

The 'Zarqa Triangle': A Preliminary Appraisal of Protohistorical Settlement Patterns and Demographic Episodes

I

Reconstructions of socio-economic trends in the southern Levant during the fourth and third millennia are based on un- or semi-processed data, most of which have come from west of the Jordan River. The chronology for the period is based on various interpreted C14 determinations (e.g. Mellaart 1979; Callaway and Weinstein 1977), strictly sequential ceramic typologies constructed from tomb assemblages, and excavated but largely unpublished nucleated settlements of the third millennium, and hearsay. Tomb assemblages do not normally represent stratified sequences; nucleation obscures earlier as well as later 'transitional' episodes. Abandonment of nucleated settlements gives rise to deflation and erosion of later layers. Subsequent re-occupation in the Middle Bronze Age in turn obscures earlier evidence. These are some of the technical and archaeological restrictions to interpretation. They are obvious limitations which we all recognize, but they nevertheless colour much of what is thought, said and written. In addition, inappropriate use of socio-economic models and terminology from economically disparate regions such as Mesopotamia, northern Syria and even the northern Levantine coast, has led to notions which do not fit even the most minimal information to hand. And perhaps most seriously, only one part of a greater geo-economical unity was studied in detail, while Transjordan and southern Syria remained virtually unexplored and ignored.¹

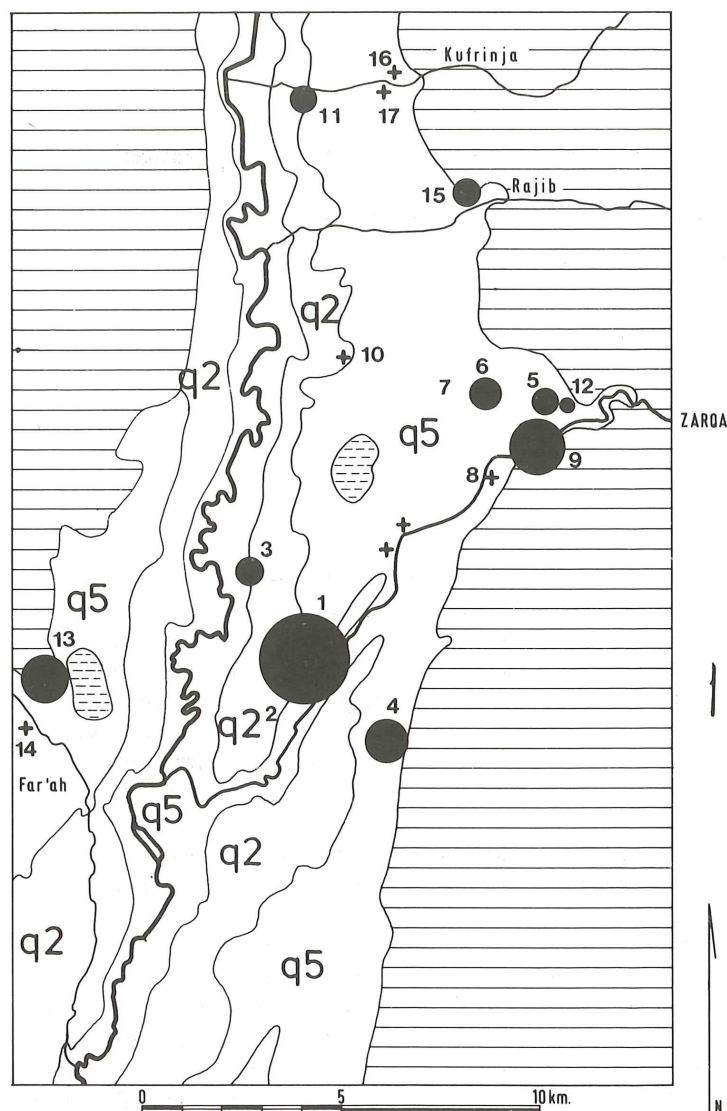
An exception was Prag's work at Tell Iktanu in the 1960s (now resumed) which was summarized in 1974 (Prag 1971; 1986) but not fully documented. Had it been, then many of the notions regarding the later third millennium (i.e. 'EB IV') might have been different (e.g. Dever 1980; cf. Helms 1989b) and not so tied to a model of nomadic pastoralism.

