

## Comparative Ceramic Analysis as a Dating Mechanism in 'Marginal' Zones: A Case Study<sup>1</sup>

### 1. Introduction

The most common method of dating used by archaeologists working on Middle Bronze age (hereafter 'MBA') Levantine material is that of 'comparative ceramic analysis'. This method essentially involves comparing the ceramic assemblage from a given phase at a site, with that of previously established ceramic typologies from other Levantine sites. The strongest parallels with these other typologies are considered to be indicative of a certain date/period, which in turn determines the date/period of the phase in question. Although there is an increasing use of C-14 and other 'absolute' dating techniques, it is the comparative ceramic method which remains the most commonly utilised technique when dating the material culture of a given site.

This paper demonstrates some of the problems that are faced when relying solely on this accepted method of dating. Particularly when working at sites in 'peripheral' or 'marginal' regions of the Levant (such as the Ḥawrān) which lack extensive typologies that may be referred to, the problems become all the greater. Tall Rukays (Rukeis), a site situated in the Jordanian Ḥawrān, serves as an appropriate case study for the purpose of illustrating these problems. This study will focus on three phases of MBA development which took place in a single trench "Rukeis 0705". The main architectural feature associated with these phases is the Middle Bronze age defensive system which protected the site. The construction of this monumental architectural feature represents an important shift in the nature of settlement at the site (and the region) from an unfortified settlement, to a heavily defended urban centre.<sup>2</sup>

Establishing a date for the construction of this feature,

and for its period of use, presently relies upon the application of both a comparative ceramic analysis of the pottery, and upon the processing of C-14 samples, from the three relevant phases. Although C-14 dates are currently being processed, one of the aims of this paper is to stress the importance of combining the study of pottery typologies, with C-14 dates. These two avenues of inquiry are adjunct studies, and both need to be made use of.

### 2. Project Background

Tall Rukays is situated to the south-west of Jabal ad-Drūz in the southern Ḥawrān. Since 1992 a series of surveys of Wādi al-Āqib (al-Ajīb), south of the Jordanian border with Syria, have been conducted by the University of Sydney as part of the "Hauran Research Project", directed by Dr. A. V. G. Betts. This initial survey work resulted in two major seasons of excavations (1994 and 1996) at Tall Rukays, the largest Bronze age site in the survey area (FIG. 1). One of the major aims of the 1996 season was to study the defensive works which clearly surrounded the site.<sup>3</sup>

The Ḥawrān is a basalt environment, which, though visually hostile, receives 150-200mm annually, allowing dry-farming to take place. Rukays is thus on the wet-dry steppic interface. It is likely that MBA settlement in marginal areas, at sites such as Rukays, was related to the general trend towards prosperity throughout the Levant at this time.<sup>4</sup>

During the MBA, Rukays was defended by a monumental wall 2-3m wide, constructed of basalt boulders laid without mortar. In places the wall was preserved to a height of 5m and had a slight batter. During 1996 the entire exterior face of the wall was defined and planned. The builders of the wall had followed the natural contours of

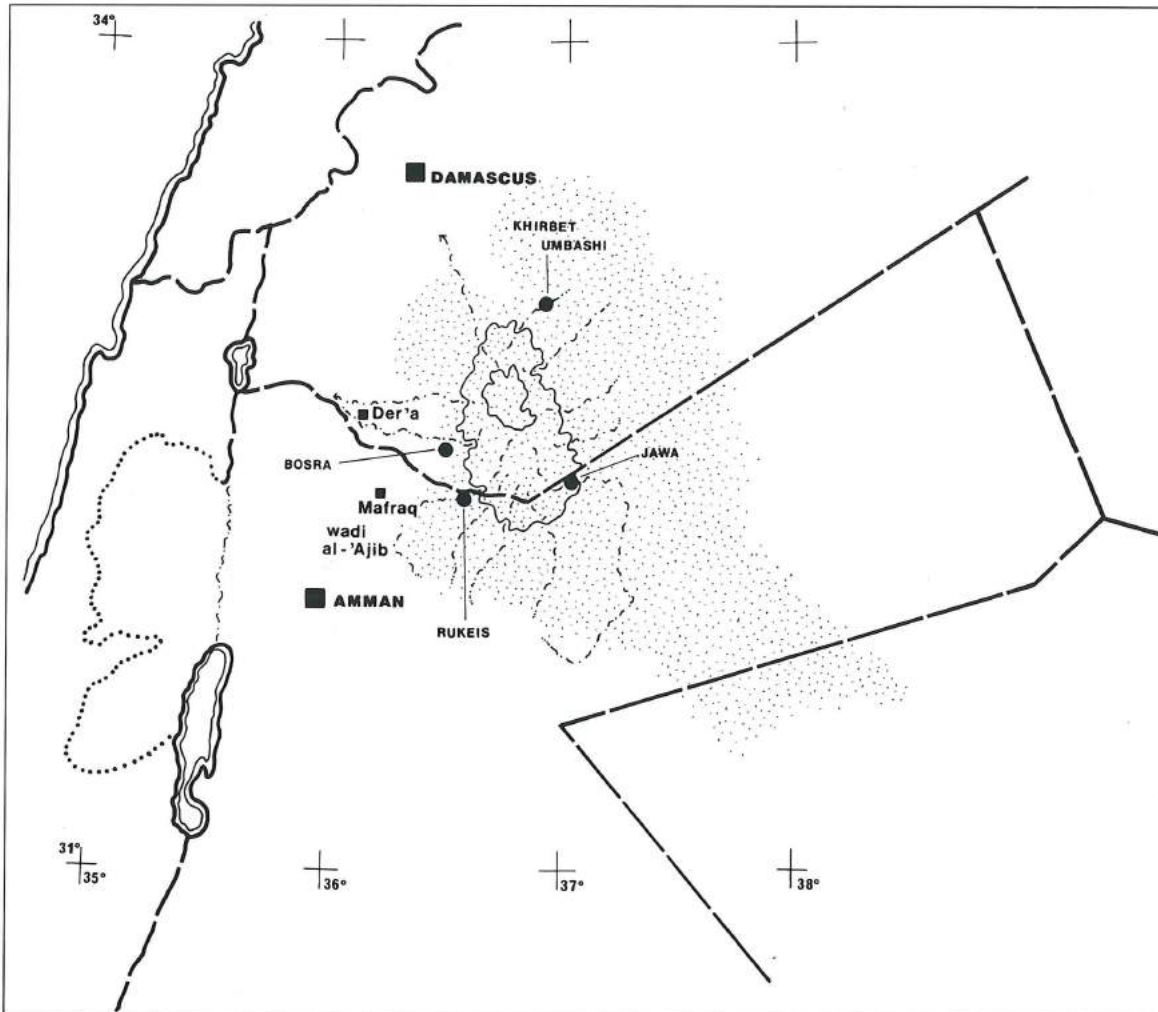
<sup>1</sup> The data which forms the core of this paper was gathered during fieldwork undertaken in the Hashemite Kingdom of Jordan during the 1995/6 season of the "Hauran Research Project". The author would like to express his thanks to the Department of Antiquities of Jordan and its representatives for their assistance with regards to the project.

