

Settlement in the Jarash Basin and its Wider Context: A Proposal for Fieldwork and a Research Project to Interpret and Explain Settlement and Landuse in North-West Jordan

North-western Jordan is an agriculturally rich region with high quality soils, some perennial streams and ample rainfall for dry-farming. Hundreds of sites of all periods and types are known, and in the Bronze Age and the Graeco-Roman to Early Islamic period it was extensively urbanised. Ground survey has become especially common in this region but scale, intensity and methodology have varied and few of the surveys are fully published. Moreover, coverage is uneven with the Jarash area the most serious omission. The latter is archaeologically rich but it is also seriously threatened by development. Urgently needed is an intensive, multi-period and multi-disciplinary ground survey around Jarash. Beyond survey, however, there is an opportunity in north-western Jordan to exploit the extensive but undigested data from the wider region. At the moment there is nothing comparable anywhere in Jordan to the excellent recent regional survey of farms and villages in Byzantine Palestine much less the superb work on settlement in Roman Greece. But there is the potential for such work in north-western Jordan with a network of towns and villages and landscapes in a broad swathe of articulated lands and environments from the Jordan Valley through the Highlands of 'Ajlūn to the pre-desert and the desert beyond. The purpose of this paper is, therefore, to set out the case and define the objectives of two inter-related projects. First, the Jarash Basin Archaeological Project (JBAP), a multi-period, multi-disciplinary programmed of ground survey and test excavation at and around Jarash in an area of about 600km². Second is the North-West Jordan Archaeological Research Project (NWJARP). This is much broader in extent and scope. It will be driven by the progress and findings of the previous project and can take advantage of the opportunities for aerial archaeology. But it will be largely based on existing archaeological evidence arising from the numerous excellent studies in the wider area over many years.

Introduction

Several years ago, I concluded a review of Fergus Mil-

lar's book on *The Roman Near East, 31 BC-AD 337* (1993) with some suggestions for future archaeological research which could make a significant contribution to developing our understanding of the nature of what Millar had called "communities and culture" (Kennedy 1999).

Millar had noted the binding nature of the pre-desert and desert to the east of all the major settlement zones of the Near East. My principal suggestion, therefore, was that we needed "an integrated research programme" focusing on a single broad area extending across the major geographical and environmental zones of the Near East-arable highlands/plateau, pre-desert and desert. One region seemed especially well-suited to such a programme — northern Jordan from the Highlands of 'Ajlūn through the Southern Ḥawrān to the Basalt Desert beyond.

Since then, this suggestion further developed in three long studies of aspects of this region. First, Bert De Vries' publication of the first volume of his research on the well-preserved Nabataean-Roman-Early Islamic town of Umm al-Jimāl provided the context for a detailed interpretation of the air photographic evidence for a wide area around it (Kennedy 1998a). Second, Graeme Clarke's seminar on *Identities in the Eastern Mediterranean in Antiquity* was the opportunity for an archaeological approach to the study of cultural identity at and around Jarash (Kennedy 1998b). Finally, there is a paper entitled "The frontier of settlement in Roman Arabia. From Geraša to Umm el-Jimal ... and beyond", given at Ariel Lewin's conference on *Il vicino Oriente e l'Egitto nell'Eta Imperiale Romana: Frontiere e Societa* (Kennedy 2000).

Two other works underscored the enormous potential of ground survey. First, Barker, Gilbertson, Jones and Mattingly's superb study (1996) arising from their multi-disciplinary fieldwork in *Libya-Farming the Desert* (cf. Kennedy 2001a). Second is Hirschfeld's brilliant survey of "*Farms and villages in Byzantine Palestine*" based upon the detailed surveys of the archaeological remains over a wide area (1997).

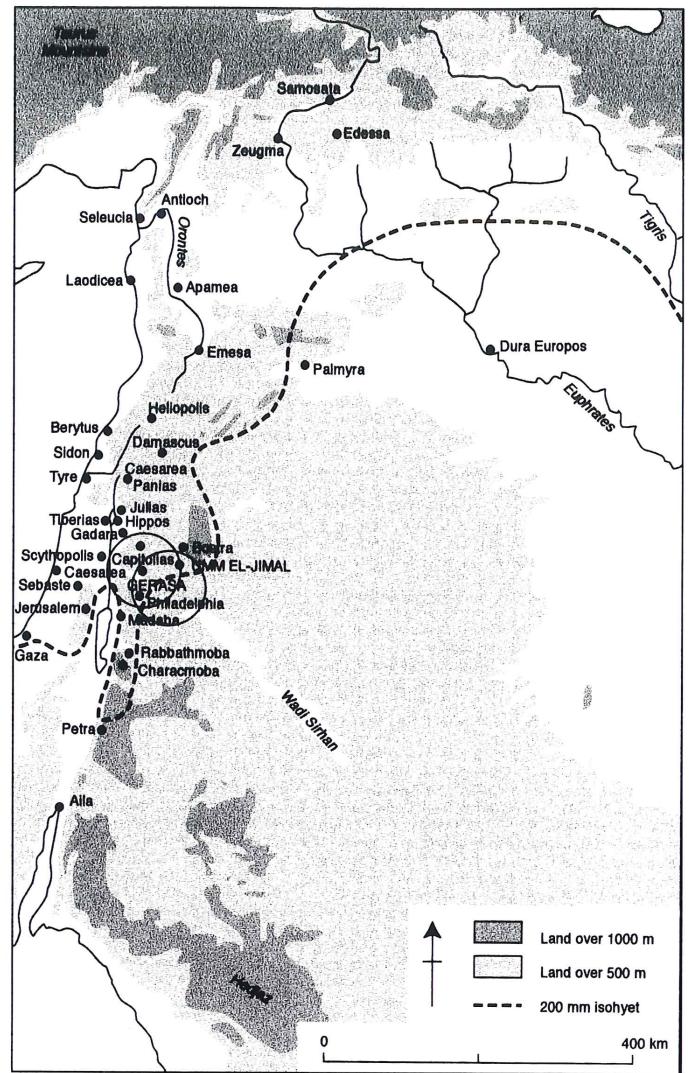
Collectively these studies have reinforced the sugges-

tion that northern Jordan was where a major research programme should be located and have allowed the more clearly defined proposal set out below.

Ground Surveys in North-western Jordan (FIG. 1)

Ground surveys are common in Jordan.¹ Although they have touched every part of the country in recent years, they have been especially common in the north-west of the country. Of course surveys take many forms. In this north-western region, those of Glueck (1934-1951), Augustinovic and Bagatti (1951) and Mittmann (1970) were all highly selective. Each of them largely traveled from one reported site to another or from one modern village to another and seldom commented on much less explored the wider landscape. The distribution of sites recorded by Glueck reveals the uneven spread (FIG. 2) and a second map setting out the route followed by him in one part of this area illustrates how unsystematic the process was (FIG. 3). Nevertheless, all of these scholars recorded enormously important information, sometimes now damaged or lost through the rapid development of the region. Their work, though flawed and “unscientific” in today’s terms, remains an invaluable resource (cf. Kennedy 2001b).

There have, however, been several much more systematic projects (FIG. 4). These have varied considerably in the level of intensity of the search and the sophistication of analysis of the results. Some of the earliest were motivated by impending development. For example, in 1978 three small areas were surveyed in advance of new dams being constructed on the Wadis al-Yarmūk, al-‘Arab and az-Zarqā’ (Kerestes *et al.* 1977-78). The results were relatively modest but already a difference is apparent from what had gone before. Forty-eight sites were recorded of which only 6 were known previously. In one reservoir area, the Wādī az-Zarqā’, Glueck had recorded four sites (1939: 222-4); the new survey recorded 14. In a second, the Wādī al-‘Arab, Glueck had recorded one site and the Three Reservoirs Survey had recorded three. But then in 1983 a more intensive survey explored three areas nearby and recorded a total of 102 sites (Hanbury-Tenison 1984).² Already by that time, further surveys elsewhere in north-western Jordan were in progress. Their objective had shifted to seeking evidence to illuminate the character of settlement through long periods of time. That meant greater intensity and the systematic walking of limited areas. All have been important but



1. Map of the Middle East showing the location of Gerasa and the proposed wider research area.

four are outstanding.³

First, beginning in 1981, the Wādī Ziqlāb Survey encompassed an area of ca. 115km². Within it twenty areas, each 1 kilometre square, were randomly selected to reflect the broad divisions of the terrain, and explored in detail. Only the first season was fully concerned with survey but well over 100 sites were recorded,⁴ many of them previously unknown. The survey is especially important for the initiation in 1986 of a parallel palaeoenvironmental study which included reports on fau-

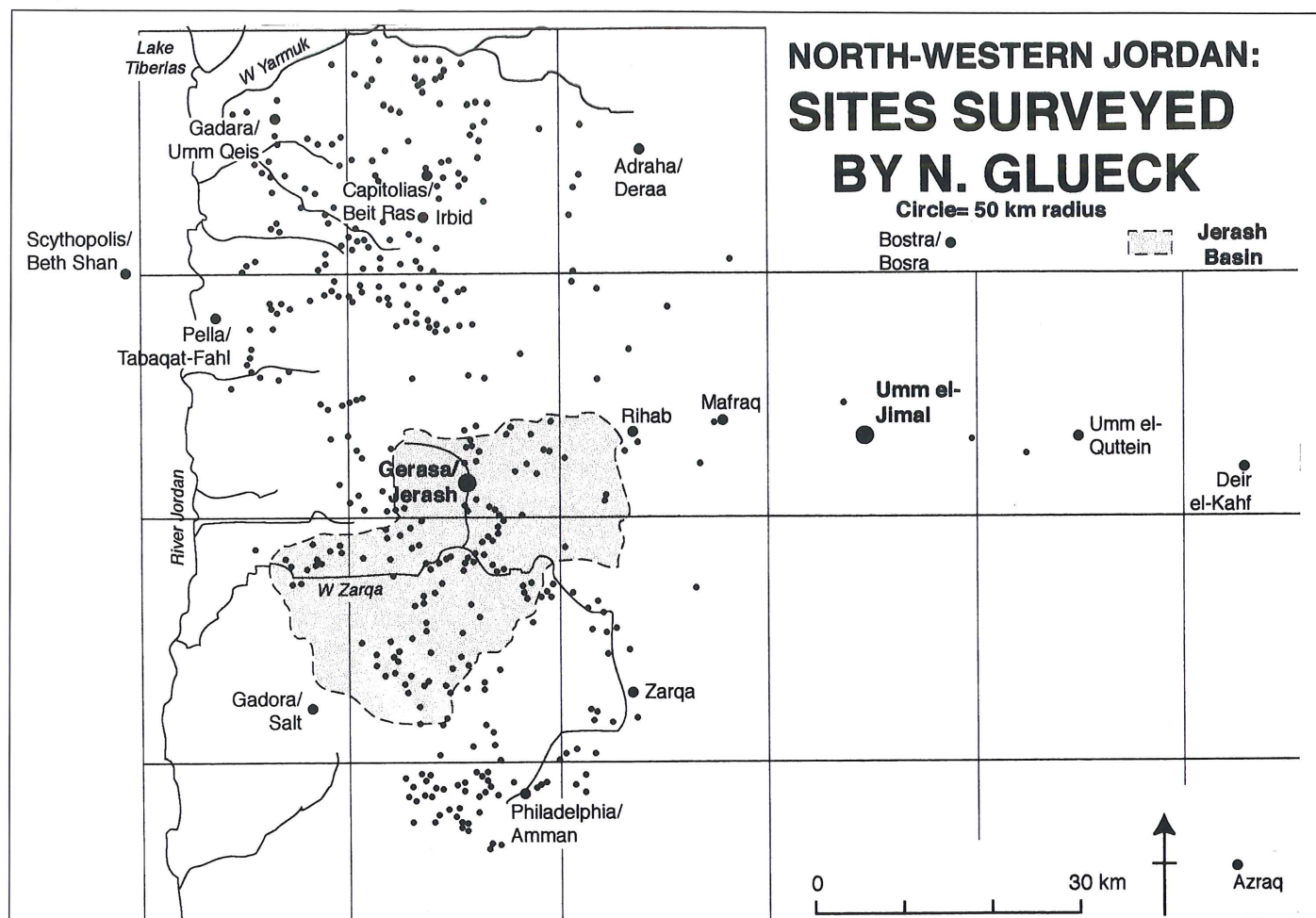
¹ In a recent analysis of major surveys undertaken in what was once the Hellenistic world from Greece to Bactria, 13 of the 50 projects were in Jordan (Alcock 1994: 176-7, Table 9.1). Cf. Kennedy 2001b.