The imbalance in the data base is now being redressed through the excavation of smaller settlements in the specific region under discussion here, and elsewhere. Excavations at Khirbet Iskander (Richard 1982; Richard and Boraas 1984), Tell Umm Hammad and its cemetery at Tiwal ash-Sharqi, and surveys of the Jordan Valley (Ibrahim *et al.* 1976; 1988) and other subregions (e.g. Palumbo pers. comm. who reports a fortified EB IV site north of az-Zarqa) now provide a more representative set of data which dramatically alter our perception of the later third millennium. At the broader geo-economic level, surveys in southern Syria (Braemer 1984; 1988; al-Maqdissi 1984) now provide evidence for settlement in the fourth and third millennia. Moreover, direct cultural links can now be established between these areas and Palestine in 'EB IB' and 'EB IV' at Khirbet Umbachi and Labwe (el-Laboué) (Braemer pers. comm.; Helms 1989a).

For the fourth millennium, new excavations at Tell Abu Hamid (Dollfus and Kafafi 1986; *Abu Hamid* 1988) have produced data regarding the Chalcolithic period, as well as demonstrating regionality throughout the Jordan Valley, adjusting to some extent the unrealistic predominance of Tuleilat al-Ghasul for this period. This has been complemented by surveys and excavations in the southern steppic zones of Palestine (e.g. Levy 1987). Excavations at Tell Umm Hammad and ash-Shuna North (Gustavson-Gaube 1984) now provide deep stratigraphy for the time between the Chalcolithic (or late Chalcolithic) period about 3500 B.C. or a little earlier and EB I: the latter being much longer than has been supposed: perhaps more than 500 years rather than c. 200 or less (FIG. 2). If we add to this 'transition' the 300 years normally ascribed to 'EB IV' and set this against the time-span of 'EB II - III' (c. 600 years), then the so-called urban era of the third millennium with its

¹Direct connections in both EB I (B) and late EB III and IV ('B/C') between the Jordan Valley and sites in the eastern sectors of Jabal ad-Druz have now been established as a result of cooperation

with F. Braemer of IFAPO in both Damascus and Amman. Pottery comparisons were conducted jointly with N. Vaillant.



1. 1, Tell Umm Ḥammad; 2, Tiwal ash-Sharqi; 3, Qaṭaret as-Samra; 4, Tell al-Mafluq; 5, Ruweiḥa; 6, Tell Qa'dan; 7, Tell Deir 'Alla; 8, Dhra' al-Ḥuṣeini; 9, Tell Abu Zighan (Tell al-Ḥandaquq South); 10, Tell an-Nkheil; 11, Tell as-Sa'idiyeh; 12, Ze'azeyyeh; 13, Khirbet al-Maḥruq; 14, Jiftlik; 15, Tell Qos; 16 & 17, Buweib.

'cities' and 'city-states' could be regarded as an anomaly, rather than typical of the whole of the protohistorical era. To this may now be added typological and technological analysis of stratified pottery from Abu Ḥamid and Tell Umm Ḥammad (Vaillant and Helms forthcoming) which indicates a measure of cultural and technological continuity between the Chalcolithic period and EB I, although we still have no stratigraphic contexts in which both 'pure' Chalcolithic and EB I pottery forms occur together, giving rise to

the notion of contemporary but separate, discrete socio-economic entities in the same landscape. The link between Tell Umm Ḥammad in early 'EB IA' and Jawa (Helms 1981; 1987a; Helms and Vaillant forthcoming) extends the area of the protohistorical landscape to the eastern steppe zones of southern Syria which in turn can now be related with trends towards more complex economies in the Ḥawran and the Damascene (Braemer 1984; 1988; pers. comm.). In short, we not only have more information now than ever before about a distinct zone which is economically separate from the rest of the Near East, but this information differs significantly from what was known a few years ago. It represents a new perspective from which to re-examine interpretations of what may have happened between about the middle of the fourth millennium and 2000 B.C., an era which was followed by what can be regarded as the first 'international' stage in the region (Helms 1989a).

