim (applied), rd 25?
  27. 45-73: HMJ; orange/buff throughout, chunky chert and limestone temper, incisions into matrix ext. rd 20-30?
  28. 45-04: HMJ; orange faces, buff core, chert and grog temper, poorly mixed, incisions into matrix ext. rd 32?
  29. 45-77: bs; buff throughout, limestone and grog temper, incisions into matrix and on squeezed out band ext. SF.
  30. 45-84: bs; orange ware, limestone and grog temper, impressions into applied band ext.
  31. 45-88: bs; orange ware, limestone, grog and coarse chert temper, poorly mixed, applied knobs ext. SF.
  32. 45-89: bs; orange, limestone, grog, and chert temper, white slip and red-brown cross-hatch paint ext. SF.
  33. 45-112: bs; as 45-89.
  34. 45-09: bs; orange faces, slightly reduced core, limestone, grog, and basalt temper, impressions into matrix ext.
  35. 45-10: bs; orange faces, buff core, limestone, grog, and basalt temper, incisions into band squeezed up from matrix.
  36. 45-93: flat base; reduced throughout, limestone and grog temper, bd 8.
  37. 45-94: flat base; orange/buff throughout, chunky limestone and grog temper with some chert, poorly mixed, matt impressions on base, bd 18.
  38. 45-111: bs; orange face ext. buff core and face int. much chert and limestone temper, applied pushed-up lug handle, incisions into matrix ext. wet-smoothed, SF.
  39. 45-105: squat ledge handle; buff/orange throughout, limestone, grog, and some chert temper, incisions on band squeezed up from matrix on underside, SF.
  40. 45-109: triangular section loop handle; orange/buff, slightly reduced core, limestone and grog temper, impressions into matrix.
  41. 45-107: squat ledge handle; orange/red throughout, chunky limestone and grog temper, quite well mixed, wet smoothed faces, SF.