² This is described as a first season but no further seasons are reported and neither of the specialist reports (on rock-cut presses and on water mills) referred to seem to have been published.

³ Despite the title, the Jarash Region Survey was not included in this

discussion (Hanbury-Tenison 1987) which was selective or the Jarash-Tall al-Husn Highway Survey (Leonard 1987) which was intensive but very small scale (see further below).

⁴ The exact number is not cited but a site called WZ120 is the highest number noted. Banning 1996 for an overview of the findings and full references to earlier publications. There has not so far been a final report.



2. Map illustrating the number and distribution of sites in north-western Jordan recorded by Nelson Glueck (1934; 1935; 1939; 1951).

nal remains and coring in some pools on the plateau (Banning *et al.* 1987: 322-3). One important by-product in this instance has been the conclusion that erosion has left a deep cover of as much as 1.5m over parts of the area hiding all trace of sites in those places (Banning *et al.* 1989: 57). Such studies have so far played a very limited part in ground surveys in this region.

The Wādī al-Yābis Survey ran through four seasons (1987, 1989, 1990, 1992). It involved an area of 186km² within which sample transects for intensive field walking took place in each of the three principal environmental zones. In total 246 sites were recorded — mostly previously unknown — and six were explored further by excavation.⁵ This important data has allowed a preliminary settlement history to be outlined (Mabry and Palumbo 1989; 1996).

Third, there is the excellent survey carried out in the Pella Hinterland Survey (Watson 1996; 1997; 1998).

Only a modest 12km² was tackled in each of three successive seasons (1995-1997). Reports provide the basic data :

Season	Sites	After Breakdown of Multiple and Linked Components
1994	192	257
1995	447	1000+
1996	109	?
TOTALS	748	1257+

Although the survey was only fully intensive closest to Pella, the numbers of sites is huge. When “multi-feature sites” and “spatially-linked features” are counted as components the number leaps yet higher. The largest single category has been the tombs (dolmens and tumuli), over 700 of which have been recorded.⁶ The preliminary report on the first season is a model of clarity and highly informative (Watson 1996).⁷ Despite the limited area cov-

⁵ Mabry and Palumbo 1989 and 1996 for overviews and references.

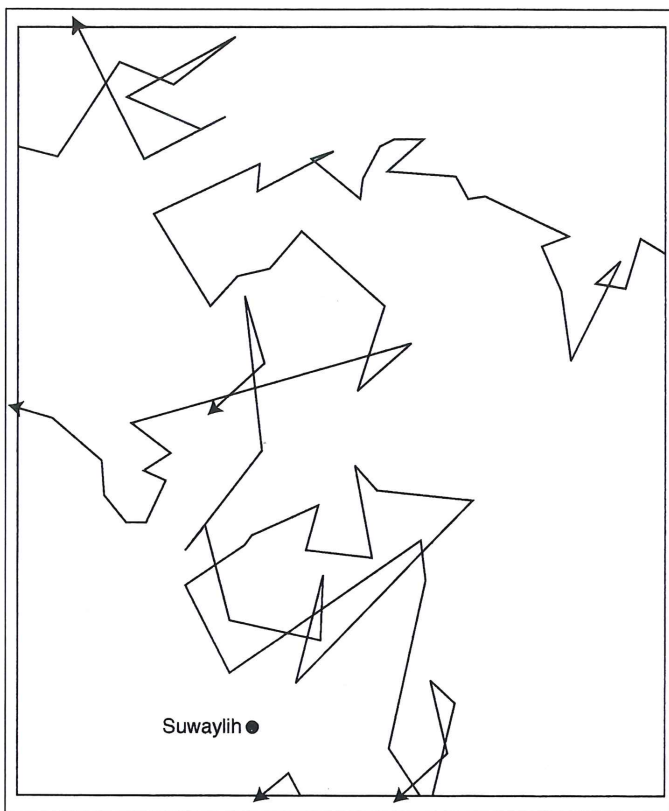
There has not so far been a final report.

⁶ These are now the subject of a separate survey (Baker 1998).

⁷ There are brief reports on the subsequent seasons (Watson 1997; 1998) and further studies arising from the survey (Watson 2001a; 2001b; forthc.).

ered it is surely a model for ground survey in future.

Finally, the excellent work carried out by Palumbo and



3. The random nature of the itinerary followed by Nelson Glueck in the Suwayliḥ area in the course of that survey.

TABLE 1. A survey of ground surveys in north-western-Jordan.

The following list is of those surveys that have been published to some extent. It does not include the survey by Glueck which encompassed the entire country. Nor does it include a bibliography — many surveys have been led to numerous publications and the list at this point would not be helpful. Several surveys are included in the *Archaeology of Jordan gazetteer* and/ or the *Oxford Encyclopedia of Near Eastern Archaeology* where a partial bibliography can be found. Numbers in parenthesis refer to the survey locations shown on Figure 3.

Wide-ranging, purposive surveys

- Glueck's survey of Transjordan
- Augustinovic and Bagatti's "Escursioni nel dintorni di 'Ajlun"
- Mittmann's survey of Roman sites in north-western Jordan
- Jarash Region Survey
- (Wide-ranging survey by Jean Sapin-frequently referred to but unpublished)

Systematic surveys

- 'Ayn Ghazāl Survey (1)
- Baq'ah Valley Survey (2)
- Black Desert Survey (3)
- East Jordan Valley Survey
- Greater 'Ammān Survey (4)
- Irbid-Bayt Rās Region Survey (5)
- Jabal Qurma Survey

colleagues along Wādī al-Yābis is now being pursued by Kafafi and Palumbo north and northwest of az-Zarqā' in Wādī az-Zarqā'/Wādī aḍ-Ḍulayl Survey. This survey is of a rather different kind. In contrast to Watson's 36km², a much larger area of 114km² is being explored. Some sites have been found by intensive survey in parts of the area but many more by interpretation of aerial photos. In the first season (1996) a total of 329 sites was recorded but most were cairns and 275 were identified "with the help of the aerial photos" (Palumbo *et al.* 1996: 380).⁸ Of the total sites, 69 were explored on the ground and there has been useful analysis of this data already (Palumbo *et al.* 1996; cf. Kennedy 2000: App. 3). In this instance the survey is notable for its use of air photographs on a total and intensive level and for the material being manipulated on a GIS (cf. Palumbo 1997).

This survey of surveys could – and should – be extended eastward where other surveys have been carried out whose findings are of importance for how the arable highland, semi-arid pre-desert and desert interacted. Significant here have been the Black Desert Survey (Betts 1998), the Southern Ḥawrān Survey (Kennedy and Freeman 1995) and Betts' survey along part of Wādī al-'Āqib (Betts *et al.* 1995, 1996) (FIG. 4).

Collectively these surveys both old and new have recorded a huge number of sites. Allowing for difficulties of interpretation and overlap, it is still clear that in the area bounded by the Yarmūk and Jordan rivers, the 'Ammān area and the az-Zarqā' to al-Mafraq highway a few thousand sites are known of already, and many more are likely in the huge areas not intensively surveyed. As