The present work is a preliminary essay summarizing the available evidence regarding one component of an economic subregion, the land about the confluence of the Zarqa and Jordan Rivers, the 'Zarqa Triangle'.^{2/} In this essay it is assumed that settlement size is a function of population density, maximum potential population density a function of landuse potential (specifically in terms of irrigation), and settlement size therefore also a function of landuse potential.

II

The following is a summary of the main evidence on which a preliminary reconstruction of demographic episodes may be based. Periodization linked with the stratified sequences at Tell Umm Ḥammad (TUH) is as follows (Helms 1986: TABLES 2 and 3; 1987: TABLE 1):

Table 1

Chalcolithic	EB IA	EB IB	EB II	EB III	EB IVA	EB IV'B/C'	MB IIA
TUH 1	TUH 2	TUH 3	TUH 4	?	TUH 5	TUH 6 - 8+	?
= Ghasul							
= Abu Ḥamid							
time							
B.C. 3500			2900		2300		2000

Key sites comprise the following (FIG. 1)³: Tell Umm Ḥammad (Helms 1984; 1986) and its cemetery (Helms 1983; Tubb 1985), Qaṭaret as-Samra (Leonard 1983), Tell al-Mafluq (Mellaart 1962; Leonard n.d.; Helms survey), Ruweiḥa (Ibrahim *et al.* 1988; Helms survey), Qa'dan (Ibrahim *et al.* 1976; Kafafi 1982; Helms survey), Deir 'Alla (Franken 1969), Dhra' al-Ḥuṣeini (Kafafi 1982), Tell Abu Zighan (Ibrahim *et al.* 1988; Helms survey), Tell

²A comprehensive treatment in progress and will appear with the final publication of the excavations at Tell Umm Ḥammad.

³Sites which have been visited by the writer are noted with 'Helms survey', carried out with the permission of the Department of Antiquities, the cooperation of Ibrahim *et al.* and individual excavators and surveyors.

an-Nkheil (Glueck 1951; Kafafi 1982), Tell as-Sa'idiyeh (Tubb 1988; Ibrahim *et al.* 1976), Ze'azeyyeh (Ibrahim *et al.* 1988; Palumbo pers. comm.), and Buweib (Ibrahim *et al.* 1976). Settlement areas were measured directly in the case of Tell Umm Hammad and Qaṭaret as-Samra (Leonard 1983), and by the use of large-scale maps (1:10,000) and air photographs for the rest. Erosion, deflation and modern agricultural development have destroyed much. Measurements will therefore never be accurate. However, it is hoped that enough has remained to identify broad changes which can be set against an admittedly imperfect relative chronology.

Population density and settlement pattern studies for Palestine have been incorporated (Gophna 1984; Broshi and Gophna 1984): these demonstrate the basic differences between the protohistorical era and the Middle Bronze Age. RAF air photographs (1930s; Glueck 1951) were used since they preserve 'fossil' canalization (e.g. irrigation potential) prior to intensive modern irrigation schemes in the Jordan Valley since the 1960s. They also sometimes show site dimensions which are now either obscured or gone entirely. New surveys and excavations in Transjordan such as az-Ziraqun (Ibrahim and Mittmann 1986), the Zarqa region (Palumbo pers. comm.), Khirbet Iskander (Richard 1982; Borass and Richard 1984) and Tell Iktanu (Prag 1971; 1974; 1986) supplement certain notions such as different settlement strategies in response to different environmental factors which include not only landuse but also the proximity of the eastern steppe (Badiyat ash-Sham), as well as difficult topography. Thus we might now identify distinct but inter-related economic sub-regions within the greater zone: (i) good agricultural land suitable for irrigation such as the Jordan Valley, the Marj Bani 'Amer, al-Hulah Basin and the Ghuta of Damascus, (ii) the western and northern Syro-Palestinian uplands, including the aj-Jawlan, more suited to pastoralism in this period, (iii) the eastern Transjordanian uplands from 'Ajlun to Ma'an, likewise better suited to pastoralism, (iv) the more open landscape north of the 'Ajlun hills including Hawran and Jabal ad-Drus with braided wadi systems suitable for both agriculture and pastoralism, and (v) the interfaces with the steppe, the Negeb in the south and Badiyat ash-Sham and northern Arabia in the east and north (Helms 1989a: FIG. 2).