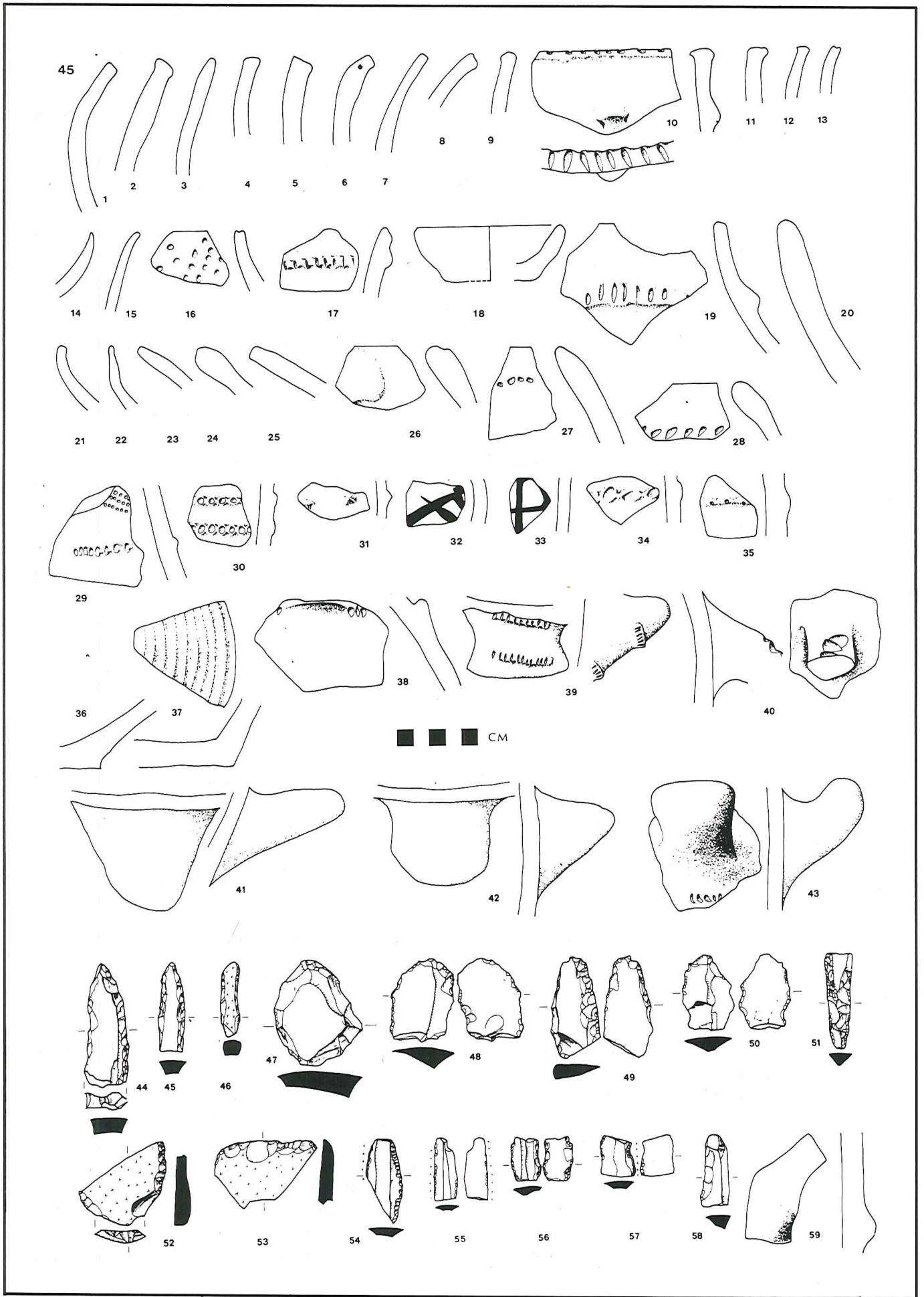


Fig. 9:



42. 45-102: squat ledge handle; orange, limestone and grog temper, quite well mixed, wet-smoothed faces, SF.
43. 45-106: squat ledge handle; orange faces, slightly reduced core, incisions into matrix under handle.
44. 45-116: tongue scraper; light brown chert, faceted platform, steep invasive retouch.
45. 45-118: tongue scraper; broken proximal end, steep invasive retouch.
46. 45-119: tongue scraper; light brown chert, steep invasive retouch, truncated ends, cortex on dorsal face.
47. 45-149: scraper; rough pale grey chert, steep invasive retouch, unprepared platform.
48. 45-15: scraper; dark brown/grey chert, puncted platform, uneven retouch both faces.
49. 45-16: scraper; dark grey/brown chert, steep backing, multiple retouch on edge, snapped proximal end.
50. 45-19: scraper; light grey chert, unprepared platform, blunted end.
51. 45-152: pale grey chert, retouch struck from ridge, puncted platform, broken distal end.
52. 45-120: tabular scraper; dark brown chert, faceted platform, broken distal end.
53. 45-122: tabular scraper; pale grey chert, broken proximal end.
54. 45-132: bi-face blade; smooth brown chert, midrib removed, heavy denticulation, heavy sheen on left edge dorsal face, both ends broken.
55. 45-26: trapezoid blade; pale brown chert, slight sheen on edge both faces, both ends snapped.
56. 45-27: trapezoid blade; smooth purple chert, heavy denticulation both edges both faces, traces of sheen on left dorsal face, broken both ends.
57. 45-131: trapezoid blade; brown chert, snapped ends, heavy sheen.
58. 45-137: backed blade; broken proximal end, deep grey chert.
59. 45-113: bowl fragment; basalt, projecting knob ext.

Fig. 10

*Site 46 - Jenabah:*

1. 46-03: jar; coarse fabric, chert and limestone temper, red faces, buff core, wet-smoothed rim, rd 23.
2. 46-07: HMJ; coarse fabric, chert and limestone temper, red/grey throughout, rd 24.
3. 46-06: roll-rim jar; coarse fabric, chert temper, red faces, buff core, rd 34.
4. 46-11: bowl; light red throughout, chert temper, poorly mixed, coarse fabric, rd 28.
5. 46-08: HMJ; coarse fabric, chert tempered faces, brown core, wet-smoothed faces, rd 16.
6. 46-13: flat base; red throughout, chert temper, bd 4.
7. 46-16: flat base; red/brown faces, grey core, chert temper, bd 22.
8. 46-24: ledge handle; red/buff faces, buff core, chert and limestone temper, well mixed, thumb impressions into handle edge.
9. 46-29: tabular scraper; coarse retouch, broken proximal end.