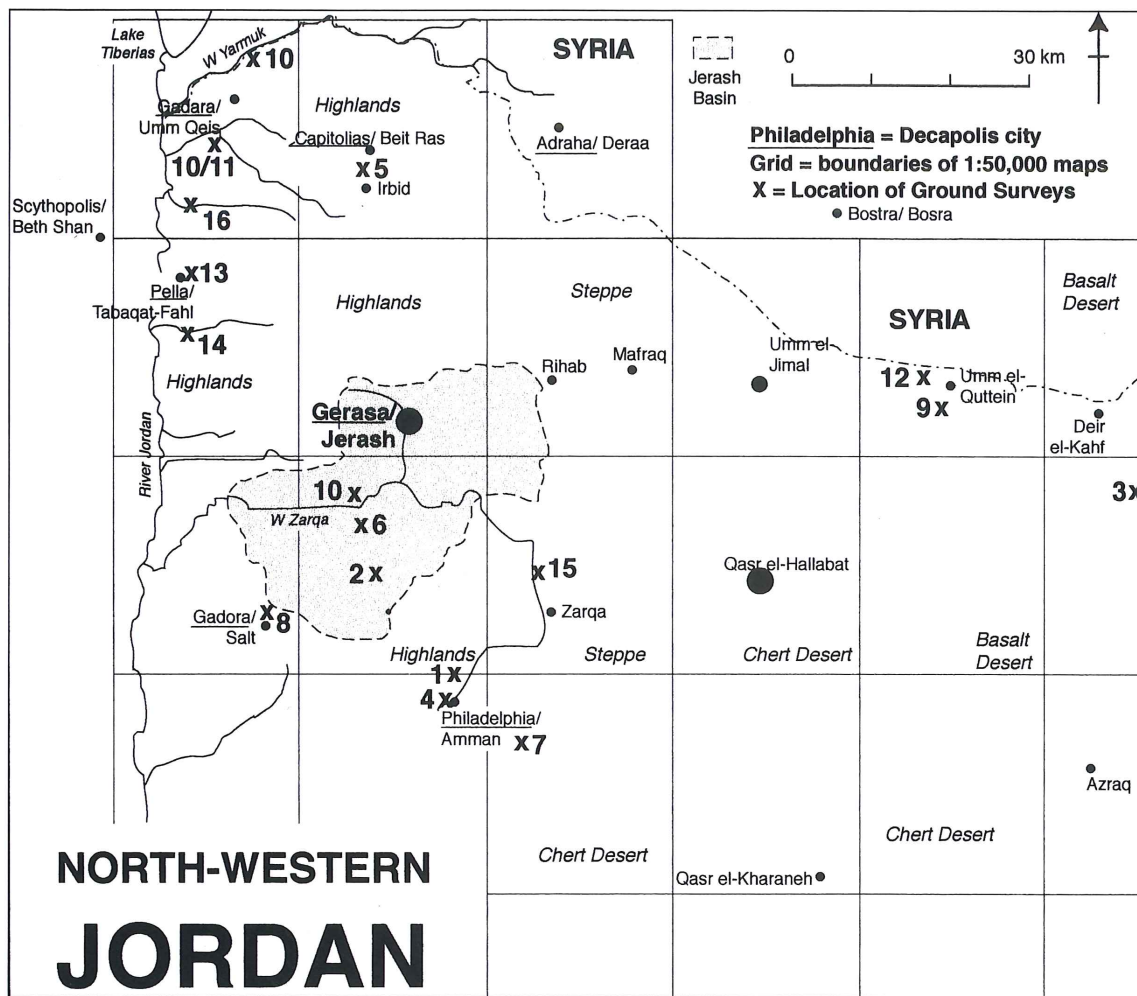
- Jarash-Tall al-Ḥuṣn Highway Survey
- Jisr Shaykh Ḥussayn Regional Survey
- Rummān Survey 1985 (6)
- Ṣaḥāb Survey (7)
- Ṣalṭ Regional Survey (8)
- Southern Ḥawrān Survey (9)
- (Three Reservoirs Surveys) (10)
- Wādī al-'Arab Survey (11)
- (Wādī al-'Āqib Survey) (12)
- Wādī Jilāt Survey

Intensive surveys

- Pella Hinterland Survey (13)
- Wādī al-Yābis Survey (14)
- Wādī az-Zarqā'/ Wādī aḍ-Ḍulayl Survey (15)
- Wādī Ziqlāb Survey (16)

⁸ A further 80 were recorded in the second season (Kafafi *et al.* 1997) but the details available have not allowed them to be integrated with

the material of the previous season (cf. Kennedy 2000: Appendix 3).



4. Map illustrating the location of the principal surveys in north-western Jordan.

interpretation of the air photographs for the pre-desert and desert beyond have shown, there are several thousand more sites in that area albeit overwhelmingly known only so far from the photographs (Kennedy 1997; 1998a; 2001b).

A common theme of most surveys that have resulted in an attempt at writing a settlement history, is that certain periods stand out. The peak is the Roman, especially the later part (4th to 7th centuries), with the Bronze Age second. The inclusion now of sites of all kinds has shown the range of site types from towns to quarries. Nevertheless, we are not yet able to use this data in the way advocated by Wilkinson (forthc.). In a study of ground survey projects and population trends in Mesopotamia he says:

“The most expedient approach for Mesopotamian archaeology is first that full-coverage methods be used to recover the basic settlement structure, and the second [is] for sample surveys, such as intensive walking transects across strips of terrain, to be employed to provide estimates of the full distribution of site sizes as well as the lower end of the settlement size range”.

No one has yet put together the information for the former in a systematic and detailed fashion while the various intensive surveys have yet to be published in full and have tended to employ rather different methodologies. There is, moreover, a need for survey in one area which so far has been largely overlooked in the intensive surveys of recent years but which is, arguably, the most important of all.

The Jarash Region: Defining the Boundaries

Despite the promising title of one survey (Hanbury-Tenison 1987) there has been no significant intensive ground survey in the vicinity of Jarash. What, in any case, would the boundaries of such a survey area be? Defining the boundaries of a survey area raises the inevitable problems of any prospective survey. Of those discussed above, a variety of approaches have been adopted. Some had the boundaries imposed by circumstances — the Three Reservoirs Survey, and the Jarash — Tall al-Ḥuṣn Highway Survey; others have selected a major natural feature — Wādī Ziqlāb and Wādī al-Yābis; others still have focused

on an area definable by other criteria—the Pella Hinterland Survey and Wādī az-Zarqā’/Wādī ad-Ḍulayl Survey.

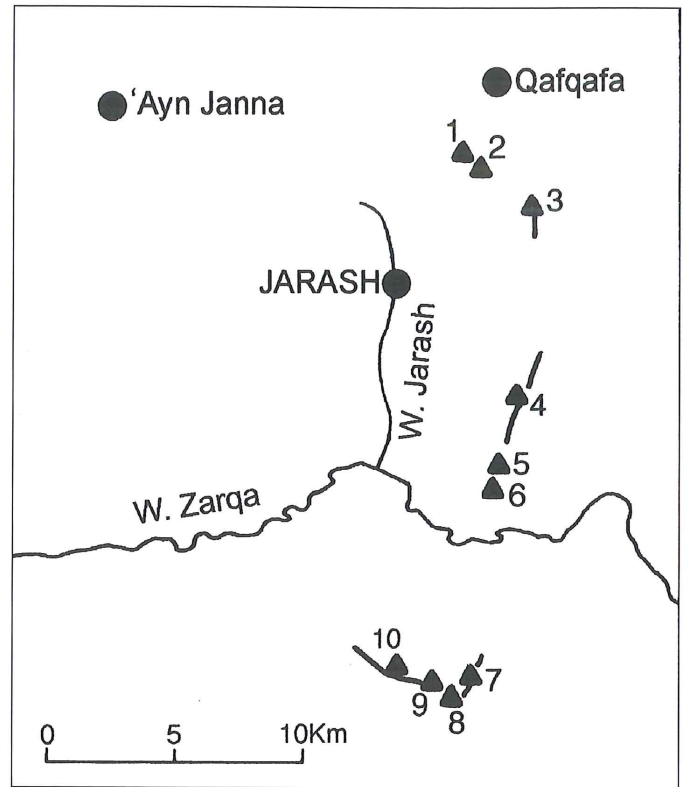
In the case of an area containing a major urban site, ideally we would survey the “territory” of the city — the land within the ancient boundaries that separated it from its neighbours on every side.⁹ Let us explore the options for Jarash.

(a) Unusually for an ancient city we do know something about the boundaries. Eusebius’ *Onomasticon* names Gerasa and a number of villages east of the Jordan, but unlike some instances in Palaestina (most notably Eleutheropolis) (Isaac 1996: 162-165) he provides none of the useful information linking named villages to specific city territories. On the other hand, he is usually credited with locating the southern boundary of Gerasa on the R. Jabbok — the modern Wādī az-Zarqā’ which he says separates it from Philadelphia (*Onom.* 102.19-22; 103.19-22).¹⁰ But that should probably not be pressed; it need not be more than a loose designation. Besides, even if reliable, it is still only one part of the boundary.

More important, we now have clues on the ground from the important discoveries in 1997 by Jacques Seigne of what are certainly inscribed boundary markers and banks forming physical markers (FIG. 5). These form only a small part of the circuit and are undated, but those we do have extend south of Wādī az-Zarqā’ and contradict Eusebius.

(b) An alternative is to define a theoretical territory by constructing a Thiessen polygon in relation to the neighbours of Gerasa. An immediate difficulty is determining which are the autonomous neighbouring cities at any point in time that shared boundaries with Gerasa. As the map shows, the obvious closest neighbours on each side are Bostra, Philadelphia, Gadara (Salt), Pella, and Capitolias. However, we do not know enough about Capitolias to be sure we should use it rather than the much more important Gadara (Umm Qays). Nor can we be certain that Adraha did not have a common frontier with Gerasa. Figure 6 shows one possibility. There is an obvious problem with it — we have good evidence that the territory of Bostra stretched not just to the neighbourhood of modern al-Mafraq but included Riḥāb — contradicting the implications of the polygon. On the other hand, this Thiessen polygon “territory” too extends well south of Wādī az-Zarqā’.

(c) Another possibility is simply to draw a circle with Gerasa as its centre (FIG. 7). For present purposes the circle has been given a radius of 25km. This is not en-



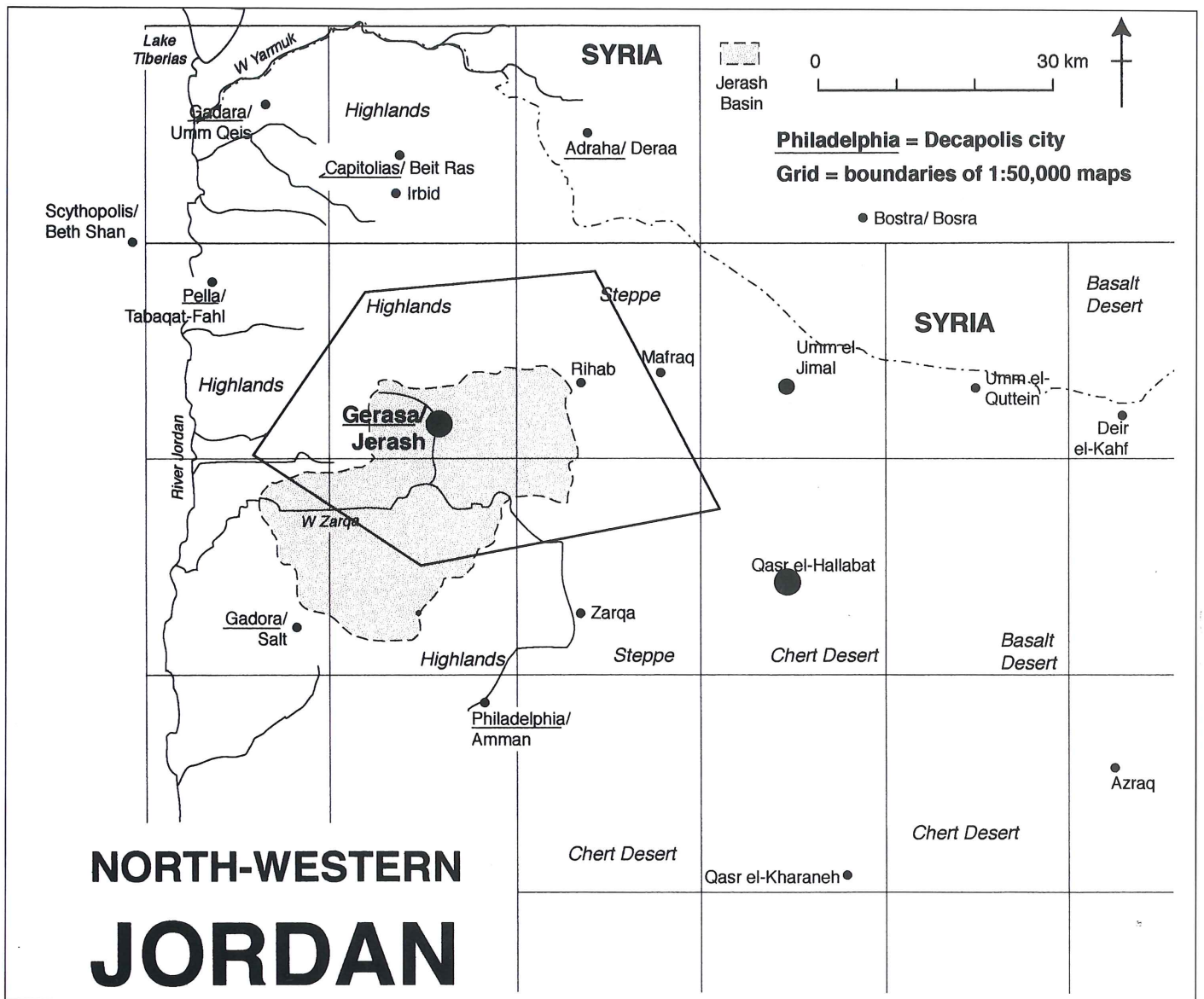
5. Location of boundary markers thought to be those of the territory of Gerasa at some point in its history (after Seigne 1997).