III

Returning now to the settlement pattern between c. 3500 B.C. and 2000 B.C. in the Jordan Valley, and specifically the area of the 'Zarqa Triangle', the available evidence suggests a cyclical pattern of change. Comparison of settlement density in 'EB III' and TUH5 (= 'EB IVA') suggests that the trend towards centralization, nucleation and 'militarization' which began in EB II is reversed, marking a return of settlements to the open countryside. Tell Umm Hammad and presumably also other, smaller villages like Ze'azeyyeh and Tell an-Nkheil were once

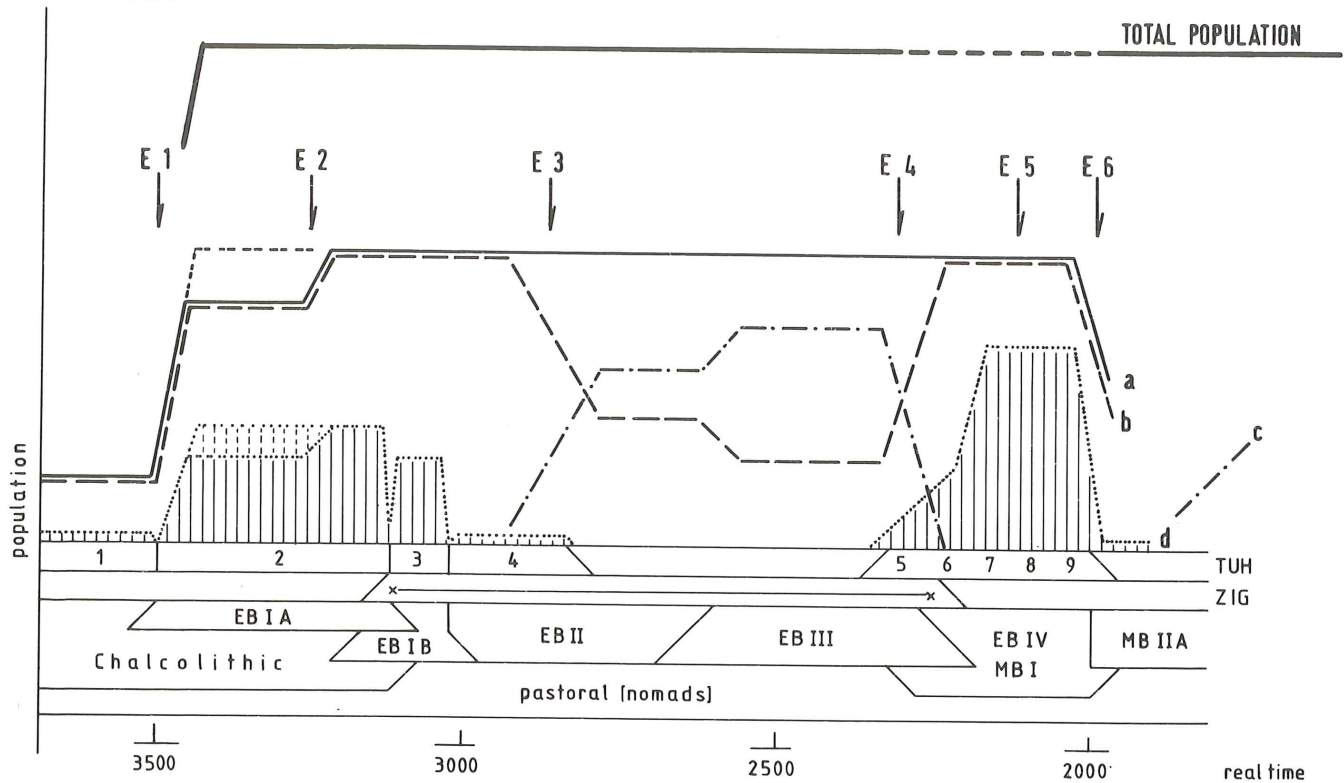
again established as open settlements and since the material culture in terms of pottery at least is the same, we may argue either that people began to move away from Abu Zighan, or that different folk entered the sub-region but brought no new pottery traditions with them, 'trading' for vessels with the nucleated settlement. The former suggestion is more probable. Moreover, it is hypothesized here that the total size of the population in the sub-region did not change, regardless of the relative size of its component areas.