<sup>2</sup> This paper is the result of work undertaken for the author's forth-

coming Ph.D. titled *Middle Bronze Age Fortifications in Jordan*. See McLaren, forthcoming.

<sup>3</sup> For previous work undertaken on the "Hauran Survey Project," see Betts *et al.* 1995; 1996; in press.

<sup>4</sup> For discussion regarding settlement patterns in Wādi al-Āqib see Eames, forthcoming.



1. Location of Wādī al-'Āqib and Rukays.

the mound rather than build in straight sections. Although no towers have yet been clearly identified, one of the site gates has been partially excavated. The defensive elements of the site were encountered in trench areas 0705, 0708, 0714, and 0716 (FIGS. 2, 3).

### 3. Rukays Phasing (TABLE 1 and FIG. 4).

Trench area 0716 (the gate) requires further excavation before any solid phasing may be proposed. With regards to the other trench areas in question (0705, 0708 and 0714) the proposed phasing is tabulated in TABLE 1.<sup>5</sup> Trench 0705 revealed the most detailed phasing with regards to the early period of MBA settlement at the site. This trench not only revealed a period of MBA occupation which preceded the construction of the fortification wall (Phase II.1) and subsequent periods of occupation which succeeded the defence construction (Phase II.2.b - II.6), it also revealed the distinct phase of fortification wall construction itself, as represented by the wall founda-

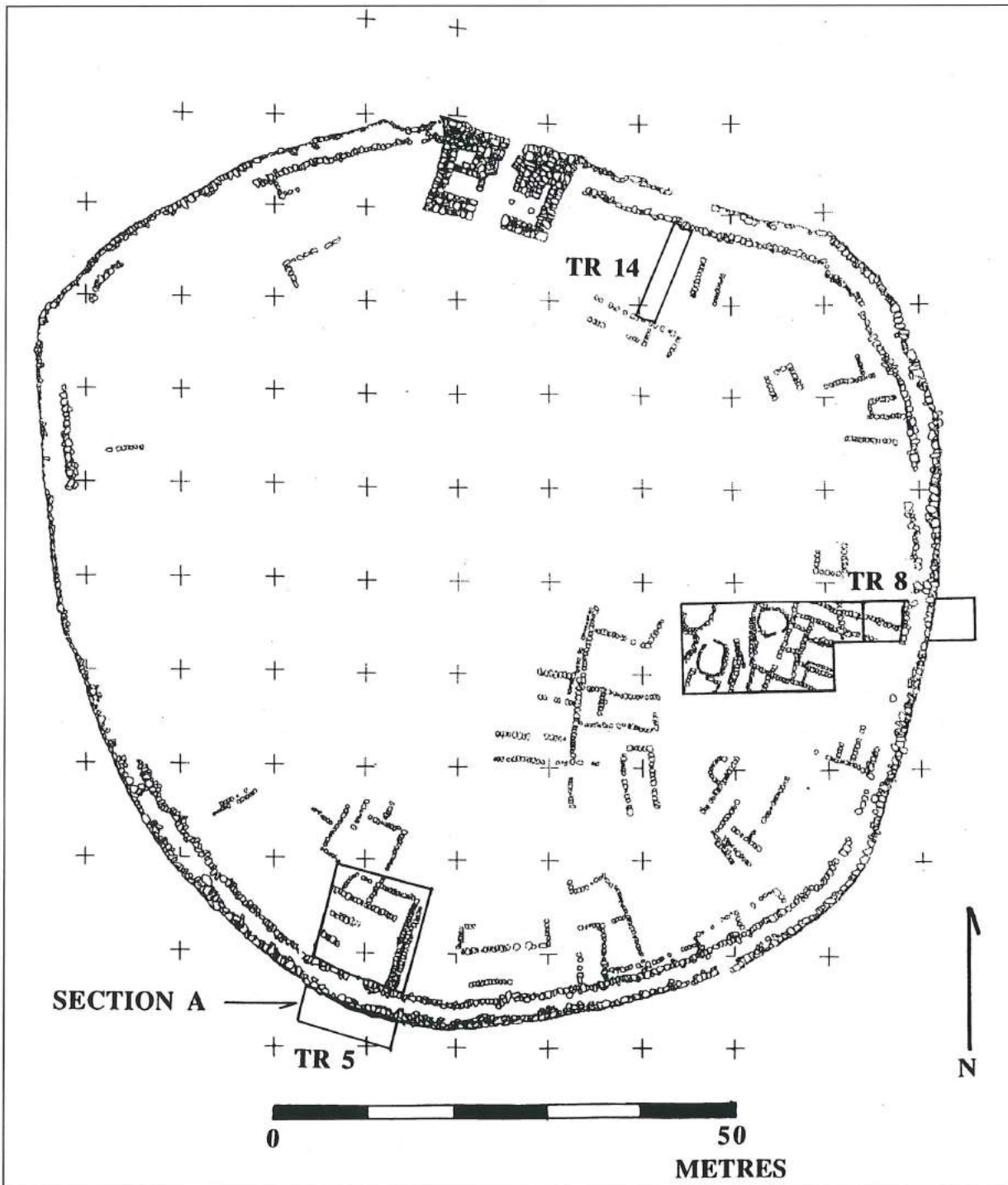
tion cut (Phase II.2.a). This phase of fortification construction is not present in trenches 0708 or 0714, either because there was no foundation cut made at certain points of the inner face of the wall circuit (0708) or because the foundational material is yet to be excavated (0714). For this reason trench 0705 will serve as the most appropriate case study.

Trench 0705 abuts the outer face of the city circuit wall in the south of the site. The stratigraphy in this trench area is clear and is represented by the west section ('Section A') for the purposes of this study (FIGS. 2, 3, 4). Above bedrock, a series of Early Bronze Age (hereafter 'EBA') phases (Phases I.a-c) were followed by a period of abandonment. In turn, an unfortified settlement was re-established during the MBA (Phase II.1), followed by the construction of a defensive circuit (Phase II.2.a), and a series of phases of MBA occupation following the defensive circuit construction (Phases II.2b - II.6).

Phases II.1 - II.2.b represent an important shift in set-

<sup>5</sup> Preliminary analysis of the pottery from Rukays indicates that Phases I.a-c are EBI-II, while Phases II.1-6 are MBII. Later phases are

not discussed in this paper.