tirely arbitrary. The major cities of this region in the Graeco-Roman period were separated from their nearest neighbour by straight line distances of between ca. 35 and 60km. Pedestrians traveling at a recognised pace of 4 to 5km per hour, would require a long day or more to cover such distances — probably more if one allows in this area for winding hill roads and steep ascents/descents. The land encompassed by a circle of 25km radius might broadly represent what the citizens of Gerasa would regard as within their personal everyday world. The circuit, however, would be an ideal, making no provision for the enormous variability of the landscape.

(d) A fourth alternative is to look at the natural boundaries of Gerasa, inferable from the physical geography of the vicinity. Figure 8 shows the water drainage system of the region. The broken line shows the watershed boundary on all sides, the circuit of hills within which all the streams drain in towards Wādī az-Zarqā’ defining an area of about 600km². Only az-Zarqā’ itself cuts through this circuit. Within this area there are several areas of hill and from Jarash itself, the circuit

⁹ We should probably talk of “territories” rather than “territory” as it is likely boundaries changed at one or more points in Gerasa’s long history as an urban centre. The subject was discussed by me in a different context (Kennedy 1998b: 48-52).

¹⁰ Iaboc fluius ... Fluit autem inter Amman, hoc est Filadelfiam, et Gerasam in quarto miliario, et ultra procedens Iordani fluio commiscetur (Eusebius *Onom.* 103.19-22).



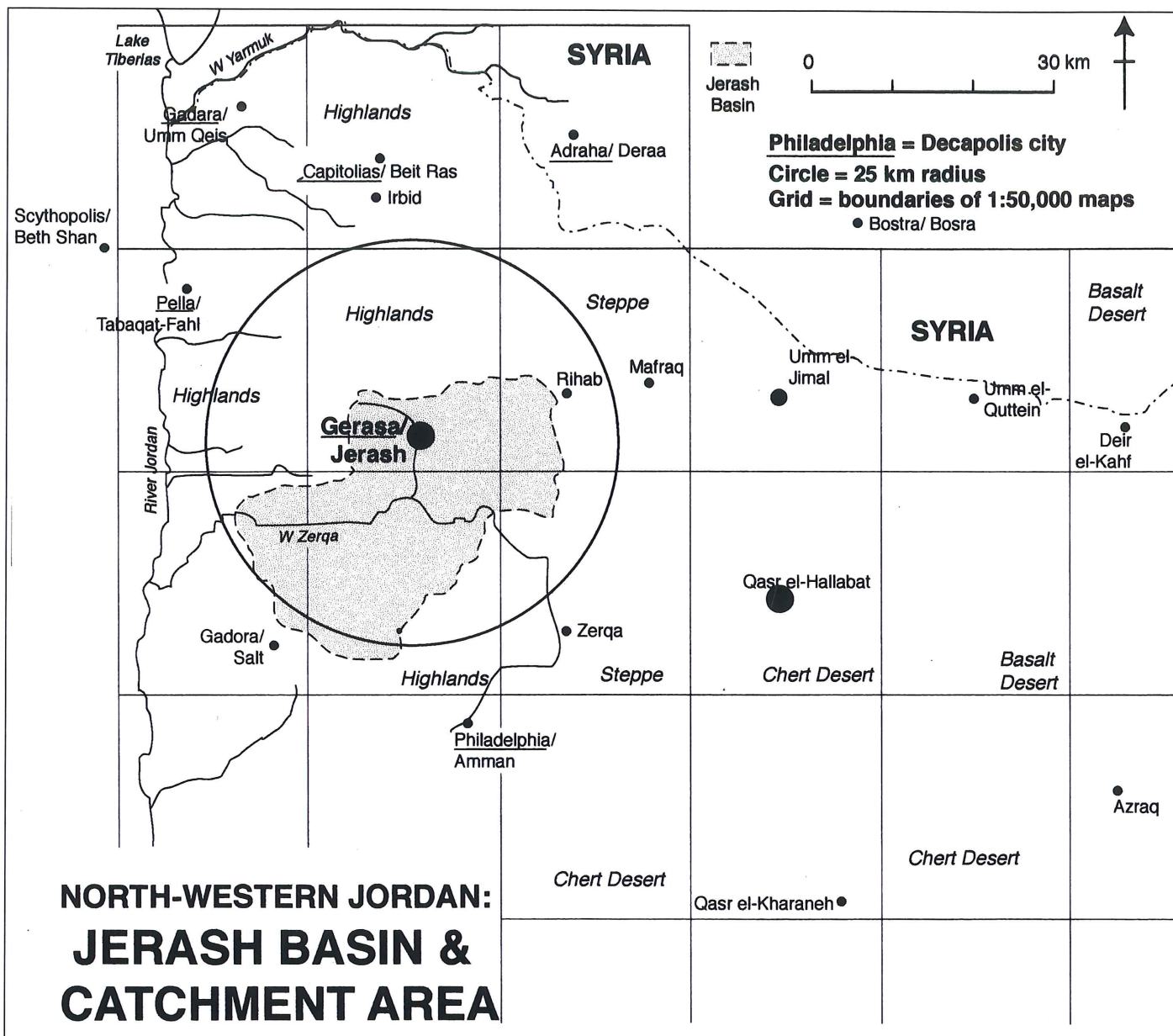
6. The apportionment of territory to Gerasa through the drawing of a Thiessen polygon.

of hills visible all around is far more limited than that of this map. There are several features of interest. First, while the viewer from Jarash might have felt Wādī az-Zarqā' to be an obvious and natural boundary to the south, as noted (above) the recently discovered boundary markers include elements from beyond the river. Second, the most distant natural boundary to the south is the hills that rise up at modern Şuwayliḥ. This would imply — as one might have inferred — that the plateau of Şuwayliḥ “belonged” in natural terms to the territory of Philadelphia while the

Baqā'ah Valley to its north belonged to Gerasa. Third, the watershed on the east leaves Riḥāb outside this drainage basin which accords with the evidence that that large village belonged rather to the pre-desert territory of Bostra (above). Finally, to the north the ridge of the northern watershed extends well to the east of Qafqafā while stopping well short of 'Ayn Janna in the west. From Jarash, the hills rising up beyond Sūf to the north-west mark the watershed and the major springs around 'Ayn Janna lie beyond the Jarash Basin.¹¹

¹¹ Contrary to how it is often expressed in standard textbooks where the watershed is expressed in terms of a line from 'Ayn Janna to Qafqafā (as adopted by me in Kennedy 1998b: 50-51). It may be noted, too, that the territorial boundary between Gerasa and Pella

implied by milestone numbering probably lay in the vicinity of modern 'Ajlūn and that 'Ayn Janna could have been in either (Kennedy 1998b: 50; cf. Atallah 2003).



7. The catchment area of Gerasa as defined by a circle of 25km radius.

Unlike either of the previous possibilities, this natural basin — the Jarash Basin — has the advantage of definable, and immovable boundaries, not subject to chronological variation and unaffected by political considerations.

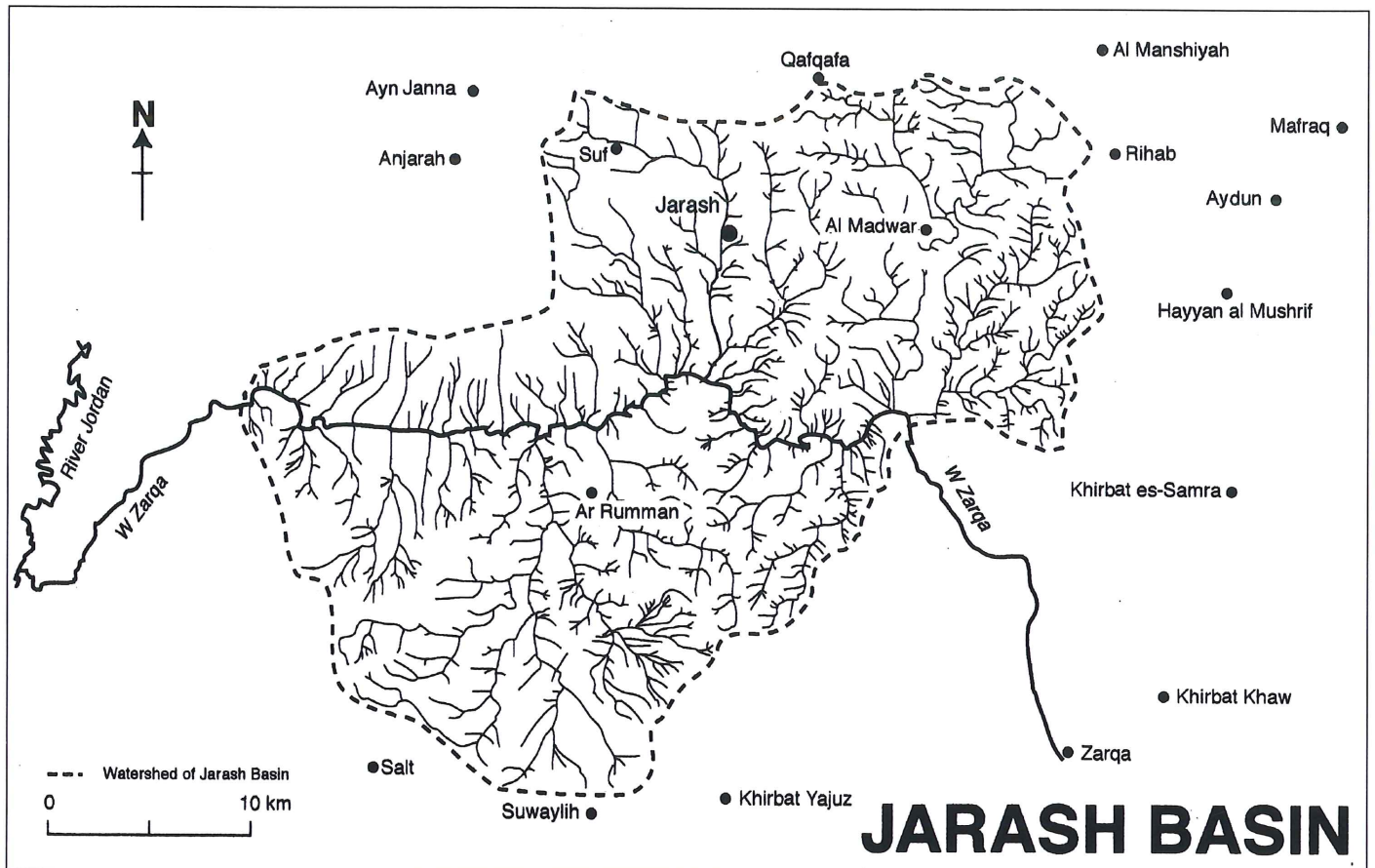
As will be apparent from the options discussed, the first three have serious flaws. The fourth, the Jarash Basin, seems to me to offer the best solution to defining boundaries for a survey.

