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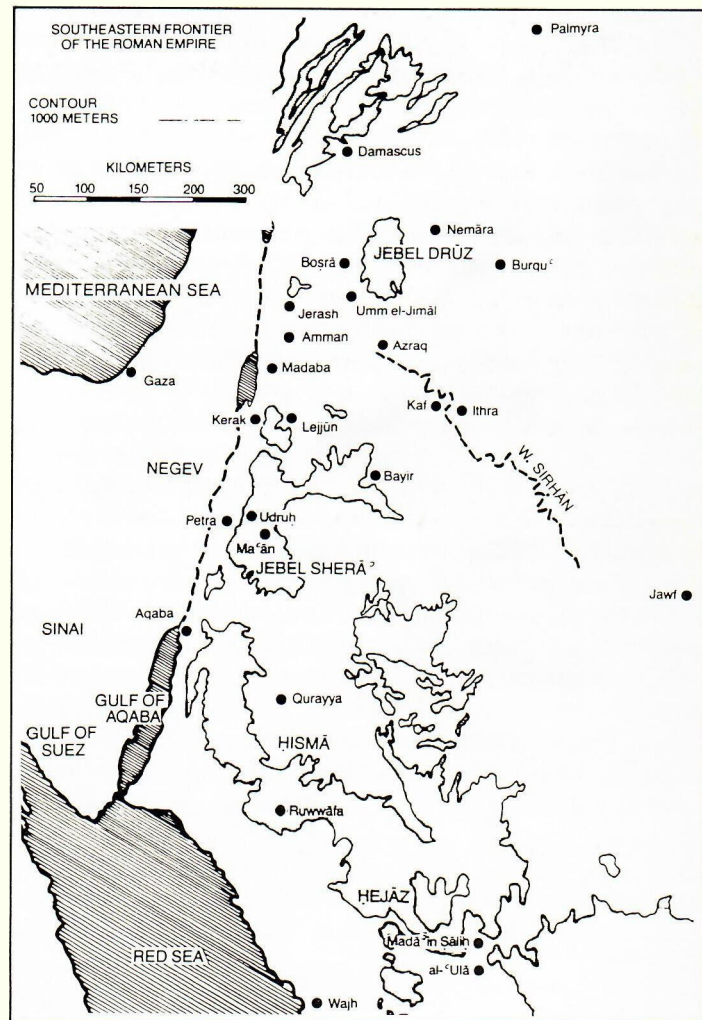
The Roman *Limes* in Jordan

Until quite recently the Roman *limes* in Transjordan was one of the least known frontiers of the Roman Empire. This is apparent from a glance at the published proceedings of the Congress of Roman Frontier Studies. In the first eleven meetings of the congress held between 1949 and 1977, not a single paper was presented that dealt specifically with the frontier in Transjordan. Since the mid 1970s, however, several surveys and excavations have greatly increased our knowledge. It is now possible to reconstruct the history of the frontier in broad outline from the Trajanic annexation of AD 106 to the Muslim conquest in the early 7th century. Further, the Roman *limes* in Transjordan may now be placed in the context of general Roman policy along the eastern frontier of the Empire (FIG. 1).

Not all periods are equally well known, of course. Our knowledge of specific periods and particular sectors of the frontier varies considerably. Certain other fundamental elements of the frontier remain obscure or entirely unknown. Yet, now that a full decade has passed since field work has resumed, it seems appropriate to assess our progress. The purpose of this paper is to present such an assessment of recent research, to point out several major gaps in our knowledge that should be addressed in the future, and to place the Arabian frontier in the larger context of Roman frontier policy in the East.

In 1971 G. W. Bowersock published a seminal article on Roman Arabia.¹ In particular, Bowersock called for a reexamination of the Roman frontier. In 1973, James A. Sauer provided a chronological tool for this research: a refined ceramic typology from Tell Hesbân.² This made possible closer dating of sites through surface sherding. By the mid 1970s, the time seemed ripe for a new survey of the Arabian frontier. This survey was launched in 1976 by the author.³ It covered only about forty previously known sites and was far from exhaustive, but it was comprehensive in the sense that sites from the Syrian border to Aqaba were visited. It furnished new

1. 'Southeastern Frontier of the Roman Empire.'



chronological evidence about these sites and served as a foundation for subsequent research.