While the depositional/structural record at Umm Hammad suggests a new establishment after TUH5 ('EB IVA'), the pottery evidence tends to support the notion of material cultural continuity. With the start of TUH6 (*circa* the beginning of 'EB IVB/C'; Helms 1986, 1989b) Abu Zighan seems to have been deserted, while Umm Hammad was a very large thriving settlement which continued as such up to the end of the EB IV period: i.e. up to the beginning of MB IIA. This stage therefore marks the next major change in settlement pattern in the sub-region and abandonment of fortified positions. It also marks the completion of a full circle in terms of settlement in relation to the countryside: back to the pattern which saw its floruit at the end of the Chalcolithic period, in EB I (Helms 1986; 1987a). The characteristic 'militarism' of the EB II/III period seems to have become redundant and unnecessary by this time. But can we go any further than this?

It remains an open question whether we are dealing with new, different folk or simply the same population as before — essentially a population which has its roots in the late fourth millennium — or some combination of old and new. The 'military' nature of some grave goods cannot be used to resolve this one way or another. Nor can the violent demise — a clear case of homicide — of at least one individual who was buried near Umm Hammad (Ṭīwal ash-Sharqi: Rolston n.d.) support notions of a general catastrophe. We simply do not know, and the mute archaeological record can probably add no more. However, if we put aside catastrophe hypotheses (though they are not inappropriate) and look at the sub-region once again in purely local economic terms, we may first of all suggest that there were few, if any changes. Mixed farming, irrigation and pastoralism continued as before. Within our greater zone one or the other facet of the economy may have been more or less important. This, however, should not lead to accepting a 'model of pastoral nomadism ... as a basis of discussion to explain Jericho society' (Palumbo 1987). Jericho and its countryside is analogous to Tell Abu Zighan and the 'Zarqa Triangle'. The landuse potential is smaller and therefore the nucleated site is smaller. We know nothing about the ethnic makeup of the population and cannot prove at any point that it was exclusively pastoralist.

With regard to the 'Zarqa Triangle' we may, secondly, measure the population (in terms of settlement size) and note that the figures can imply numerical stasis (FIG. 2).

We may also discern a number of 'episodes' which do not



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necessarily conform to periodization derived from material culture (typologies) within this hypothetical reconstruction of population density. In order to highlight these, we must extend the demographic analysis backwards to the late fourth millennium, doing so with the understanding that we must first test the sub-region in isolation before considering (see fn. 2) the much more problematical and complex parallel and alternative demographic mechanisms at an inter (sub) regional level.

With reference to FIG. 2, at least six such demographic 'episodes' may be suggested.