Previous Fieldwork in the Jarash Basin

Jarash itself was the subject of numerous visits and re-

ports during the 19th century as western travelers passed through — beginning with Ulrich Seetzen in 1806. In the 20th century, excavation began under the British Mandate and has been almost unbroken since. Outstanding, of course, was the Jarash Archaeological Project initiated in 1981 with major publications to add to the already extensive bibliography (JAP I; JAP II; JAP III).

Within the wider area of the Jarash Basin various travelers and scholars from the early 19th century onwards have recorded sites. For example, Guy Le Strange (apud Schumacher 1886: 268-323) rode from Pella through Jarash and on to 'Ammān in 1884, regularly referring to



8. The Jarash Basin: the natural boundaries of Jarash defined in terms of the watersheds. Note that Wādī az-Zarqā' cuts through the watersheds at either side of the basin.

ruins observed along his route.

Significant and much more systematic survey in the Basin only began with Nelson Glueck (1934-1951). As the map (FIG. 8) shows he recorded and reported on 108 sites. His approach was, of course purposive and uneven (above) — in particular there is a significant thinning of sites in the north-east of the Basin and in the area between as-Salt and Wādī az-Zarqā'. Also noted above were the surveys of Augustinovic and Bagatti (1951) and Mittmann (1970) that recorded dozens of sites in the Basin. Although highly selective, their reports, too, remain precious records of places often not visited again or which have been seriously eroded since then.

As we saw, the survey in advance of the King Ṭalāl Dam on Wādī az-Zarqā' added only a few sites to those reported by Glueck. The "Jarash Region Survey" (Hanbury-Tenison 1987) was mainly concerned with Bronze Age sites and was purposive (above); nevertheless, it reported on 59 sites, 29 of them not previously known. About the same time, excavations in the Baq'ah valley north of Ṣuwayliḥ also involved some survey in the vicinity but the results remain hard to evaluate (McGovern 1989; 1997). The only systematic and intensive survey in

the Jarash Basin was that along the narrow line of the Jarash Highway by-pass road in 1984 (Leonard 1987) when 30 sites were recorded. There have been other findings in the Jarash Basin by individuals such as Jean Sapin and the late Francois Carrée but these remain largely unpublished. Collectively the number of sites we could already plot on a map from all these sources is at least several hundred but that is surely a small fraction of what is there and is of little use for interpretation of settlement history.

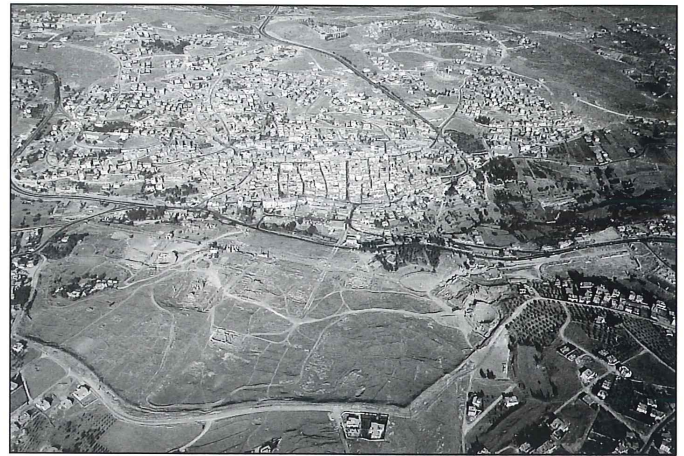
Aerial Survey

The total picture as currently known may be developed further by turning to a source not normally available. The Jarash Basin has been frequently photographed from the air over the years not least the ruins of Jarash themselves. Some go back to as early as German Air Force views of 1918 and such old air photographs have something to add. One from 1926 shows clearly the traces on the tall hill west of the circus/hippodrome of what seems to be the outline of major defensive walls (Kennedy 1998b: 56 and Pl. 2). Others of the same period show the important Bronze Age predecessor — Tall Jarash-before it's more

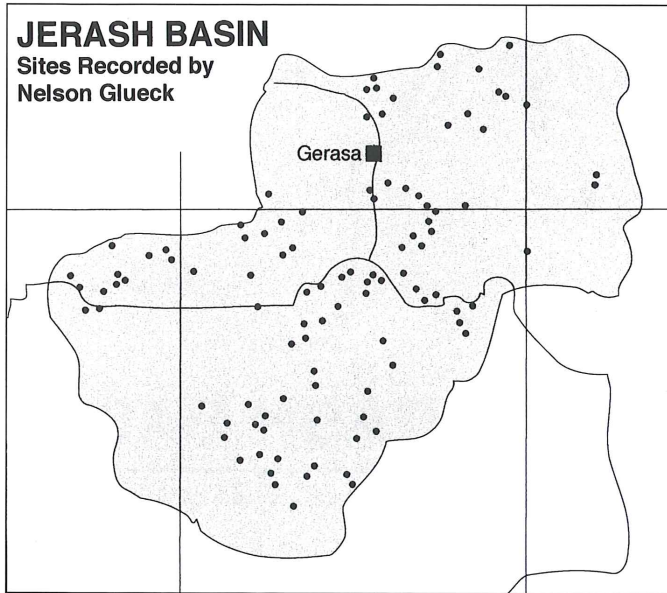
recent disappearance under modern buildings and roads (cf. Glueck 1939a) (FIGS. 10 and 11).

Vertical surveys of the Jarash Basin have been common and that of 1953 has been the subject of a systematic air photo interpretation (Kennedy 1997; 1998a). The area even in 1953 was extensively farmed and — ironically — sites there were far less well preserved and visible than in the pre-desert and desert to the east. Nevertheless, 325 sites were recorded, many of which are not amongst those already known (FIG. 12).

A more recent development has been the opportunity to carry out systematic aerial reconnaissance in this area. In 1999 and 2000 parts of a wider programme of flying



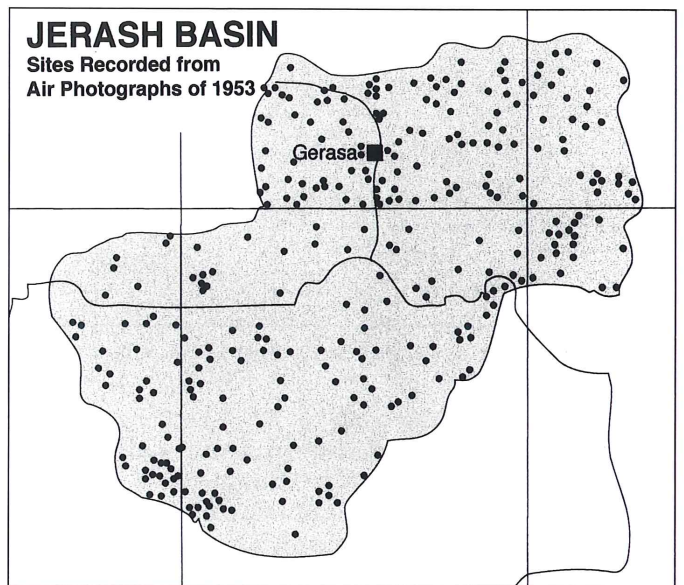
11. Tall Jarash in a oblique view of 1999 by which time the modern town had filled the eastern half of ancient Gerasa and spilled out to encompass this Bronze Age site as well (APA99/SL19.14, 16 June 1999).



9. Sites recorded by Glueck in the Jarash Basin.



10. Tall Jarash, the Bronze Age predecessor of Gerasa, in an air photograph of 1926 (RAF 1926).



12. Sites in the Jarash Basin identified through interpretation of vertical air photographs of 1953. Total = 325.

supported by the Royal Jordanian Air Force was devoted explicitly to areas of the Jarash Basin. In total there were only a few hours of flying and it was still largely experimental as we explored suitable methodologies. Nevertheless, the results have been encouraging. A preliminary indication of the potential of this technique can also serve to illustrate the potential of a ground survey and what the methodology should be. The area from which the following examples are selected is that where Glueck recorded least, the north-east of the Basin (cf. see FIG. 9).

The part of the Jarash Basin in question is that stretching east from Wādī Jarash and bounded by the watershed in the north and east and Wādī az-Zarqā' to the south. The area is less well watered and less fertile than that to the

west and soon shades off just beyond the watershed to the pre-desert beyond. Nevertheless, there is ample and growing evidence for extensive settlement of many periods.