2. Rukays: plan of site after 1995/6 season, showing location of trenches 0705, 0708, and 0714, and 'Section A'.

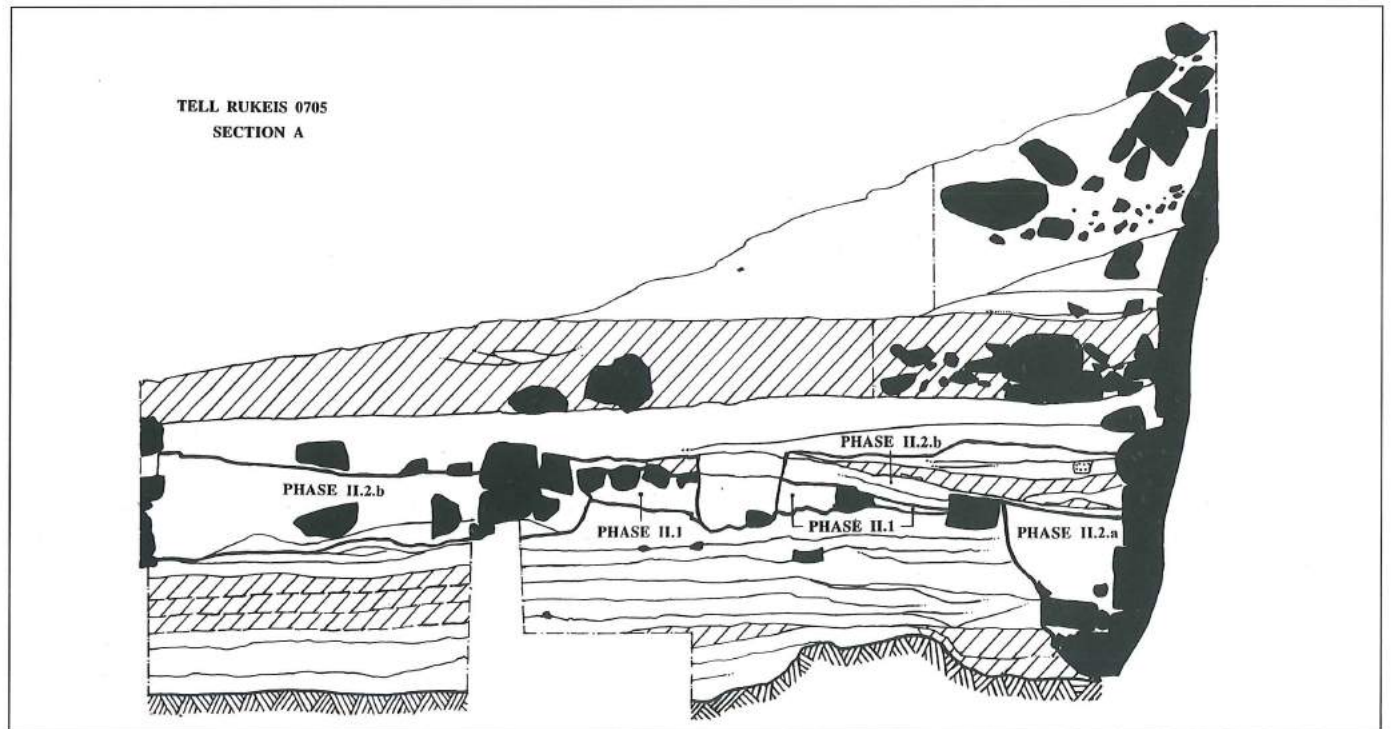
tlement from an unfortified MBA site to a heavily defended MBA urban centre. The defensive elements are representative of this shift in urban settlement in this part of the Ḥawrān, and it is the possibility of associating a date of construction with the wall itself that will offer us our best insight as to when this shift in settlement occurred. It follows that the phase which immediately preceded the wall construction (Phase II.1), the phase which represents the wall construction (Phase II.2.a) and the

phase which represents settlement that immediately followed the wall construction (Phase II.2.b) will be of most use in establishing a date for this transition from pre-fortified to fortified urban centre.

When arriving at a final conclusion regarding a date/period for each phase, the combined results from each different trench must be taken into account. In this regard, the pottery from the three phases represented in trench 0705 is only representative of the phase in question within



3. Rukays: aerial photograph showing trench locations, 1995/6 season.



4. Rukays Trench 0705. 'Section A' (west section), indicating relevant phases discussed in the text.

TABLE 1. Rukays Trench 0705/0708/0714 phasing.

PHASE	TR. 0705.	TR. 0708.	TR. 0714.
la.	Y	n	n
lb.	Y	n	n
lc.	Y	n	Y
II.1.	Y	Y	n
II.2a	Y	n	n
II.2b	Y	Y	Y
II.3 - II.6.	Y	Y	Y

that trench, rather than the phase across the site. The aim of the exercise here is only to use part of the site to analyse the dating process, rather than conduct a comprehensive assessment of the dating of the various phases across the site. The pottery from the three relevant phases in trench 0705 serves as an appropriate sample to work with.

#### 4. The Pottery Phases<sup>6</sup> (FIGS. 5, 6; TABLES 2, 3)

The pottery sample for phases II.1/II.2.a/II.2. is represented by FIGS. 5, 6. The diagnostic sherds have been limited specifically to rims, the sample sherds being organised along the lines of a 'shape typology'. The criteria which determine which shapes are considered to be 'Identical' as opposed to 'Related' are discussed in the author's forthcoming thesis (McLaren, forthcoming) and for the sake of space are not discussed here. The sample sherds which represent each phase have been compared to previously established typologies from 22 sites across the Levant. Sites that are in the more immediate environment of Rukays include Buṣrā (Seeden 1986); aṣ-Ṣaliḥiyya (van der Osten 1956) and Jāwa citadel (Helms 1989). North Levantine sites include Alalakh (Heinz 1992), 'Arqa (Thalmann 1978; 1979; 1991), Ebla (Guardata 1988), Ghassil (Doumet 1986), Ḥamāh (Fugmann 1958), Kamid al-Lawz (Marfoe 1979), Nabī Mind (Bourke 1991), Sarepta (Anderson 1988) and Tyre (Bikai 1978). South Levantine sites include Aphek (Beck 1975; 1985), Bayt Mirsim (Albright 1932; 1933), Dan (Biran *et al.* 1996), Gezer (Dever *et al.* 1970; 1974), Hazor (Ben-Tor *et al.* 1997; Yadin *et al.* 1958; 1960; 1962; 1981), Jericho (Kenyon *et al.* 1982), Lachish (Tufnell *et al.* 1958), Megiddo (Loud 1948), Mevorakh (Stern 1984) and Shechem (Cole 1984). These sites provide an extensive and broad sample of typologies to work with. Parallels are recorded in one of two categories — 1) a virtually identical or identical match, or 2) a slight variation in shape yet displaying essentially the same features.

#### Phase II.1. (FIG. 5:1-6; TABLES 2a, 3a)

The pottery sample from the pre-fortification MBA settlement included a total of 81 parallel matches with almost 35% of those belonging to the MBIIB. Although almost 24% of the parallels were found in the MBIIA and 22% were found in the MBIIC, it should be noted that 60% of the 'Identical' parallels should be attributed to the MBIIB (TABLE 2a). The latest parallels are associated with Late Bronze Age (hereafter 'LBA') typologies. Apart from Buṣrā, the majority of parallels were found at sites in the south such as Gezer, Jericho, Lachish and Shechem (TABLE 3a). All Rukays types illustrated find reasonable parallels outside of the Ḥawrān. Of note is SBWL 001 (FIG. 5:5) which continues to appear regularly throughout the MBA sequence.