Several other archaeological surveys have added immensely to our knowledge of the frontier. Surveys of northwestern Saudi Arabia since the late 1960s have contributed valuable

¹ Bowersock (1971).

² Sauer (1973), 1-5.

³ Parker (1976); (1980).

data on the Wadi Sirhān, the Ḥismā, and the northern Ḥejāz.⁴ Several scholars have conducted important regional surveys in Transjordan since the completion of the author's 1976 survey. D. L. Kennedy and David F. Graf have conducted surveys of military sites in the northeastern and extreme southern sectors of the frontier.⁵ About this same time, surveys of northern Edom (by Burton MacDonald) and central Moab (by J. Maxwell Miller) were launched. Though neither survey is specifically concerned with the Roman frontier, both have produced important evidence about individual military sites and general patterns of settlement on the frontier.⁶

All these surveys produced much valuable data, but naturally are no substitute for actual excavation. In 1977, Bert De Vries began excavation of Umm el-Jimāl in the northern sector. Jimāl has yielded evidence from two distinct forts: the 'Barracks' and a previously unrecognized *castellum* in the eastern part of the town.⁷ In 1979, Ghazi Bisheh began excavation of Qaṣr el-Ḥallābāt.⁸ In 1980, the author launched the Limes Arabicus Project, a regional investigation of the frontier east of the Dead Sea. The project includes excavation of the legionary fortress at el-Lejjūn, soundings of several smaller forts, and parallel surveys of the frontier zone itself and the desert fringe just east of the frontier.⁹ Finally, in 1981, important excavations of Udrūḥ and Khirbet es-Samra were initiated.¹⁰ All these excavations, of course, have allowed some conclusions drawn from the various surveys to be tested.

Apart from all this, useful historical studies on the province have appeared recently. These include learned works by David Graf, Henry MacAdam, Maurice Sartre, Irfan Shahīd, and Michael Speidel.¹¹ Many fruits of this research are presented by Bowersock himself in his recent monograph on Roman Arabia.¹² I personally have profited from all these scholars in a recently published monograph devoted to the history of the frontier.¹³ Judging from the strides of the last decade, the future of research on the frontier looks promising indeed.

What has been obtained from all this research? A substantial and growing source of new evidence is the corpus of inscriptions from Roman Arabia. Numerous newly discovered milestone inscriptions provide evidence of the evolution of the provincial road system. The original corpus collected long ago by P. Thomsen has been supplemented by many additional

milestones in recent intervening years.¹⁴ Unfortunately, military building inscriptions are still confined largely to the northern part of the province.

Some progress has also been made in developing a typology of Roman fortifications, especially since we now have access to two important new studies on this topic.¹⁵ The extant plan and architectural details of existing forts of the frontier may suggest the approximate date of the structure and the size and nature of its garrison, particularly since several such forts have now been excavated. The chief problem is that most extant forts seem to date to the Severan era or later. Securely attested forts of the 2nd century are still relatively few.

Analysis of surface pottery from individual forts can shed some light on the history of these sites. Such pottery may now be compared with pottery from coin-controlled stratified contexts from numerous sites. But this evidence must be used cautiously and always in association with other evidence. The strengths and weaknesses of dating sites on the basis of surface ceramic evidence are well known.

Most important is the program of systematic excavation of military sites since 1977. The recovery of their architectural and occupational history and of stratified, coin-controlled sequences of pottery is most important. It lends additional support to the dating of unexcavated sites based on surface architecture and pottery. The major limitations on this evidence are that excavation of these sites has been confined to relatively limited areas and that these results have appeared thus far only in preliminary form.