*Site 47 - Jenabah:*

10. 47-01: HMJ; coarse fabric, chert and limestone temper, red/brown faces, grey core, well mixed, rd 18.
11. 47-02: HMJ; as 47-01, rd 30.
12. 47-03: HMJ; coarse fabric, grey throughout, chert temper rd 14.

*Site 53 - Karmah:*

13. 53-01: bowl; orange throughout, chert and grog temper, poorly mixed, wet-smoothed faces, SF, rd 26.
14. 53-03: jar; grey/buff throughout, masses of tiny basalt temper, rd 16.
15. 53-04: jar; red faces, buff core, chert and limestone temper, rd 12.
16. 53-02: HMJ; buff throughout, chert temper, well mixed, SF, rd 16.
17. 53-12: flat base; orange faces, buff core, limestone, grog, and some chert temper, impressions into matrix at base of vessel, bd 21.
18. 53-23: oval-section loop handle; orange throughout, limestone and chert temper, dark red burnished slip ext, SF, poorly mixed.
19. 53-05: flat base; red/buff throughout, coarse chert and basalt temper, incisions into matrix ext, matt impression on base, bd 19.

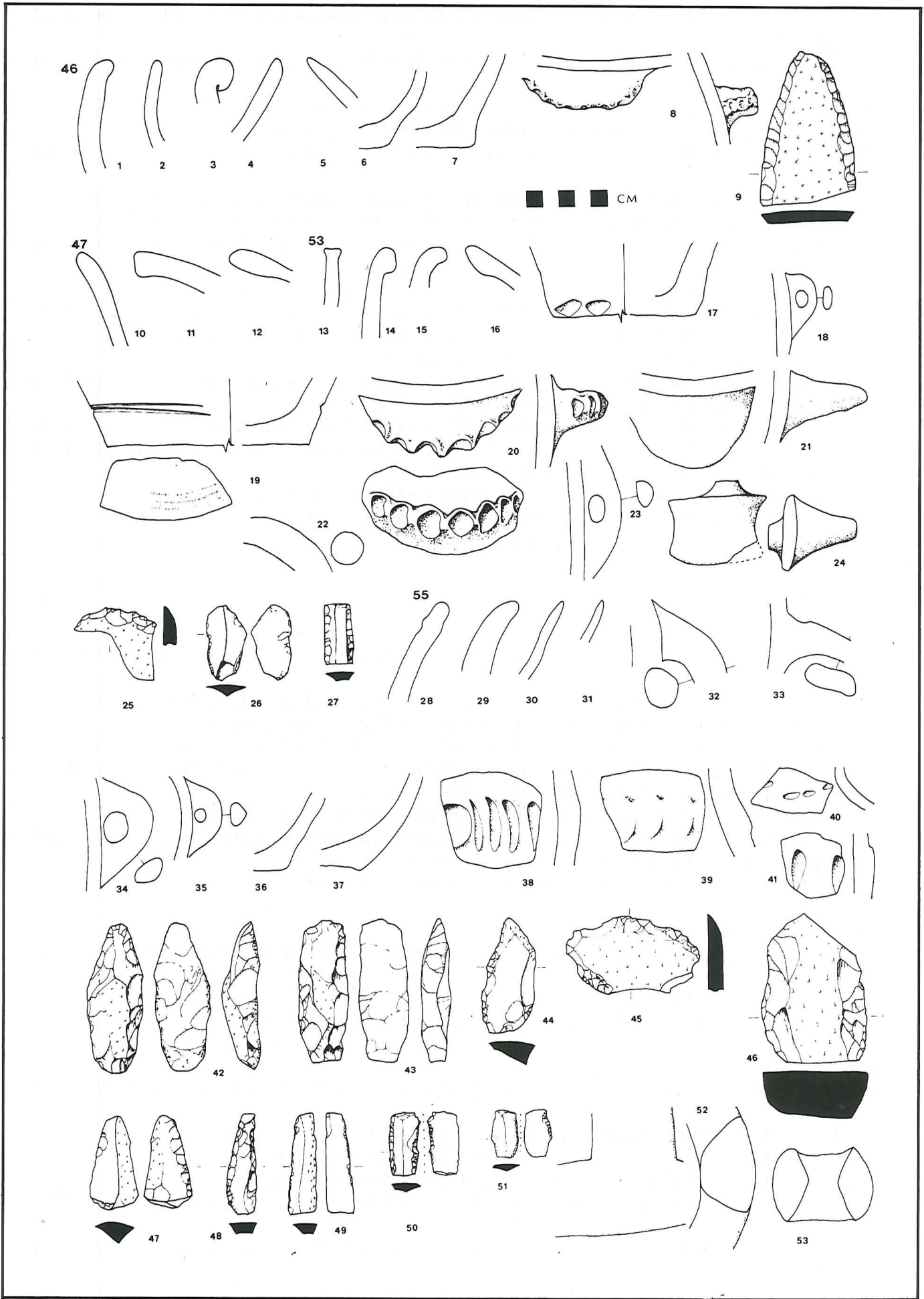


Fig. 10:



20. 53-20: round ledge handle; orange faces, buff core, chert, grog, and limestone temper, poorly mixed, wet-smoothed faces, impressions on edge.
21. 53-13: squat ledge handle; orange faces, buff core, chert and limestone temper, poorly mixed, SF, wet-smoothed faces.
22. 53-22: round-section loop handle; buff faces, reduced core, poorly mixed, coarse basalt temper.
23. 53-21: triangular-section loop handle, buff throughout, chert temper.
24. 53-16: squat ledge handle; orange faces, reduced core, chert, grog, and limestone temper, plug on int face for application to vessel wall?
25. 53-27: tabular scraper frag; pale grey chert, very broken.
26. 53-25: blade; pale brown chert, unprepared platform, truncated distal end.
27. 53-24: backed blade; dark brown chert, truncated distal end, snapped proximal, retouch dorsal face only.

*Site 55 - Umm Qantarah:*

28. 55-01: VSB; pale buff throughout, grog and limestone temper, very poorly mixed, SF, rd 32.
29. 55-07: VSB; orange throughout, coarse chert and limestone temper, SF, rd 20-30?