#### Phase II.2.a. (FIG. 5:7-15; TABLES 2b, 3b)

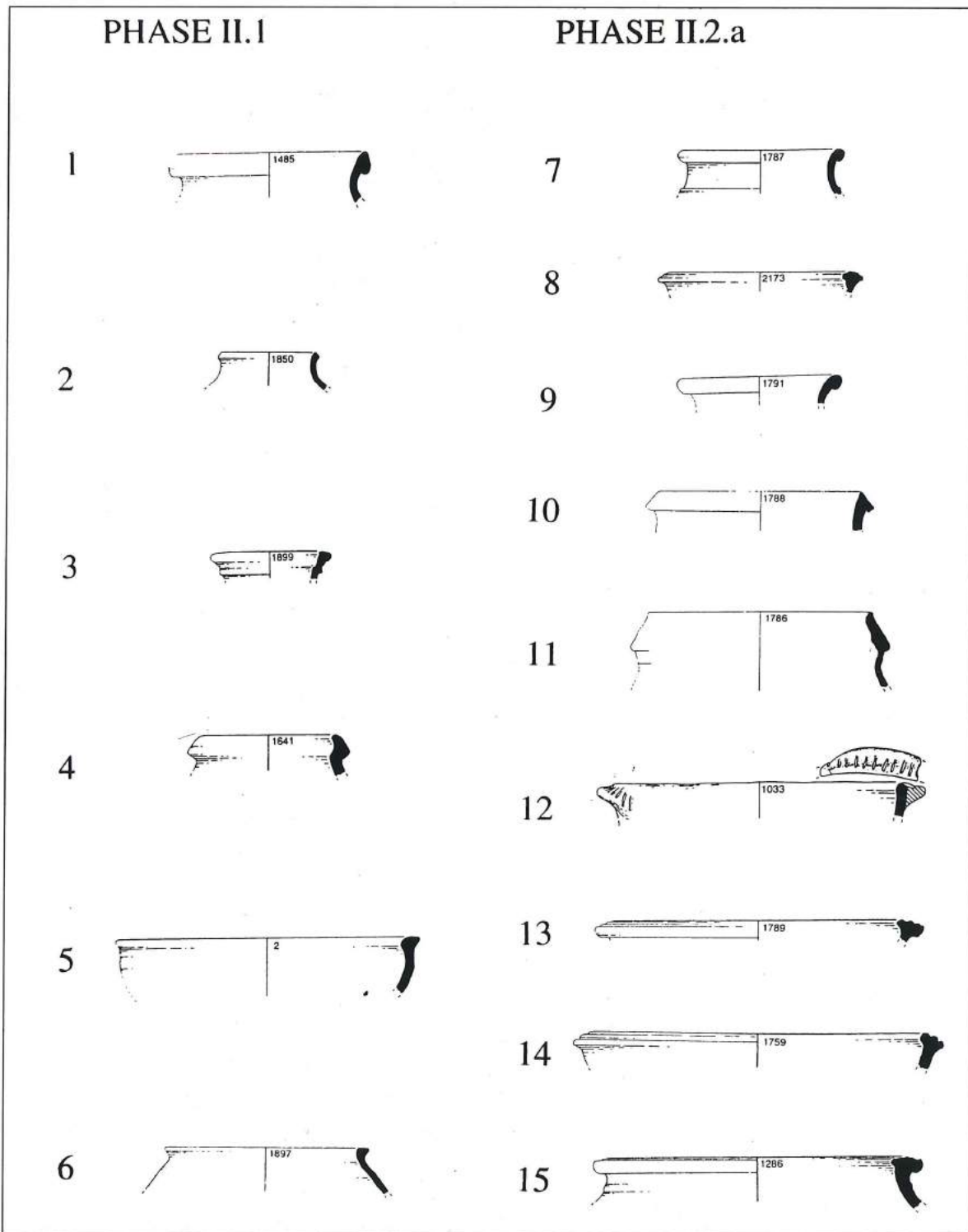
The pottery sample from the fortification wall foundation cut was very similar to Phase II.1 in terms of its parallel matches. From a sample of 91 matches over 36% were attributed to the MBIIB period, with the largest of 'Identical' and 'Related' parallels being found during this period. 16% of parallels were found in the MBIIA period, while 26% of parallels were attributed to the MBIIC period. The latest parallels are associated with LBA typologies (TABLE 2b). This phase is only represented in trench 0705 on the site. The site which provided the greatest of parallels was Hazor (almost 19%), yet, apart from Jericho, the sites which provided most parallels were 'local' sites such as Buṣrā, aṣ-Ṣaliḥiyya and the Jāwa citadel (TABLE 3b).

An important feature of this pottery sample is that the majority of these types have few parallels, and usually only with 'local' sites such as Buṣrā and aṣ-Ṣaliḥiyya — these vessels include SJAR 085 (FIG. 5:15), SBWL 032 (FIG. 5:12), SJAR 126 (FIG. 5:11). Also of note, the 'ripple' rims of SJAR 048 (FIG. 5:13), SJAR 119 (FIG. 5:14), and SJAR 085 (FIG. 5:15) only appear during this phase and find most parallels at Hazor, Buṣrā and Jāwa citadel. The distinctive ledge-handled cooking pot/bowl SBWL 032 (FIG. 5:12) makes its appearance during this phase and continues to appear throughout subsequent phases.