1) About the middle of the fourth millennium both settlement size and number increase. This is demonstrated at Tell Umm Ḥammad (FIG. 2: 'curve' d) and supplemented by survey and sondages at Qaṭaret as-Samra, and survey at al-Mafluq, Ruweiḥa and Qa'dan. The Chalcolithic repertoires are linked typologically and technologically with Stage 2 at Umm Ḥammad, but also include totally new material (Helms 1984; 1986; Vaillant and Helms forthcoming). It may be appropriate to use the term 'population increment' (see already Lapp 1968) of this first 'episode' in the sub-region and to speak of population growth which cannot be explained away by natural processes of propagation. As to where the 'increment' came from is open to debate; it may be a matter of typological/artefactual 'trace elements' which tend to point west of the Jordan Valley and north of the Carmel ridge

along the Mediterranean coast. This episode can be paralleled elsewhere in the region (Jordan Valley) and beyond.

2) The second 'episode' is shown by minor changes in material culture at Umm Ḥammad (early-mid Stage 2), also at Qaṭaret as-Samra, and perhaps at Ruweiḥa where a contemporary occupation may be indicated, but without new material (i.e. appearance of genres paralleled at Jawa; Helms and Vaillant forthcoming). Internal structural evidence at Umm Ḥammad suggests an increase in building density: but this is not enough to support an increase in overall settlement density in the sub-region. Thus we may not need to introduce a notion of further population 'increments' at this stage. Indeed, the natural propagation argument could be used more appropriately now. However, the material 'cultural' additions to the pottery assemblage (including stamp seal impressions; Helms 1987b) can be traced via Wadi az-Zarqa into the 'Ajlun hills and beyond, as far as Jawa southeast of Jabal ad-Druz: and it may be significant in terms of specific routes (of diffusion etc.) that no directly comparable material has been found in contemporary assemblages such as those at ash-Shuna North (Gustavson-Gaube 1984), along Wadi al-'Arab (Hanbury Tennison 1986), or across the Jordan River, particularly in Marj Bani 'Amer (Braun 1984; 1985). At the very least this episode indicates a new 'cultural' and perhaps also economic connection with the north-east, with

southern Syria and the Ḥawran/Damascene.

On the other hand, derived pottery forms of this new material have been noted at Jericho (Helms 1987a). This 'episode', and continuing activities in the subregion (= TUH3) can still be described as 'EB IA' and by this time also as 'EB IB'. There are some marked changes in pottery technology, but much represents a continuous, unbroken technological and stylistic development. There is also an apparent internal reduction in structural density at Umm Ḥammad (Stage 3); but, as we noted earlier, now more settlement evidence based on contemporary assemblages (= 'EB IB') is known in the sub-region (also at basal Abu Zighan). In measurable demographic terms therefore, the internal changes at Umm Ḥammad as well as changes in pottery fashions (or preferences) may not imply a demographic 'episode'. It is postulated that population growth had levelled off and that settlements consisted of both large and small, open and unfortified house clusters, mostly sited on low-grade agricultural land along the rivers (FIG. 1:q2). It is further suggested, though not proven, that the subsistence economy consisted of mixed farming, including pastoralism and horticulture. There is little evidence (but for stamp seals) for inter sub-regional exchange and even less for formalized long-range exchange (but see Rosen 1983; cf. Helms 1987a: FIG. 22).

3) The third 'episode' appears not to have affected the population figures; it did however affect settlement choice and type and therefore has demographic significance. While open, undefended settlements such as Umm Ḥammad, Ruweiḥa, Qaṭaret as-Samra and al-Mafluq were either abandoned or much reduced in area, the large site of Abu Zighan (and its counterpart Khirbet al-Maḥruq across the Jordan River) began to be settled more intensively. We therefore hypothesize that while the open-settlement population 'curve' (FIG. 2:b) drops dramatically, that of the nucleated and defensible ones began to climb (FIG. 2:c), crossing at a hypothetical point sometime between whatever the real-time location of EB II/III may be in the sub-region. And, given the internal evidence at Umm Ḥammad between Stages 4 and 5 as well as surface survey data, we may hypothesize a second divergence in 'curves' b and c during 'EB III'. At any rate, the hypothetical population density remains the same, while landuse may have been intensified (i.e. irrigation). Farther afield we may hypothesize that open settlements on sub-regional boundaries such as Tell as-Sa'idiyeh during EB II (Tubb 1988) ceased to be 'safe' and were abandoned, some after violent episodes. Elsewhere, establishments in environmentally marginal locations such as Arad also ceased to exist. In both cases their economic function may have been re-located in 'safer' areas, or allowed to atrophy altogether. That is to say, if EBA Arad's economy was primarily pastoral, the abandonment of the fortified settlement may not signify a major economic shift but simply a trend away from centralized control. This is analogous to the later shift