30. 55-02: VSB; orange throughout, small chert temper, quite well mixed, SF, rd 14.
31. 55-04: VSB; pale buff throughout, chert temper, poorly mixed, SF, rd 18.
32. 55-15: round-section loop handle; buff throughout, chert and limestone temper, SF.
33. 55-16: oval-section loop handle; burnt buff throughout, chert and limestone temper, crudely made, SF.
34. 55-17: triangular-section loop handle; buff throughout, chert and limestone temper, SF.
35. 55-18: triangular-section loop handle; orange throughout, chert and limestone temper, poorly mixed, SF, traces of dribble red paint ext.
36. 55-10: flat base; orange throughout, chert and limestone temper, bd 10.
37. 55-09: flat base; orange faces, buff core, chert and limestone temper, SF, bd 12.
38. 55-23: bs; buff throughout, chert temper, impressions into matrix ext.
39. 55-19: bs; orange throughout, chunky chert and limestone temper, poorly mixed, SF, impressions into applied band ext.
40. 55-25: bs; dark buff throughout, limestone temper, impressions into matrix ext.
41. 55-24: bs; pale buff, chert and limestone temper, impressions into matrix ext.
42. 55-53: axe; pale purple chert, cortex on dorsal face.
43. 55-52: adze; pale purple chert, broken proximal end, cortex on dorsal.
44. 55-38: scraper; removed midrib, unprepared platform, cortex on distal end, rough retouch.
45. 55-37: tabular scraper; dark brown chert, shattered edges and platform.
46. 55-35: tabular scraper; discarded core? broken proximal end.
47. 55-40: blade; light brown chert, shattered platform, cortex on back.
48. 55-45: backed blade; pale grey chert, removed midrib, steep retouch, snapped both ends. See the PU tongue scrapers (Fig. 9:44-46).
49. 55-47: backed blade; light brown chert, cortex on back, snapped ends.
50. 55-48: backed blade; light brown chert, truncated ends, sheen on edge both faces.
51. 55-49: backed blade; light grey chert, snapped proximal, truncated distal end, light sheen on edge dorsal face.
52. 55-31: pedestal bowl fragment; fenestrated base, basalt.
53. 55-34: mace head frag; basalt.