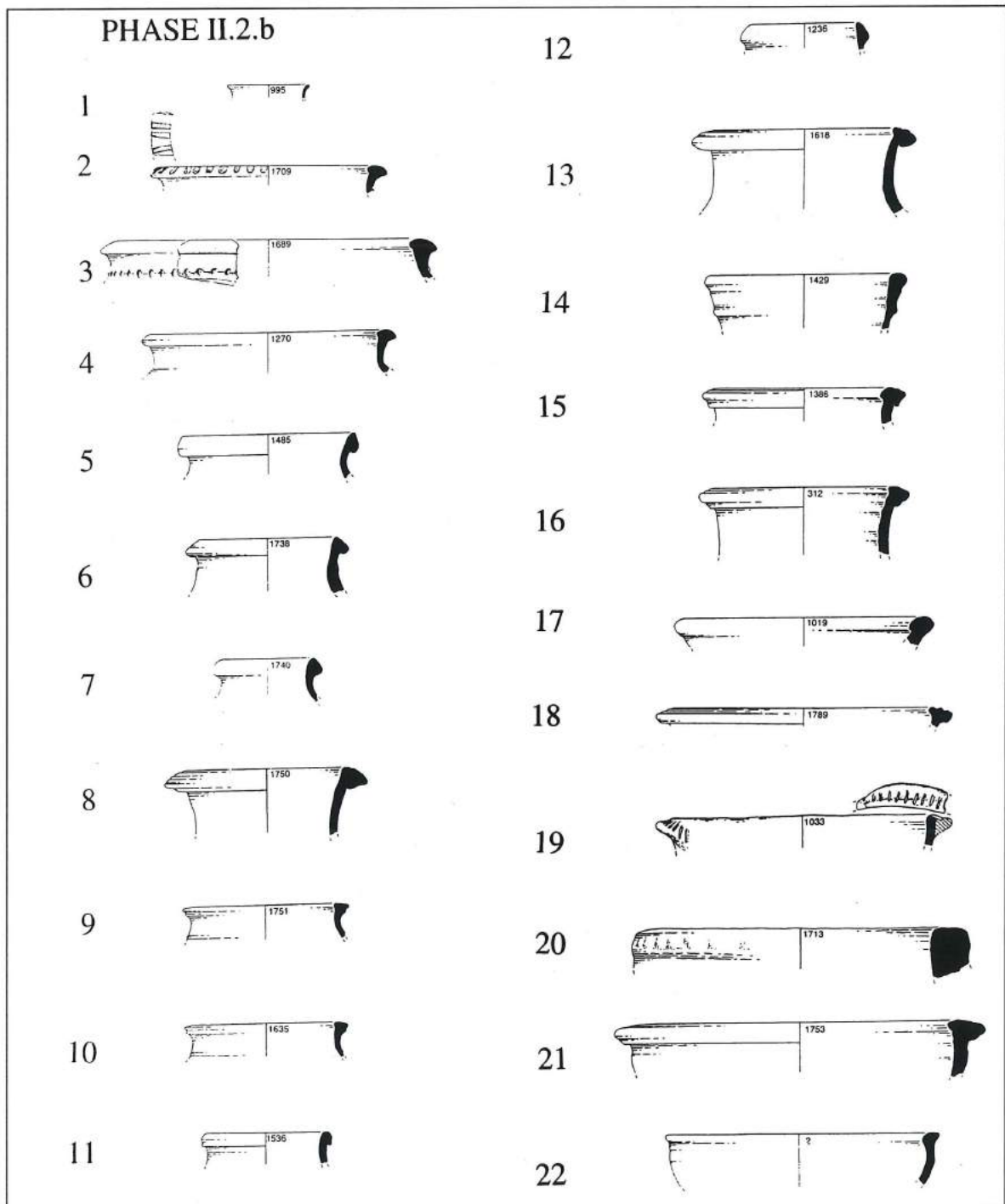
#### Phase II.2.b. (FIG. 6:1-22; TABLES 2c, 3c)

The pottery sample from the first post-fortification wall occupation consists of a larger sample than the previous two phases, yet the results are remarkably similar. Most parallels are again found in the MBIIB (over 37%). Again, a fairly even number of parallels are found in the MBIIA (over 24%) and MBIIC (over 23%) periods (TA-

<sup>6</sup> The pottery drawings and contextual information have been drawn from Schroder 1997.



6. "Rukeis 0705". Pottery of Phases II.1. and II.2.a. **Phase II.1.** 1.1. FORM/TYPE. SJAR 103 (1485). PROVENIENCE. 0705217. FABRIC. BROWN. 1.2. FORM/TYPE. XJAR 065 (1850). PROVENIENCE. 0705217. FABRIC. BROWN. 1.3. FORM/TYPE. SJAR 136 (1899). PROVENIENCE. 0705216. FABRIC. BROWN. 1.4. FORM/TYPE. SJAR 108 (1641). x2. PROVENIENCE. 0705216. FABRIC. RED/BROWN. 1.5. FORM/TYPE. SBWL 001 (2). PROVENIENCE. 0705216. FABRIC. CP. 1.6. FORM/TYPE. XJAR 068 (1897). PROVENIENCE. 0705216. FABRIC. BROWN. **PHASE II.2.a.** 1.7. FORM/TYPE. XTNN 008 (1787). PROVENIENCE. 0705215. FABRIC. FINE BROWN. 1.8. FORM/TYPE. XJAR 077 (2173). PROVENIENCE. 0705215. FABRIC. FINE BROWN. 1.9. FORM/TYPE. SJAR 062 (1791). PROVENIENCE. 0705215. FABRIC. FINE BROWN. 1.10. FORM/TYPE. XTNN 023 (1788). PROVENIENCE. 0705215. FABRIC. RED. 1.11. FORM/TYPE. SJAR 126 (1786). PROVENIENCE. 0705215. FABRIC. RED. 1.12. FORM/TYPE. SBWL 032 (1033). PROVENIENCE. 0705215. FABRIC. CP. 1.13. FORM/TYPE. SJAR 048 (1789). PROVENIENCE. 0705215. FABRIC. GREY. 1.14. FORM/TYPE. SJAR 119 (1759). PROVENIENCE. 0705212. FABRIC. BROWN. 1.15. FORM/TYPE. SJAR 085 (1286). x2. PROVENIENCE. 0705212. FABRIC. GREY.



7. "Rukeis 0705", Pottery of Phase II.2.b. 2.1. FORM/TYPE. FJAR 018 (995). PROVENIENCE. 0705210. FABRIC. FINE BROWN. 2.2. FORM/TYPE. SJAR 084 (1709). PROVENIENCE. 0705210. FABRIC. CREAM-GREEN. 2.3. FORM/TYPE. SJAR 112 (1689). PROVENIENCE. 0705210. FABRIC. BROWN. 2.4. FORM/TYPE. SJAR 084 (1270). PROVENIENCE. 0705210. FABRIC. CREAM-GREEN. 2.5. FORM/TYPE. SJAR 103 (1485). PROVENIENCE. 0705210. FABRIC. BROWN. 2.6. FORM/TYPE. SJAR 056 (1738). PROVENIENCE. 0705210. FABRIC. GREY. 2.7. FORM/TYPE. XTNN 022 (1740). PROVENIENCE. 0705210. FABRIC. BROWN. 2.8. FORM/TYPE. SJAR 094 (1750). x4. PROVENIENCE. 0705207. FABRIC. BROWN. 2.9. FORM/TYPE. XJAR 117 (1751). PROVENIENCE. 0705207. FABRIC. BROWN. 2.10. FORM/TYPE. XJAR 059 (1635). PROVENIENCE. 0705207. FABRIC. CP. 2.11. FORM/TYPE. XJAR 054 (1536). PROVENIENCE. 0705209. FABRIC. GREY. 2.12. FORM/TYPE. SJAR 082 (1236). PROVENIENCE. 0705210. FABRIC. BROWN. 2.13. FORM/TYPE. SJAR 024 (1618). PROVENIENCE. 0705206. FABRIC. BROWN. 2.14. FORM/TYPE. SJAR 096 (1429). PROVENIENCE. 0705207. FABRIC. GREY. 2.15. FORM/TYPE. SJAR 094 (1386). x4. PROVENIENCE. 0705207. FABRIC. BROWN. 2.16. FORM/TYPE. SJAR 034 (312). PROVENIENCE. 0705213. FABRIC. GREY. 2.17. FORM/TYPE. SBWL 032 (1019). PROVENIENCE. 0705215. 2.18. FORM/TYPE. SJAR 048 (1789). PROVENIENCE. 0705210. FABRIC. CP. 2.19. FORM/TYPE. SBWL 032 (1033). PROVENIENCE. 0705215. FABRIC. CP. 2.20. FORM/TYPE. SJAR 178 (1713). PROVENIENCE. 0705209. FABRIC. CP. 2.21. FORM/TYPE. SJAR 118 (1753). PROVENIENCE. 0705207. FABRIC. BROWN. 2.22. FORM/TYPE. SBWL 001 (2). x4. PROVENIENCE. 0705206. FABRIC. CP.