This area east of Jarash is known above all for one particular type of structure: dolmens (FIG. 13). Glueck reported what he called “dolmen fields on the hills around Qafqafa” (1951: IV.1: 77 Site 259). They are in fact a familiar feature of the landscape over much of this area. Most are long since pillaged and consist of no more than the standing or collapsed orthostats but Glueck claimed there were some still covered in their tumuli in this area. Dolmens are of course common in Jordan, have been de-



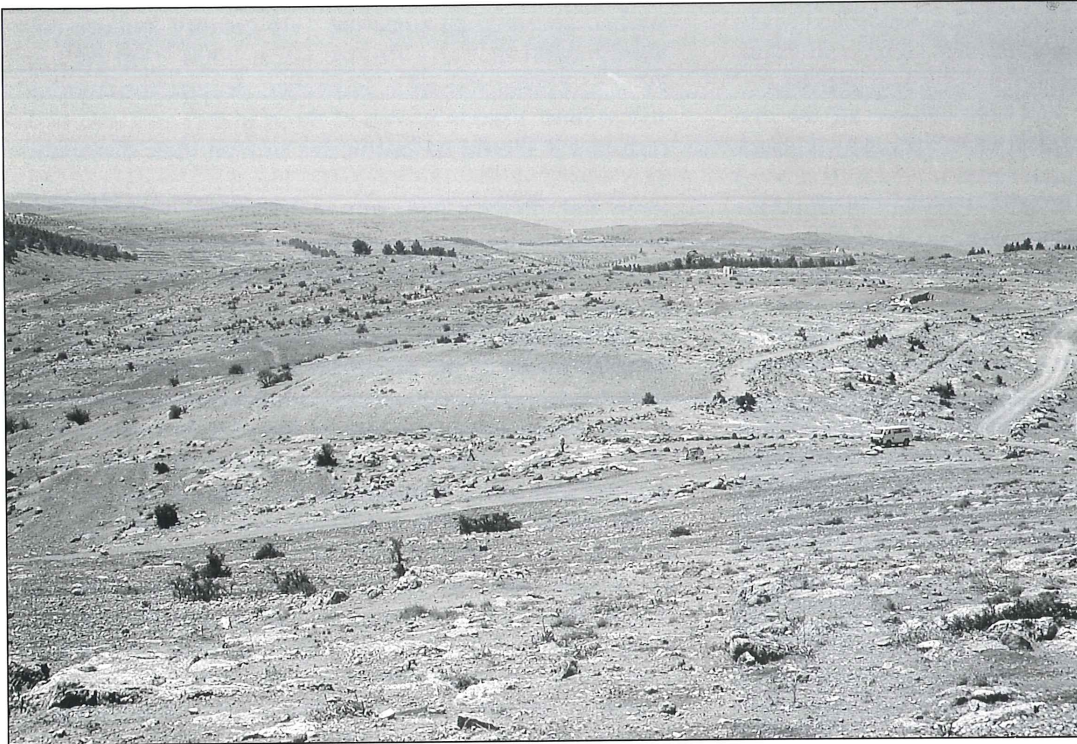
13. A dolmen between Kh. ‘Ayn and Khaṭlah (JRS99/SL23.21, 18 June 1999).

scribed and studied since the 19th century and are commonly dated to Early Bronze I (ca. 3300-2900 BC) and IV (ca. 2100-1950 BC). However, despite the hundreds still visible, little is known of those in this area east of Jarash and it should be instructive to map their distribution as a whole, define their specific locations and types, date them and interpret their role as possible territory markers of a population in an increasingly marginal area (cf. Prag 1995). They must also be related to the next feature to be discussed.

During the 1990s, while Romanists have sought in vain for traces of the presumed Roman road running east from Gerasa (Kennedy 1998b: 50; 2000: 443-4), Francois Carrée found numerous simple but clearly defined roads of a different kind in this area. These too must yet be mapped and aerial photographs can help enormously with what will otherwise be a difficult task. From the air, traces stand out as cleared paths, broad but running in roughly straight lines in the hills east of Jarash (FIG. 14). Where they can be viewed on the ground they are still clearly marked by the more open surface bounded between two kerbs of stones whose surfaces are thickly coated in lichen (FIG. 15). The general impression of great antiquity is supported by the proximity in many cases of dolmens. Prag has argued in relation to the dolmens north and northeast of the Dead Sea that their distribution was determined by transhumant patterns rather than emerging tracks or routes. In this area east of Jarash, where some broader impression is possible, the roads



14. An ancient road on a hillside a few kilometres east of Jarash (APA00/ SL4.8, 29 August 2000).



15. The junction of two ancient (arrowed) roads north of Duqmusah (between Jarash and Riḥāb). A modern vehicle track stands out differently from the ancient tracks (JRS99/SL27.24, 25 June 1999).

seem to form a network between villages — both ancient deserted ones and modern ones overlying earlier ruins. If the pattern is related to settlements, it becomes important to understand the pattern and dates of the latter as we may be looking at an integrated system of emerging settlements and tracks between them. The tracks show no traces of wheel marks and may be better viewed as intended

for pack animals.

Farms of the Roman period can be identified. At Al-Makhbath Glueck reported a significant Roman structure at a site now overlain by a modern farm. A recent visit noted massive well-cut blocks of masonry, a few architectural pieces, an olive press and several tomb chambers (FIG. 16). Glueck also saw a small stone altar. The area is



16. Al-Makhbath: architectural piece built into the wall of the overlying modern farm (JRS99/SL29.32, 29 June 1999).

farmed today and overlooks a deep valley with a perennial stream along which are several large new houses.

Most modern villages in the Jarash Basin have had ancient traces recorded. In numerous instances the antiquity of the modern place is implicit in the common place-name element, *khirbat*, "ruin". In several places one may see the traces of an ancient village where there is no modern successor. For example, at Şa'ad, a joint Jordanian and United States team has excavated on what they have described as "a medium-sized agricultural village" occupied from early Roman times to the 15th/16th centuries. Its remains cover an area of about 2ha on quite steep slopes beside a meandering wadi course.

The basis of the economy can be seen in the traces of terracing on the neighbouring hills visible on the air photos and an (undated) building included six grape presses. The excavators explored a house of the 2nd-5th centuries AD that continued in use into the Islamic period. A church (25 x 14m) with geometric and figured mosaics was excavated and a small mosque (11.5m²) in use from the 7th century to the late Middle Ages. Two cemeteries were excavated containing both chamber tombs and individual rock-cut graves. Many of the ca. 70 graves were intact and there was a significant range of grave goods such as lamps, beads, earrings, rings, and bracelets — some including gold (Sari 1995; Rose *et al.* 1997; McGinnis and el-Najjar 1998). Şa'ad is an example of a deserted ancient village and a rare instance in Jordan of excavation of such a site.

At Khaṭlah, 8km to the south-west is another deserted

village. There has been no excavation in this case but surface inspection has identified a church with mosaics, houses, one or more buildings with simple columns and capitals and roof tiles. The pottery is again of the early Roman to mediaeval period. The air photos show an extensive site spread over ca. 2ha on a slope above a stream in a pleasant valley and we may expect a parallel to Şa'ad (Glueck 1951: 71; Mittmann 1970: 162-163).

Finally, an apparent new discovery (cf. Glueck 1951: IV.1: 86 Site 262) just 3km southeast of Jarash at Khirbat Umm ash-Sharayit (FIG. 17). It was spotted from the air in 2000 and subsequently visited on the ground. The square structure on the outcrop is very clear, as is the trace of a road running along its southern edge. Ground inspection added traces of structures including rock-cut graves south of the road and pottery of the Roman period. It is a good example of the contribution of aerial survey and also reinforces the axiom that all aerial survey must be complemented by ground inspection.

A Jarash Basin Archaeological Project

The Jarash Basin has been relatively neglected by archaeologists despite its extreme vulnerability to development. What we do know already suggests it is an archaeologically rich and diverse area. The purpose of this paper is to recommend that a multi-period, multi-disciplinary ground survey be initiated as soon as possible. The strategy would involve what are now becoming common-full-coverage methods to recover the basic settlement structure followed by intensive ground survey.



17. A roadside defended Umm ash-sharayit. The modern roads had followed the stream below leaving traces of the ancient road on the high ground above (APA00/SL3.11, 29 August 2000).

However, what this should mean in practise is a more comprehensive approach that is often possible because of the unusually favourable conditions for working in Jordan.

Full-coverage methods:

- literature search
- geographical and environmental context
- scrutiny of existing air photographs
- preparation of broad surveys of the settlement history of the area
- establishment of a GIS for the project

Intensive ground survey:

- systematic field-walking
- aerial reconnaissance and LIDAR survey
- sample excavation at key sites to establish chronology and
- recovery of environmental and economic data

The present image of settlement in the area has been largely opportunistically and randomly determined and carries few reliable dates. In general, we need to replace it with one that can be regarded as more representative of each region and period.

The questions to be answered are:

- Where, when and how did people live?
- How did they provide for themselves?
- How did they interact with their neighbours?
- How numerous were they?
- What patterns of land use and settlement can be identified?
- What were the dynamics of change and development: military, environmental, political, cultural, demographic, ...?
- What were the consequences of change?
- What was the relationship between the components identifiable in various periods: town and country; military and civilian; farmer and nomad; native and colonist.

For the period of peak settlement when the region was part of a much larger political structure whose centre lay at different times far to the east (Assyria, Babylon, Persia) or west (Greece and Rome), north (Umayyad) etc, the fundamental questions are:

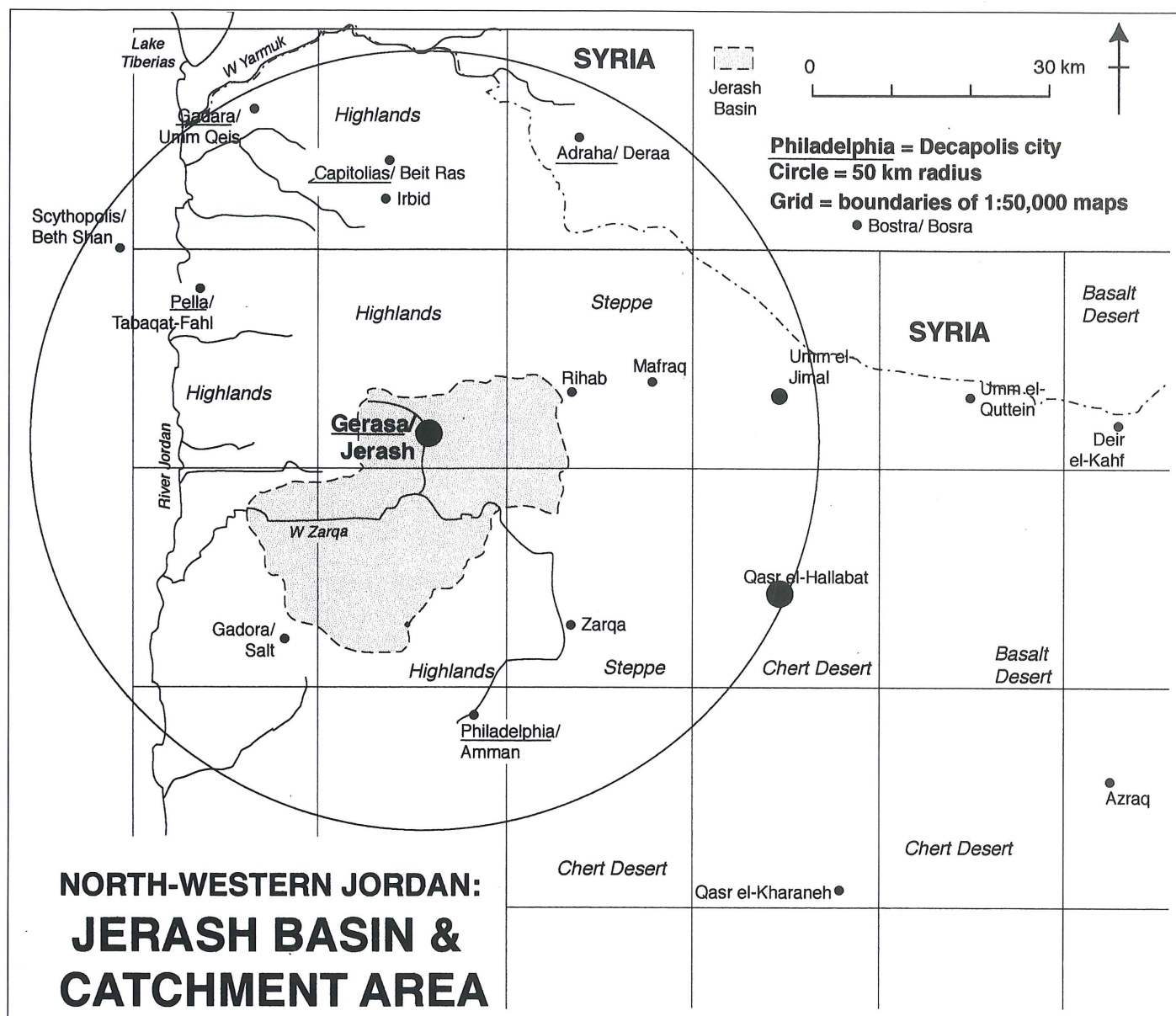
- What were the effects of the coming of Assyria ... Rome ...?
- For the Roman period, what were the longer-term consequences for this area of being part of a Mediterranean-wide empire for seven centuries?
- To what extent was the culture and identity of the area deflected from its existing course?