Also found was a frag of haematite mace head, and a bs with brown dribble paint ext.

01. Dhakhara el-Beida; grid reference 2355-1914, height above sea level 820m. Reference Kirkbride 1958, 15-18. Small site 150 m. x 50 m. along top of south-west facing slope. Square and rectangular houses cut into bedrock in short terraces along gradient. Site is cut and partly destroyed by modern Jarash-Irbid road. Distance from water 1600 m. Material pure Chalcolithic. Fig. 5:1-26.
02. Khirbet Metwi; 2426-1920, 760m. Sparse pottery scatter 100 m. x 100 m. at foot of west facing slope. No structures. Distance from water 400 m. Material EBI, Iron, Roman, and Byzantine. Fig. 5:27-29.
03. Khirbet Metwi; 2430-1918, 800 m. Glueck 1951, 78 — site 300. Sparse pottery scatter 200 m. x 100 m. up west facing slope of hill above modern cemetery. No structures. Distance from water 300 m. Material mainly EBI. Fig. 5:30-32.
04. Duqmusa; 2435-1915, 820 m. Large tell 300 m. x 150 m. projecting south over wadi, covered by modern village. Numerous remains of ancient structures. Distance from water 500 m. Material predominantly Iron Age and all later periods; some EBI and EBII. Fig. 5:33.
05. Hweishan; 2392-1898, 890 m. Glueck 1951, 71-site 282. Small tell 150 m. x 80 m. on natural hill projecting south over wadi, covered by modern village. Numerous remains of ancient structures. Distance from water 1500 m. Material mainly Iron Age and later; some Early Bronze. Fig. 5:34-40.
06. Umm Bteimah; 2402-1907, 900 m. Glueck 1951, 71 - site 302. Sparse sherd and flint scatter 400 m. x 200 m. along upper slopes of south facing hill above modern road. No structures. Distance from water 800 m. Material Proto-Urban, Iron Age, Roman, and Byzantine. Fig. 5:41-53.
07. 'Ain Şahari; 2416-1894, 685 m. Sparse lithic scatter around spring. Material Middle or Upper Paleolithic.
09. 'Ain Hazi; 2397-1807, 570 m. Small sherd scatter beside spring. Material Byzantine, Umayyad, and Mediaeval.
10. Haziye; 2394-1805, 580 m. Small tell covered by modern village. Material Byzantine, Umayyad, and Mediaeval.
11. Haziye; 2400-1806, 580 m. Sparse sherd scatter 100 m. x 100 m. on west facing slope beside spring. No structures. Distance to water 200 m. Material mainly Byzantine; some EBI. Fig. 6:1-4.
12. Haziye; 2400-1808, 580 m. Very sparse sherd scatter 100 m. x 100 m. on west facing slope. No structures. Distance to water 300 m. Material mainly Byzantine; some EBI. Fig. 6:5.
13. Haziye; 2401-1802, 600 m. Sparse sherd scatter 250 m. x 100 m. on terrace of west facing slope. No structures. Distance to water 900 m. Material mainly Proto-Urban; some Byzantine. Fig. 6:6-9.
14. Tell er-Riyashi; 2376-1842, 520 m. Glueck 1951, 70 - site 270. Low, long, flat-topped tell 300 m. x 100 m. on natural ridge running south along Wadi Tannur. Bulldozer terracing on top. No structures. Distance to water 50 m. Material Early and Middle Bronze, Roman, and Byzantine; some Chalcolithic. Fig. 6:10-30.
15. 'Ain er-Riyashi; 2376-1846, 540 m. Lithic scatter 300 m. x 200 m. on long gentle slope above spring and large stone ruins. Material PPNB.
16. Er-Riyashi; 2372-1838, 520 m. Glueck 1951, 87 - site 263. Sherd and flint scatter 200 m. x 200 m. on south-east flank of low hill above spring. No structures. Distance to water 50 m. Material mainly Proto-Urban; some Middle Bronze, Iron, and Byzantine. Fig. 6:31-42.
17. Manşub; 2368-1828, 520 m. Very sparse sherd scatter 300 m. x 200 m. towards top of west facing slope above wadi. No structures. Distance to water 400 m. Material Byzantine and Proto-