TABLE 2a-c. "Rukeis 0705". Parallels by period.

<b>RUKEIS 0705. PARALLELS BY PERIOD.</b>				
<b>PHASE II.1. PRE-FORTIFICATION MBA SETTLEMENT.</b>				
PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI	1		1	1.23
EBII				
EBIII		3	3	3.70
EBIV-MBI	2	3	5	6.17
MBIIA	5	15	20	24.69
MBIIB	15	13	28	34.57
MBIIC	1	17	18	22.22
LBI	1	3	4	4.94
LBII		2	2	2.47
<b>TOTAL</b>	<b>25</b>	<b>56</b>	<b>81</b>	<b>100.00</b>
<b>PHASE II.2.a. FORTIFICATION WALL FOUNDATION.</b>				
PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI				
EBII				
EBIII		3	3	3.30
EBIV-MBI	1	1	2	2.20
MBIIA	7	8	15	16.48
MBIIB	9	24	33	36.26
MBIIC	4	20	24	26.37
LBI	3	7	10	10.99
LBII	2	2	4	4.40
<b>TOTAL</b>	<b>26</b>	<b>65</b>	<b>91</b>	<b>100</b>
<b>PHASE II.2.b. FIRST POST-WALL OCCUPATION PHASE.</b>				
PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI				
EBII				
EBIII	1	4	5	2.22
EBIV-MBI	10	4	14	6.22
MBIIA	23	32	55	24.44
MBIIB	40	44	84	37.33
MBIIC	23	29	52	23.11
LBI	3	7	10	4.44
LBII	3	2	5	2.22
<b>TOTAL</b>	<b>103</b>	<b>122</b>	<b>225</b>	<b>100.00</b>

TABLE 3a-b. "Rukeis 0705". Parallels by site.

<b>RUKEIS 0705 - PARALLELS BY SITE.</b>				
<b>PHASE II.1. PRE-FORTIFICATION MBA SETTLEMENT.</b>				
SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH				
APHEK		3	3	3.70
ARQA		2	2	2.47
BEIT MIRSIM	1	1	2	2.47
BOSRA	3	8	11	13.58
DAN				
EBLA				
GEZER	3	5	8	9.88
GHASSIL		3	3	3.70
HAMA		2	2	2.47
HAZOR	2	2	4	4.94
JAWA		5	5	6.17
JERICHO	3	5	8	9.88
KAMID EL-LOZ		1	1	1.23
LACHISH	2	7	9	11.11
MEGIDDO	4	2	6	7.41
MEVORAKH		3	3	3.70
NEBI MEND		1	1	1.23
SALAHYE		1	1	1.23
SAREPTA		2	2	2.47
SHECHEM	7	2	9	11.11
TYRE		1	1	1.23
<b>TOTAL</b>	<b>25</b>	<b>56</b>	<b>81</b>	<b>100.00</b>
<b>RUKEIS 0705. PARALLELS BY SITE.</b>				
<b>PHASE II.2.a. FORTIFICATION WALL FOUNDATION.</b>				
SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH		1	1	1.10
APHEK		1	1	1.10
ARQA		2	2	2.20
BEIT MIRSIM	3	1	4	4.40
BOSRA	4	11	15	16.48
DAN				
EBLA				
GEZER		5	5	5.49
GHASSIL		3	3	3.30
HAMA				
HAZOR	4	13	17	18.68
JAWA	7	1	8	8.79
JERICHO	1	6	7	7.69
KAMID EL-LOZ		2	2	2.20
LACHISH		3	3	3.30
MEGIDDO		1	1	1.10
MEVORAKH		4	4	4.40
NEBI MEND	2	1	3	3.30
SALAHYE	2	6	8	8.79
SAREPTA		1	1	1.10
SHECHEM		2	2	2.20
TYRE	1	1	2	2.20
<b>TOTAL</b>	<b>26</b>	<b>65</b>	<b>91</b>	<b>100.00</b>

BLE 2c). The latest parallels are associated with LBA typologies. In terms of parallels by site, again most parallels were found either with 'local' sites such as Buṣrā, aṣ-Ṣaliḥiyya and the Jāwa citadel, or with south Levantine sites such as Hazor, Jericho and Gezer (TABLE 3c). Vessels which find only few parallels and then usually only with sites such as Buṣrā and aṣ-Ṣaliḥiyya include SJAR

082 (FIG. 6:12), SJAR 094 (FIG. 6:8), SJAR 178 (FIG. 6:20).

In conclusion, there is not only remarkable consistency in terms of parallels by period, there is also consistency in terms of which sites provide most of the parallels — 'local' Ḥawrān sites, and south Levantine sites. These results compare well with other areas of the site. For example



TABLE 3c. "Rukeis 0705". Parallels by site.

RUKEIS 0705. PARALLELS BY SITE.				
PHASE II.2.b. FIRST POST-WALL OCCUPATION PHASE.				
SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH		1	1	0.44
APHEK	3	7	10	4.44
ARQA	1	1	2	0.89
BEIT MIRSIM	5	6	11	4.89
BOSRA	7	12	19	8.44
DAN				
EBLA				
GEZER	11	18	29	12.89
GHASSIL		4	4	1.78
HAMA		3	3	1.33
HAZOR	14	7	21	9.33
JAWA	13	6	19	8.44
JERICHO	11	9	20	8.89
KAMID EL-LOZ		3	3	1.33
LACHISH	5	1	6	2.67
MEGIDDO	5	7	12	5.33
MEVORAKH	6	10	16	7.11
NEBI MEND		1	1	0.44
SALAHYE	18	3	21	9.33
SAREPTA		5	5	2.22
SHECHEM	2	14	16	7.11
TYRE	2	4	6	2.67
<b>TOTAL</b>	<b>103</b>	<b>122</b>	<b>225</b>	<b>100.00</b>

Phase II.1 in trench 0708 found 34.65% parallels for the MBIIB, almost identical to that of trench 0705, even though a much larger sample. Phase II.2.b in trench 0708 found 34.16% parallels with the MBIIB.