at Tell Abu Zighan where the economy was based more on agriculture.

4) This 'episode' concerns the changes during the problematical 'late EB III-early EB IV transition'. Once again, the two hypothetical 'curves' (FIG. 2:a and b) cross, this time in inverted trends, and preliminary settlement density analysis suggests stasis in the total population. But, the fortified positions are now abandoned in favour of locations in the open countryside.

5) The open settlement at Umm Ḥammad grew rapidly to cover up to 44 hectares along the banks of the Zarqa River (Stages 5 and 6-8+) and although a typological continuity can be demonstrated in ceramic terms between Stages 5 and 6, there are many differences, not only in the pottery repertoire, but also in architecture. No comparable pottery has been found at Abu Zighan and it is therefore surmised that the site was abandoned. Several other open settlements, however, are now known: e.g. an-Nkheil, and Ze'azeyyeh next to Tell Abu Zighan across Wadi az-Zarqa, supporting stasis in the total sub-regional population figures (FIG. 2: 'curve' a). The 'episode' is thus similar to 'episode' 2 which saw a change in material culture, technology and architecture between 'episodes' 2 and 3 ('EB IB'). We argued there that insufficient evidence was available to hypothesize about the regional or even 'international' demographic implications of such changes, although we could 'trace' some elements farther afield. 'Episode' 5 saw a technological change which may be linked with North Central Syria and specifically with evidence from Tell Mardikh/Ebla 2B1 (Mazzoni 1986). At intra sub-regional level a similar stylistic and technical division has long been noted (i.e. EB IVA>EB IVB/C, or more traditionally EB IV>MB I; Helms 1989b), although we must also note that TUH5 is largely contemporary with phase 1 at Tell Iktanu (Prag 1974) where the architecture does not seem to change in the next phase which in turn corresponds to TUH6+ (Prag 1971; 1980). Recently explored sites such as Tell Abu an-Ni'aj (Falconer 1987; Palumbo pers. comm.) will probably show the same trend in relation to other subregions in the Jordan Valley.

6) Finally we may imply a sixth 'episode'. Evidence for this, however, is still sparse. No MB IIA pottery has yet been found at Abu Zighan, perhaps the best candidate for a renewed centralizing trend; little is known from Tell Deir 'Alla, or from Tell as-Sa'idiyeh (but see Ibrahim *et al.* 1976); only a few surface sherds of the period (MB IIA/B) were found at Umm Ḥammad. This in itself implies a demographic 'episode' which — perhaps for the first time since 'episode' 1 (i.e. EB IA/Late Chalcolithic) — saw a decrease in population density in the 'Zarqa Triangle' (but cf. Falconer 1987). Such sub-regional population shifts have now been implied by the compilation of data for the MB II west of the Jordan River (Broshi and Gophna 1984) with the conclusion that population figures did not change dramatically at regional level compared to EB II/III, but



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that settlement strategies were now affected by super-subsistence economy.

A series of compelling demographic parallels is available in Ottoman records where settled land configurations change from time to time (Wirth 1971; Hütteroth and Abdulfattah 1977). In the 16th century, for example, Wadi az-Zarqa and the 'Zarqa Triangle' as well as Jericho and other sub-regional components are settled; in 1912 they are not, although nomadic pastoralists continued to practice transhumance in both periods (FIG. 3).

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