- Urban. Fig. 6:43-44.
18. Khirbet Maṣṣub; 2374-1832, 540 m. Glueck 1951, 87 - site 265. Large tell 300 m. diametre projecting west over wadi. No structures. Distance to water 400 m. Material Proto-Urban, Middle Bronze, Iron, and Byzantine; possibly some EBI. Fig. 6:45-72.
  19. Majara; 2367-1911, 800 m. Mittmann 1970, 118 - site 307? Rich site 200 m. x 200 m. on terrace of west facing slope. Much Byzantine-Umayyad troglodytic occupation. Distance to water possibly 200 m. possibly 2900 m. as the near spring is now negligible. Material Chalcolithic, Middle Bronze, Roman, Byzantine, and Umayyad; some Mediaeval. Fig. 7:1-14.
  20. Thohrat 'Aṣfur; 2354-1899, 750 m. Kirkbride 1958, 18. Sparse sherd and flint scatter 200 m. x 200(?) m. towards top of south-west facing slope. No structures. Site much destroyed by road works, modern building, and terracing. Distance to water 1300 m. Material Chalcolithic.
  21. Khirbet Khatla; 2399-1888, 760 m. Small settlement with well preserved remains of houses, churches, and troglodytic dwellings, with later re-use. Carved stonework, ashlar masonry and mosaics. Material mainly Mediaeval, with some Byzantine.
  22. Ṣahari; 2410-1891, 780 m. Glueck 1951, 72 - site 303. Large site 400 m. x 400 m. towards top of south facing slope. No structures. Distance to water 800 m. Material Chalcolithic; some Mediaeval. Fig. 7:15-43.
  23. 'Ain Qneyah; 2444-1821, 510 m. Mittmann 1970, 114 - site 298. Tell 200 m. x 100 m. on south facing natural spur beside spring. No structures. Distance to water 50 m. Material EBI to EB III. Fig. 7:49-57.
  23. 'Ain Qneyah South; 2444-1819, 480 m. Sparse sherd and flint scatter 300 m. x 100 m. on low west facing terrace above wadi. No structures. Distance to water 100 m. Material Proto-Urban. This seems to be a separate site from 'Ain Qneyah, but in the absence of a strong body of diagnostic material it is unwise to exclude the possibility that the difference in artefacts is an accident of seepage from the tell on the spur above. Fig. 7:44-48.
  24. Kharaysin; 2446-1796, 460 m. Sparse sherd and flint scatter 300 m. x 100 m. along lower south facing slope of Jabal el-Muṭawwaq, beside spring. No structures. Distance to water 200 m. Material Proto-Urban.
  25. Kharaysin; 2457-1809, 520 m. Steep sided hill on north side of Wadi Kharaysin covered by above sixty small dolmens. No sherds.
  26. Tell Meghaniyeh; 2445-1791, 470 m. This is not Glueck's site 261: see Jarash survey site 45 below. Large tell 300 m. x 200 m. projecting west over confluence of Wadi Kharaysin and Wadi ez-Zarqa. No structures. Distance from water 600 m. Material mainly Iron Age and Byzantine; some EBI, and possibly some Proto-Urban. Fig. 7:58-59.
  27. Kharaysin; 2440-1793, 400 m. Very rich lithic scatter 600 m. x 200 m. along foot of south facing slope of Jabal el-Muṭawwaq, east of Wadi Qneyah, and along north banks of Wadis Zarqa and Kharaysin. Material PPNB.
  28. Khirbet 'Ain; 2499-1861, 700 m. Glueck 1951, 84 - site 305. Small tell 100 m. x 50 m. in middle of wadi. No modern water source. Material predominantly Iron Age; some EBII and EBIII fragments.
  29. Jabal Dhakhirah; 2493-1849, 750 m. Pl. IX,1. Glueck 1951, 73 - site 306. Sherd and flint scatter 500 m. x 300 m. on north-east facing terrace near top of large hill. No structures. Possible tabular flint working site on western spur of hill. Distance from water 800 m. Material pure Chalcolithic. Fig. 7:60-64; 8:1-13.
  30. Ras el-Kweim; 2306-1840, 460 m. Pl. X,1. Mittmann 1970, 108 - site 282. Small tell 200 m. x 80 m. on steep-sided natural spur running south above junction of Wadis Naha and Ṭawaḥin. No structures visible. Perennial water immediately at foot of tell, to east and west. Material predominantly Iron