### 5. Dating Methodology — Qualitative Versus Quantitative

When using comparative ceramic analysis to associate a date/period with an archaeological phase there are two fundamental approaches, each producing differing results. Using the above phases as an example, the approaches would be as follows:-

#### Qualitative

This approach focuses on the 'latest' material derived from any given phase. For example, the date of the wall construction (Phase II.2.a) cannot be any earlier than the latest type of pottery associated with the foundation cut. Following this premise, each of the three phases should date to the LBII, even though LBII parallels usually amount to no more than 2% of the sample.

#### Quantitative

The 'Quantitative' approach focuses on a statistical analy-

sis of the pottery from the three phases. As opposed to a qualitative approach, a quantitative approach indicates that each of the three phases should be associated with the MBIIB period. In each phase approximately 80% of the parallels are found in either the MBIIA-C periods, and in each phase almost half of those parallels are found in MBIIB contexts.

### 6. Discussion (TABLE 3a-c).

There is a fundamental problem involved when working in a region such as the Ḥawrān where only a very limited amount of work has previously been undertaken on Bronze age ceramics. The only other Ḥawrān site where a multi-period sounding has been excavated is Buṣrā and the resulting typology is not extensive. When it comes to establishing a detailed multi-period ceramic typology, none exists for the region. Within other regions of the Levant assemblages from other sites can usually be referred to, however, in a region such as the Ḥawrān which lacks assemblages, this is not the case. In such a situation a quantitative study combined with carbon dates should be considered the most useful approach.

The qualitative approach has a number of problems associated with it. Although it is logical to find earlier period material (e.g. EBI) in later deposits (e.g. MBII), the problem lies in the latest material found. To associate a LBII date with these phases disregards the overwhelming majority of parallels (MBIIB) in favour of the latest parallels, even though they are consistently in the minority. It should be noted that nearly all of the LBI and LBII parallels are from the Buṣrā assemblage. In the Buṣrā assemblage, however, types which are considered MBA in other assemblages, are often found in what the Buṣrā excavators consider to be LBA contexts. For example SBWL 032 (FIG. 5:12) of Phase II.1 finds close parallels in Buṣrā Str 16-14 (LBI-II) yet also finds close parallels at the Jāwa citadel (MBIIA). This in itself is not illogical because, as mentioned above, earlier material can easily be found in later deposits. The problem lies in the process of parallel matching which dictates that if a match is found in an LBII deposit, the parallel is of that period, even though it may well be an earlier period sherd in a later context. In this regard the results are misleading.

Another problem lies in the uncertainty with regards to the length of time over which a vessel type was commonly produced and used. In the southern Levant this is less of a problem because the numerous and detailed typologies that have been developed can trace with a fair degree of accuracy the periods during which specific vessel types were produced. In the Ḥawrān, however, these assemblages are lacking. We are thus unsure as to the 'life-span' of certain ceramic types in the Ḥawrān. The Ḥawrān, for example, may well be ceramically 'conservative', with specific types continuing to be produced

far beyond the period of production of that same type elsewhere in the Levant. Alternately, the reverse may be the case.

Because we lack detailed typologies in the Ḥawrān, these ceramic developments are largely unknown. To assume that the ceramics of the Ḥawrān developed virtually identically to those of typologies elsewhere in the Levant is unfounded. The parallels by site demonstrate that a large percentage of matches during each phase are found at sites closely associated with Rukays, rather than with north or south Levantine sites proper. In Phase II.2.a for example, 1/3 of the total parallels were found at Buṣrā, Jāwa Citadel and aṣ-Ṣaliḥiyya. Even on the meagre evidence that we possess, there is already a good indication that a large percentage of the 'Ḥawrān' pottery corpus is indigenous, and is not commonly found outside of the region.

In theory, because ceramics are our largest data base for the MBA material culture, they should provide 1) an indication of which dates/periods should be associated with given phases, and 2) evidence of cultural contact between specific regions at a given period. As demonstrated, a quantitative analysis should offer the most useful insights in this regard. However, some methodological problems should first be taken into consideration.

Using the above three phases as an example, a quantitative analysis demonstrates that during Phase II.1, Buṣrā, Gezer, Jericho, Lachish and Shechem provide the greatest percentage of parallels (TABLE 3a). During Phase II.2.a, Buṣrā, Hazor, Jāwa, Jericho and aṣ-Ṣaliḥiyya provide the greatest percentage of parallels (TABLE 3b), while during Phase II.2.b, Buṣrā, Gezer, Hazor, Jāwa, Jericho and aṣ-Ṣaliḥiyya provide the greatest percentage of parallels (TABLE 3c). On this basis the ceramics indicate that the strongest contact is between Rukays and sites in the Ḥawrān, the Damascene, and sites in the south Levant such as Gezer, Jericho, Lachish, Shechem and Hazor.

However, this information can be misleading for a number of reasons. Firstly, the reports from these sites have published vastly differing quantities of Bronze age pottery. Using Jericho and aṣ-Ṣaliḥiyya to serve as an example, the Jericho pottery volume contains 1560 MBA sherds, whereas the aṣ-Ṣaliḥiyya volume has published 222 MBA sherds. So although Jericho has provided 8.82% of the parallels found with the Rukays pottery, as a percentage of the published MBA material from Jericho, Rukays only has 2.24% parallels with the Jericho material. Aṣ-Ṣaliḥiyya provided 7.8% of the parallels with the Rukays pottery, yet as a percentage of the published MBA material from aṣ-Ṣaliḥiyya, Rukays has a much greater 13.96% parallels with the aṣ-Ṣaliḥiyya material. The percentage parallels thus have to be put into their true context of the amount of material published. If this were not done, then one would assume that Jericho and aṣ-Ṣaliḥiyya had

a similar degree of contact with Rukays, at least in terms of the evidence of ceramics. In fact, when the amount of published material is taken into account, the ceramic evidence suggests a considerably stronger contact between Rukays and aṣ-Ṣaliḥiyya, than Rukays and Jericho. The amount of published material used in any study naturally plays a role in determining which date/period will be associated with a given phase.

Secondly, a further problem lies in the fact that with many reports which publish MBA typologies, we are often unsure as to the % of the total material published. At most sites used for the comparative work above we are unsure how much of the complete corpus has been published, and which parts of the corpus have been published. To serve as an example, Ben-Tor discusses how this was the situation with the early Hazor volumes in his preamble to Hazor III-IV. Ben-Tor concluded that "Hazor's assemblages.....cannot serve as true representatives of the finds of each room, structure or area" (Yadin 1989: xxi). Unless this information is provided with each typology, it is very difficult to conduct a comprehensive quantitative analysis of a given corpus.

Finally, an issue remains with the problem that some partially published corpora could present a biased view of the material. For example, if one published corpus presents a majority of bowls, over a minority of storejars, then one would expect that the percentage parallels between that site and others would be less. This is assuming that storejars were a vessel more likely to be used in trade, and moved over greater areas, and in greater numbers, than bowls. Such issues play a major role in determining the results of any quantitative study, whether they be related to looking at issues of cultural contact through ceramics, or related to associating dates/periods with a given phase.