The itemisation of these goals reveals a weakness — the geographical scope is too limited. Despite the scale and significance of the Jarash Basin and of Gerasa itself, the project needs to be placed in a wider context still. As Woolf has recently noted (1997), scholars treating the

western part of the Roman Empire have long looked beyond single cities in their research; in the East that has not been the case till quite recently. In short, Gerasa should not be viewed in isolation but as part of an urban network — and not just in the high-profile Graeco-Roman period but in earlier and later periods. Moreover, as noted above, the outcome of ground survey in the Jarash Basin can be placed in the context of several surveys for the same wider region. What that region should be can be defined simply through this next map that shows the major centers of the period of greatest urbanisation (FIG. 18). The circle of 50km radius encompasses not just the entire Jarash Basin but also the other major cities of the Graeco-Roman period. More than that it includes three of the defining features of this wider region — the Jordan Valley and the deep cut of Wādī al-Yarmūk and the highland zone. The valleys probably turned the settlements of north-western Jordan eastwards and southwards in their outlook and constituted significant natural boundaries. The Highlands of ‘Ajlūn and those of the Northern Balqā’ constitute a distinctive zone which gives way to the plateau of Moab.

On the east, the landscape is different again. Here we should recollect the observation of Fergus Millar noted at the start of this paper (above). In the province of Arabia, he said, the various distinctive north-south components of the province were unified by their common interaction with the pre-desert and desert which lay to the east of them all (1993: 398). Within 50km of Gerasa as the circle shows lies part of a different world — a region of pre-desert marked by fertile but poorly watered soils. The region is one that served as a barometer of settlement success and failure to the west (cf. Barker *et al.* 1996; Kennedy 2001a). In times of security and rising population, the pre-desert was progressively settled. Instead of it being the domain of nomads and semi-nomads it became the preserve of the farmer. This was the area in which farmer and nomad met and interacted, in peaceful symbiosis or feud and warfare. As Millar says, an understanding of the urbanised and densely settled zones of the Jordanian plateau must be interpreted in the light of an appreciation of the influence and impact of the broad and deep world of the nomad to the east. But not just Jordan — the relationship of what Gertrude Bell long ago called “the desert and the sown” is as valid for Syria as for Jordan.

The final map (FIG. 19) adds a second circle, in this case centred on Qaşr al-Ḥallābāt. As is well-known — not least from the marvelous discoveries there of Dr. Ghazi Bisheh — this site was settled from at least Nabataean to late Umayyad times, comprises a Nabataean settlement, a Roman fort, a rich Umayyad residence, a mosque, a surrounding hamlet and a sophisticated water distribution system for cultivating an embanked garden area (FIG. 20). More widely there are traces of numerous animal

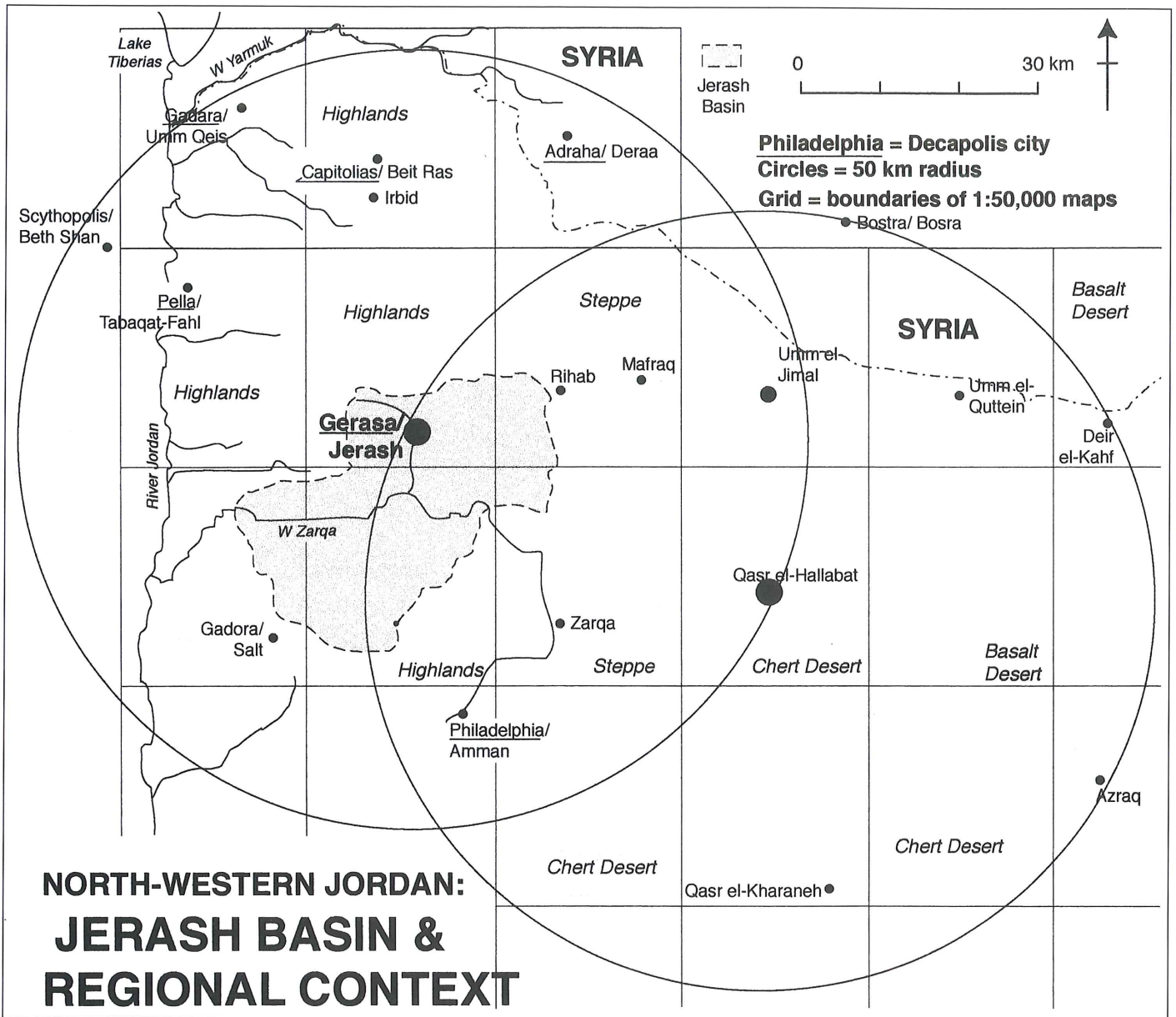


18. The Jarash Basin in the context of an urban zone represented by a circle of 50km radius.

traps/ “kites”, fossilised fields, a Roman road and an Umayyad bath-building. Within 50km of Qaşr al-Ḥallābāt lie not just Jarash and ‘Ammān but a large slice of the deep pre-desert in this area and the fertile Ḥawrān and its large villages to the north (De Vries 1998). To its south lies a chert desert of barren soils and a world inhospitable for human exploitation of almost every kind. To the east of Qaşr al-Ḥallābāt, however, is the basalt desert, an area renowned for its extraordinary range and number of man-made structures. This 50km radius also includes the al-Azraq Oasis, the largest water source after Palmyra in the entire Syrian Desert. The Basalt Desert has also received a great deal of scholarly attention for over a century and

there are important projects in progress (above). In short, the “world” of Qaşr al-Ḥallābāt intersects with that of Jarash while the place itself lies at a geographical and environmental cross roads where two types of desert meet each other and come face to face with the pre-desert.

In short, my proposal is to define the wider context of the Jarash Basin Archaeological Project in terms of two overlapping areas of interest — one centred on Jarash and the other on Qaşr al-Ḥallābāt. The proposal for not just an active fieldwork project around Jarash (the Jarash Basin Archaeological Project) but a wider, largely derivative research project encompassing a much wider context (the North-West Jordan Research Project) is, of course am-



19. The proposed study area of north-western Jordan. To the previous urban zone has now been added a second overlapping one encompassing largely a zone of pre-desert and two types of desert. Jointly they provide a significant slide through geography, environment, modes of life and settlement type.

bitious and dependent on the past, present and future research of the many people engaged in fieldwork there. But this is partly what makes this a suitable region for a major research project — it is geographically and environmentally varied, archaeologically rich, explored to a relatively high level and has attracted a number of high quality projects already. Is it even necessarily ambitious? One should compare for geographical scope if not chronological duration, the superb holistic study by Susan Alcock (1994; cf. Mattingly 1994) of Roman Greece and the stimulating *tour de force* of the villages of Palestine in the Byzantine period by Yizhar Hirschfeld (1997). This latter

is also a sobering reminder of how selective much archaeology has been in Jordan for the Classical period at least. The number of villages of the Hellenistic to Umayyad period in Jordan that have been extensively explored is in single figures and most of the research in them has focused on the churches. Compare the detailed analysis Hirschfeld could pursue of the varied patterns of settlement, the types of village, hamlet and farmstead, and the shape, size and internal divisions of houses. Such illuminating work is possible for Jordan as well but it will first require systematic exploration of wide areas of landscape recording, mapping and, selectively, excavating.