- Age and Roman; some EBII/III. Fig. 8:14-15.
31. Sakib; 2270-1879, 840 m. Pl. IX,2. Mittmann 1970, 101 - site 262. Sparse sherd scatter 100 m. x 100 m. directly around spring on south facing slope. Material Iron Age and EBI/II. Fig. 8:16-18.
  32. Qaşr Şabihi; 2261-1870, 1070 m. Mittmann 1970, 102 - site 265. Steep sided hill 100 m. x 100 m. on summit. No structures. Distance from water 1300 m. Material predominantly Byzantine; some EBII fragments.
  33. Suf; 2290-1920, 930 m. Mittmann 1970, 95 - site 241. Thick sherd scatter on south facing slope above spring, and just to north of hamlet of Manşurah. Material pure Mediaeval.
  34. Sakhra; 2302-1981, 1100 m. Mittmann 1970, 76 - site 186. Small hill 300 m. x 100 m. with occupation deposit apparently only on north side. No structures. Distance to water 200 m. Material EBI and EBII, Iron Age, and Byzantine. Fig. 8:19-30.
  35. Zahr el-Khirbeh; 2257-1933, 1130 m. Mittmann 1970, 78 - site 194. Small tell 100 m. x 80 m. at summit of large hill. Extensive structural remains of undressed stone. Distance to water 2600 m. Material EBII/III, Iron, and Byzantine. Fig. 8:31-37.
  36. Khirbet Muzabal; 2231-1951, 1050 m. Mittmann 1970, 78- site 193. Small settlement 100 m. x 100 m. on edge of spur above wadi. Extensive structural remains of undressed stone. Distance to water 1500 m. Material mainly Iron Age; some Byzantine and EBI/II. Fig. 8:38-39.
  37. Khirbet Salus; 2221-1908, 940 m. Small tell on steep-sided spur above spring, just to north of road. Wall remains of undressed stone. Material Iron Age, Byzantine-Umayyad, and Mediaeval.
  38. Khirbet Salus; 2228-1904, 1050 m. Mittmann 1970, 79 - site 196. Sparse sherd scatter over north-west facing slope around spring. Material mainly Byzantine; some Mediaeval.
  39. Khirbet Salus; 2225-1911, 960 m. Small rocky crag on north side of wadi above spring. Wall remains of undressed stone. Material Iron Age, Roman, Byzantine, and Mediaeval.
  40. El-Birketein; 2340-1898, 640 m. Mittmann 1970, 98-site 251. Sherd and some flint scatter 300 m. x 100 m. on east facing lower slopes of hill. No structures. Distance to water 100 m. Material EB I/II. Fig. 8:40-51.
  41. Muqbila; 2318-1918, 820 m. Sherd scatter 200 m. x 100 m. on south facing slope below village. No structures. Distance to water 100 m. Material predominantly Iron Age and Mediaeval; some EBI.
  42. Khirbet Khaled; 2344-1857, 520 m. Large tell 300 m. x 150 m. running south along Wadi Jarash. No structures. Distance from water 200 m. Material EBI and EBII, Middle Bronze, Iron, and Byzantine. Fig. 8:52-65.
  43. Tell Jarash; 2347-1881, 610 m. Glueck 1951, 58 - site 275. Small hill 200 m. diameter projecting west over wadi. Site covered and mostly destroyed by modern buildings: sherds retrieved from foundation cut of modern hospital. Distance to water 200 m. Material EBI/II. Fig. 8:66-70.
  44. Masarra; 2387-1750, 580 m. Small settlement with remains of houses and church, with later re-use. Carved stonework. Material Byzantine and Mediaeval.
  45. Jabal el-Muṭawwaq; 2442-1803, 590 m. Pl. X,2. Glueck 1951, 73-site 261 (misnamed by Glueck Tell Mughaniyah). Large settlement site 800 m. x 300 m. on south facing terrace near top of large hill one kilometre diameter at summit. Rectangular or oval houses 4-6 m. long with door in middle of long side, and stone benches at either end. Distance from water 900 m. Material Proto-Urban. Over much of hill summit are several hundred small dolmens. No sherds. See site 25 above. In northern and south-western corners of summit are irregular round structures 3-6m. diameter, closely packed, and traces of large undressed stones form-