In the face of such methodological problems, a quantitative approach using a large range of sites, associated with carbon dating, should provide the most useful results. The advantage of adopting a quantitative approach is that this method offers more realistic results based on probability, even considering our lack of understanding of the relationship between the Ḥawrān and other Levantine regions.

When working in a region which lacks established typologies from sites in the vicinity which can be referred to, it is not enough to do a comparative study alone, and in particular, a qualitative study. Ultimately, if such problems are to be addressed when working at sites such as Rukays we must not only develop and publish a comprehensive ceramic typology for the site — we must also couple this with clusters of carbon dates throughout the sequence.

In terms of ceramic typological development the Ḥawrān and the Damascene remain 'black holes' in our

knowledge. The evidence that we have suggests a degree of different ceramic development compared with elsewhere in the Levant. To rely solely on comparisons with ceramic sequences from sites far-afield, in order to associate dates/periods with developments at sites in the Ḥawrān, could result in a misleading picture regarding when and why those developments occurred.

### Bibliography

- Albright, W. F. 1932. *The Excavation of Tell Beit Mirsim. Vol. I. The pottery of the First Three Campaigns*. New Haven.
- 1933. *The Excavation of Tell Beit Mirsim. Vol. IA: The Bronze Age Pottery of the Fourth Campaign*. New Haven.
- Anderson, W. P. 1988. *Sarepta I: The Late Bronze and Iron Age Strata of Area II.Y*. Beirut.
- Beck, P. 1975. The Pottery of the Middle Bronze Age IIA at Tel Aphek. *Tel Aviv* 2: 45-85.
- 1985. The Middle Bronze Age IIA Pottery from Aphek, 1972-1984: First Summary. *Tel Aviv* 12: 181-203.
- Ben-Tor, A., Bonfil, R., Garfinkel, Y., Greenberg, R., Maeir, A. M. and Mazar, A. 1997. *Hazor V*. Jerusalem.
- Betts, A., Eames, S., Schroder, M. and Hesán, A. al-Q. 1995. Archaeological Survey of the Wadi al-'Ajib, Mafráq District. *ADAJ* 39: 149-168.
- Betts, A., Eames, S., Hulka, S., Schroder, M., Rust, J. and McLaren, B. 1996. Studies of Bronze Age Occupation in the Wadi al-'Ajib, Southern Hauran. *Levant* 27: 27-39.
- Betts, A., Eames, S., McLaren, B. and Schroder, M. (in press), The Middle Bronze Age of the Southern Hauran: a preliminary report on the 95/96 field season at Tell Rukais. *Levant*.
- Bikai, P. M. 1978. *The Pottery of Tyre*. Warminster.
- Biran, A., Ilan, D. and Greenberg, R. 1996. *Dan I. A Chronicle of the Excavations, the Pottery Neolithic, the Early Bronze Age and the Middle Bronze Age Tombs*. Jerusalem.
- Bourke, S. J. 1991. *The Transition from the Middle to the Late Bronze Age in the Northern Levant: The Evidence from Tell Nebi Mend, Syria*. Unpublished Ph.D. Thesis, University of London.
- Cole, D. P. 1984. *Shechem I: The Middle Bronze IIB Pottery*. Winona Lake.
- Dever, W. G., Lance, H. G. and Wright, G. E. 1970. *Gezer I: Preliminary Report of the 1964-66 Seasons*. Jerusalem.
- Dever, W. G., Lance, H. D., Bullard, R. G., Cole, D. P. and Seger, J. D. 1974. *Gezer II: Report of the 1967-70 Seasons in Fields I and II*. Jerusalem.
- Doumet, C. 1986. *Les Fouilles de Tell el Ghassil de 1972 à 1974*. Unpublished Ph.D. Thesis, Université de Paris 1 Sorbonne.
- Eames, S. (forthcoming), *Middle Bronze Age Settlement in the Hauran*. Ph.D. Thesis, University of Sydney.
- Fugmann, E. 1958. *Hama II.I: l'Architecture des Périodes Pre-Hellenistiques*. Copenhagen.
- Guardata, F. B. 1988. Les sépultures d'Ebla à l'âge du Bronze Moyen. Pp. 3-20 in H. Waetzoldt and H. Hauptmann (eds.), *Wirtschaft und Gesellschaft von Ebla*. Heidelberg.
- Heinz, M. 1992. *Tell Atchana / Alalakh. Die Schichten VII-XVII*. Wiesbaden.
- Helms, S. W. 1989. Jawa at the Beginning of the Middle Bronze Age. *Levant* 21: 141-168.
- Kenyon, K. M. and Holland, T. A. 1982. *Excavations at Jericho. Vol. IV. The Pottery Type Series and Other Finds*. London.
- Loud, G. 1948. *Megiddo II: Seasons of 1935-39*. Text and Plates. Chicago.
- McLaren, P. B. (forthcoming), *Middle Bronze Age Fortifications in Jordan*. Ph.D. Thesis, University of Sydney.
- Marfoe, L. 1979. *Tell Kamid el Loz 1973-72. Preliminary Type Series Catalogue: North Slope and Palace Areas*. Unpublished manuscript, University of Chicago.
- van der Osten, H. H. 1956. *Svenska Syrien Expeditionen 1952-1953. Die Grabung von Tell es-Salhiyeh*. Lund.
- Schroder, M. 1997. *The Ceramics from the Wadi al-'Ajib, Jordan*. Unpublished Ph.D. Thesis, University of Sydney.
- Seeden, H. 1986. Bronze Age Village Occupation at Busra: AUB excavations on the northwest tell 1983-1984. *Berytus* 34: 11-82.
- Stern, E. 1984. *Excavations at Tel Mevorakh (1973-1976). Part Two: The Bronze Age*. Jerusalem.
- Thalmann, J-P. 1978. Tell Arqa: Campagnes 1972-74. *Syria* 55: 88-144.
- 1979. Tell Arqa 1978-1979: Rapport provisoire. *BMB* 30: 61-80.
- 1991. L'Age du Bronze à Tell 'Arqa. Bilan et perspectives (1981-1991). *Berytus* 30: 21-38.
- Tufnell, O., Inge, C. H. and Harding, L. 1958. *Lachish IV: The Bronze Age. Text and Plates*. London.
- Yadin, Y., Aharoni, Y., Amiran, R., Dunayevsky, I. and Perrot, J. 1958. *Hazor I*. Jerusalem.
- 1960. *Hazor II*. Jerusalem.
- 1961. *Hazor III-IV*. The Plates. Jerusalem.
- Yadin, Y., Aharoni, Y., Amiran, R., Dunayevsky, I., Perrot, J. and Ben-Tor, A. 1989. *Hazor III-IV*. The Text. Jerusalem.