20. Qasr al-Hallābāt: The Roman fort/ Umayyad residence and mosque are on a hill surrounded by the traces of houses (as in the foreground). In Antiquity as again today, much of this pre-desert land was evidently farmed (APA97/ SL6.04, 27 May 1997).

The start should be in the region defined here.

Abbreviations

Atlas 1984 = *National Atlas of Jordan. I: Climate and Agroclimatology*, Amman.

JAP I = F. Zayadine (ed.) *Jerash Archaeological Project, 1981-1983, I*, 1986, Amman.

JAP II = *Jerash Archaeological Project, 1984-1988 II*, 1989, Paris (IFAPO 18) (= *Extrait de Syria* 66 (1989)).

JAP III = G. Gullini (ed.) (1983-1984) *Gerasha I. Report of the Italian Archaeological Expedition at Jerash. Campaigns 1977-1981*, Firenze (= *Mesopotamia* 18-19: 7-134).

Bibliography

Alcock, S. 1993. *Graecia Capta. the Landscapes of Roman Greece*. Cambridge.

— 1994. Breaking up the Hellenistic world: Survey and Society. Pp. 171-190 in I. Morris (ed.), *Classical Greece: Ancient Histories and Modern Archaeologies*. Cambridge.

Atallah, N. 2003. A New Roman Milestone Found at Istafina in the Ajlun Area, Jordan. *Levant* 35: in press.

Augustinovic, A. and Bagatti, R. 1951. Escursioni nel dintorni

di 'Ajlun. *LA* 2: 227-314.

Baker, F. 1998. Pella Hinterland Tomb Project 1998. *Levant* 30: 215-6.

Banning, E. B. 1996. Ziqlab, Wadi. *OEANE* 5: 391-392.

Banning, E. B., Dods, R., McCorriston, J., Monckton, S. and Sheppard, P. 1987. Report on the Wadi Ziqlab Project 1986 Season of Excavations. *ADAJ* 31: 321-342, pls 53-59.

Banning, E. B., Dods, R., Field, J. J., Maltby, S. L., McCorriston, J., Monckton, S., Rubinstein, R. and Sheppard, P. 1989. Wadi Ziqlab Project 1987. A Preliminary Report. *ADAJ* 33: 43-58.

Barker, G., Gilbertson, D., Jones, B. and Mattingly, D. 1996. *Farming the Desert*. Vol. 1: *Synthesis*. Vol. 2: *Gazeteer and Pottery*. Paris-Tripoli-London.

Betts, A. V. G., Eames, S., Schroder, M. and Hesani, A. al-Q. 1995. Archaeological Survey of the Wadi el-'Ajib, Mafraq District. *ADAJ* 39: 149-168.

Betts, A. V. G., Eames, S., Hulka, S., Schroder, M., Rust, J. and McLasren, B. 1996. Studies of Bronze Age occupation in the Wadi el-'Ajib, Southern Hauran. *Levant* 28: 27-39.

Betts, A. V. G. (ed.) 1998. *The Harra and the Hamad. Excavations and Surveys in Eastern Jordan*. 1, Sheffield.

- Burns, R. 1992. *Monuments of Syria. An Historical Guide*. London/ New York.
- De Vries, B. 1998. *Umm el-Jimal. A Frontier Town and its Landscape in Northern Jordan*, Portsmouth, RI (JRA Supp. 27).
- Dutton, R., Clarke, J. and Battikhi, A. (eds.), (1998). *Arid Land Resources and their Management. Jordan's Desert Margin*, London.
- Glueck, N. (1934-1951). *Explorations in Eastern Palestine. I-IV*, New Haven (AASOR XIV [1933-1934], XV [1934-1935], XVIII-XIX [1937-1939], XXV-XXVIII [1945-1949]).
- 1939. The Earliest History of Jerash. *BASOR* 75: 22-30.
- Hanbury-Tenison, J. W. 1984. Wadi Arab Survey 1983. *ADAJ* 28: 385-423.
- 1987. Jarash region survey 1984. *ADAJ* 31: 129-157, 555-556.
- Hirschfeld, Y. 1997. Farms and villages in Byzantine Palestine. *DOP* 51: 33-71.
- Holden, N., Horne, P. and Bewley, R. 2002. High Resolution Digital Airborne Mapping and Archaeology. Pp. 33-48, 346-347 in R. H. Bewley and W. Raczkowski (eds.), *Aerial Archaeology. Developing Future Practice*. Amsterdam (NATO Science Series-Series 1: Life and Behavioural Sciences. Volume 337).
- Horden, P. and Purcell, N. 2000. *The Corrupting Sea. A Study of Mediterranean History*. Oxford.
- Isaac, B. 1996. Eusebius and the Geography of Roman Provinces. Pp. 153-167 in D.L Kennedy (ed.).
- Kafafi, Z., Palumbo, G., Al-Shiyab, A.-H., Parenti, F., Santucci, E., Hatamleh, M. 1997. The Wadi az-Zarqa/ Wadi al-Dulayl Archaeological Project. Report on the 1996 Fieldwork Season. *ADAJ* 41: 9-26.
- Kennedy, D. L. 1997. Aerial Archaeology in Jordan: Air photography and the Jordanian Hauran. In G. Bisheh (ed.), *SHAJ* 6: 77-86: Amman.
- 1998a. The Area of Umm el-Jimal: Maps, Air Photographs and Surface Survey. Pp. 39-90 in B. de Vries (ed.) *Umm el-Jimal, I: A Frontier Town and its Landscape in Northern Jordan*, Portsmouth, RI (JRA, Supp. 26).
- 1998b. The Identity of Roman Gerasa: an Archaeological Approach. Pp. 39-69 in G. Clarke (ed.) *Identities in the Eastern Mediterranean in Antiquity*. Sydney (Mediterranean Archaeology 11).
- (1999). Greek, Roman and native cultures in the Roman Near East. Pp. 76-106 in J. Humphrey (ed.), *The Roman and Byzantine Near East, II*. Portsmouth, RI (JRA, Supp. 31).
- 2000. The Frontier of Settlement in Roman Arabia. From Gerasa to Umm el-Jimal ... and Beyond. *Mediterraneo Antico* 3: 397-453.
- (2001a) Lessons from Libya: the Impact of Rome. *Levant* 33: 205-208 [review of Barker 1996].
- (2001b). History in Depth: Surface Survey and Aerial Archaeology. Pp. 39-48 in *SHAJ* 7: Amman
- 2002. Aerial Archaeology in the Middle East: The Role of the Military-Past, Present ... and Future? Pp. 33-48, 346-347 in R. H. Bewley and W. Raczkowski (eds.), *Aerial Archaeology. Developing Future Practice*. Amsterdam (NATO Science Series-Series 1: Life and Behavioural Sciences. Volume 337).
- Kennedy, D. L. and Freeman, P. W. M. 1995. Southern Hauran Survey 1992. *Levant* 27: 39-73.
- Kerestes, T. M., Lundquist, J. M., Wood, B. G. and Yassine, K. 1977-78. An Archaeological Survey of Three Reservoir Areas in Northern Jordan, 1978. *ADAJ* 22: 108-135.
- Leonard, A. 1987. The Jarash-Tell el-Husn Highway Survey. *ADAJ* 31: 343-390.
- Le Strange, G. 1886. A Ride Through Ajlun and the Belka During the Autumn of 1884. Pp. 268-323. in G. Schumacher (ed.) *Across the Jordan. Being an Exploration and Survey of Part of Hauran and Jaulan*. London.
- Mabry, J. and Palumbo, G. 1989. Wadi Yabis Survey. *AJ* II.1: 91-97.
- 1996. Wadi el-Yabis. *OEANE* 5: 365-367.
- McGinnis, S. and el-Najjar, M. 1998. Sa'ad. *AJA* 102: 604-605.
- McGovern, P. E. 1989. Baq'ah Valley Survey. *AJ* II.1: 25-44.
- Mattingly, D. J. 1994. The landscape of Imperialism. *Antiquity* 68: 162-5.
- Millar, F. 1994. *The Roman Near East, 31 BC - AD 337*. Cambridge, MA.
- Mittmann, S. 1970. *Beiträge zur Siedlungs-und Territorialgeschichte des Nördlichen Ostjordanlandes*. Wiesbaden.
- Palumbo, G. 1997. A GIS Application for the Analysis of Archaeological Survey Data: Natural Resources and Settlement History of the Upper Zarqa Valley. Pp. 105-108 in *SHAJ* 6: Amman.
- Palumbo, G., Munzi, M., Collins, S., Hourani, F., Peruzzetto, A. and Wilson, M. D. 1996. The Wadi az-Zarqa/ Wadi ad-Dulayl Excavations and Survey Project: Report on the October-November 1993 fieldwork season. *ADAJ* 40: 375-427.
- Prag, K. 1995. The Dead Sea Dolmens: Death and the Landscape. Pp. 75-85 in S. Campbell and A. Green (eds.), *The Archaeology of Death in the Ancient Near East*. Oxford (Oxbow Monograph 51).
- Rose, J, El-Najjar, M. and Sari, S. 1997. Sa'ad. *AJA* 101: 528-529.
- Sapin, J. 1998. A l'est de Gerasa. Aménagement Rural et Réseau de Communications. *Syria* 75: 107-136.
- Sari, S. 1995. A Church at Kh. Sa'ad: a New Discovery. *LA* 45: 526-529, pls 80-84.
- Schumacher, G. 1886. *Across the Jordan. Being an Exploration and Survey of Part of Hauran and Jaulan*. London.
- Shaw, B. D. 2001. Challenging Braudel: a New Vision of the Mediterranean. *JRA* 14: 419-453 [Review of Horden and Purcell 2000].
- Walmsley, A. (ed.) 2001. *Australians Uncovering Ancient Jordan*, Sydney (The Research Institute for Humanities and Social Sciences, The University of Sydney/ The Department of

- Antiquities of Jordan).
- Watson, P. (with. M. O'Hea) 1996b. Pella Hinterland Survey 1994: Preliminary Report. *Levant* 28: 63-76.
- Watson, P. 1997. (Research Report). *Levant* 29: 253.
- 1998. (Research Report). *Levant* 30: 219.
- 2001. The Cave of Refuge at Pella: Evidence and Tradition. Pp. 113-120 in A. Walmsley (ed.), *Australian Uncovering Ancient Jordan*. Sydney.
- (2001b). Roman Water Installations in the Vicinity of Pella Pp. 485-491 in *SHAJ* 7: Amman.
- (forthcoming). Cultural Identity and Wine Production in Northern Jordan: a Case Study in Context. in *SHAJ* 8: (in Preparation).
- Wilkinson, T.J. (forthcoming). Archaeological Survey and Long-Term Population Trends in Upper Mesopotamia and Iran.
- Woolf, G. (1997). The Roman Urbanisation of the East. Pp. 1-14 in S. Alcock 1997.