- ing terrace walls. Material undiagnostic; possibly Iron Age. The irregular structures are clearly different from the rectangular Proto-Urban structures, but the association of either with the dolmen is unclear. Fig. 9:1-59.
46. Jenabah; 2387-1774, 320 m. Mittmann 1970, 111 - site 290. Thick sherd scatter 300 m. x 100 m. among cauliflowers on bend in Wadi ez-Zarqa with cliffs falling to water. No structures. Material Middle Bronze and what may be either Proto-Urban or EBI, or may represent a transition between the two. Fig. 10:1-9.
  47. Jenabah; 2380-1778, 320 m. Steep sided tell 200 m. x 100 m. on north bank of Wadi ez-Zarqa. Remains of undressed stone walls. Material EBI, Iron Age and all later periods. Fig. 10:10-12.
  48. 2342-1845, 480 m. Small spur projecting over Wadi Jarash. Walls of ashlar blocks. Material Roman and Byzantine.
  49. Khirbet Samarah; 2408-1770, 400 m. Small spur projecting east over Wadi Samarah. Walls of ashlar blocks. Material Roman and Byzantine.
  50. 2303-1885, 760m. Large south facing terrace on hill flank. Material Roman, Byzantine, Mediaeval.
  51. Mikhnah; 2208-1970, 830 m. Glueck 1951, 228-site 40. Sherd scatter 200 m. x 100 m. along west facing slope below village. Distance to water 100 m. Material predominantly Umayyad and Mediaeval; some EBII/III fragments.
  52. Tell el-Kitteh; 2300-1872, 670 m. Small sherd scatter on south facing slope beside spring. Material Umayyad and Mediaeval; possibly some EBII/III fragments.
  53. Karmah; 2440-1840, 540 m. Sherd and flint scatter 200 m. x 200 m. at foot of south-west facing slope. No structures. Cup marks and rock cut pits beside modern houses above site. Distance from water 300 m. Material pure Proto-Urban. Fig. 10:13-27.
  54. Khirbet Dakhal; 2418-1866, 660 m. Small settlement and troglodytic dwellings on slope directly to south of spring. Ashlar masonry. Material Byzantine, Umayyad, and Mediaeval.
  55. Umm Qanṭarah; 2395-1855, 600 m. Sherd and flint scatter 300 m. x 200 m. on south-west facing lower slopes of hill. No structures. Distance from water 400 m. Material pure Chalcolithic. Fig. 10:28-53. Among the modern houses of Qanṭarah village, beyond the rock escarpment directly above the Chalcolithic site, are extensive structural remains with ashlar masonry. Material Byzantine, Umayyad, Mediaeval.
  56. Tell Bustan; 2342-1804, 240 m. Small tell on north bank of Wadi ez-Zarqa. Material Byzantine, Umayyad, Mediaeval.
  57. 2350-1944, 1020 m. Glueck 1951, 67 - site 286. Long ridge extending north from Jabal Merqab'anz. Material Iron Age.
  58. 2335-1942, 1095 m. Glueck 1951, 68 - site 279. Large hill with undressed stone structure on summit. Material Iron Age.
  59. 2343-1931, 1040 m. Glueck 1951, 66-67 - site 278. Large hill with flat top directly to west of modern hamlet. Material Middle Bronze, Iron, Byzantine, Umayyad, and Mediaeval.