We have much less evidence about the Arab tribes. This is hardly surprising. The traces left by nomadic tribes are necessarily scant. An enormous number of pre-Islamic Semitic graffiti from the region have now been published. These graffiti are laconic and difficult to date, but provide some evidence about the nomadic tribes. We still lack a monograph that synthesizes the huge corpus of Safaitic and Thamudic texts. These inscriptions have now been supplemented by physical evidence of a truly unique nature. In 1978 construction of the new Amman airport near Zizia revealed a large cemetery used in the 2nd and 3rd centuries, apparently by Thamudic tribes. The subsequent salvage excavation yielded a precious cultural assemblage of osteological and artifactual remains that has already been published in preliminary form.¹⁶ The excavators note the relatively large number of injuries sustained by the population and suggest that this may reflect service as Roman military federates. While this is entirely possible, one may note that such injuries could have also occurred in inter-tribal warfare, which the Safaitic and Thamudic texts suggest was a regular feature of nomadic life.

It is also important to note the still considerable gaps in our evidence. The lack of sufficient systematic excavation,

⁴Parr (1969); (1977); (1978); Parr, Harding and Dayton (1969); (1971); Ingraham (1981).

⁵Kennedy (1980a); (1982); Graf (1979).

⁶MacDonald (1981); (1982); (1984a); (1984b); MacDonald, Rollefson and Roller (1982); Miller (1979).

⁷De Vries (1979); (1981); (1982); forthcoming.

⁸Bisheh (1980); (1982).

⁹Parker (1981); (1982); (1983); (1985); (1986b).

¹⁰For Samra, cf. Desreumaux and Humbert (1981); (1982a); (1982b). For Udrūḥ, cf. Killick (1983a); (1983b).

¹¹Graf (1978); MacAdam (1979); Sartre (1982); Shahīd (1984a), (1984b); Speidel (1977).

¹²Bowersock (1983).

¹³Parker (1986a).

¹⁴Thomsen (1917), 1–103; Mittmann (1964); (1970); (1982); Isaac (1978); Isaac and Roll (1982); Kennedy (1982); Kennedy and MacAdam (1985); Parker (1986c).

¹⁵Johnson (1983) and Lander (1984).

¹⁶Ibrahim and Gordon (1983).

which began only a few years ago, is certainly the biggest problem in reconstructing the history of the frontier. As a result, little is known about the equipment, logistics, officers, internal organization of units, or religion of the Roman army. The relationship between the army and the civilian world in Arabia is also obscure. Further, there are practically no detailed accounts extant of Roman military campaigns on the Arabian frontier after the annexation of 106 AD. Therefore, knowledge of tactics and strategy is based primarily on analysis of the physical evidence, comparative material from other frontiers, and general conjecture. We are even more in the dark about the Arab tribes. Major questions remain about their political organization, patterns of seasonal migration, military capabilities, and the nature of their relationship with sedentary populations.

Perhaps most important, it is difficult to judge the success of the frontier system except in general terms. The literary sources sometimes refer to particularly serious nomadic incursions, but there was no reason to mention the provincial defenses when these functioned effectively. The best measure of the relative success of the frontier system is the epigraphic and archaeological evidence, especially patterns of civilian settlement and the general level of regional prosperity. Here is where the numerous regional surveys, once fully published, will provide vital information.

Let us now turn to each major period of the frontier's history and evaluate the state of our knowledge.

The most problematic era remains the 2nd century and the initial Roman system of defense. Paradoxically, this is the best attested period for most other Roman frontiers. Yet, for the Arabian frontier we have no building inscriptions, virtually no literary evidence, and not even an auxiliary *diploma* to identify the individual units of the provincial garrison.

Nevertheless, we do have some evidence. Construction of the great trunk road, the *via nova Traiana*, was completed between 111 and 114. Because Roman roads were designed primarily to accommodate military traffic, Trajan's road must be viewed above all as a military highway. It seems no accident that most known Roman forts are located either directly adjacent to or just east of the road. The excavator of the fortress at Udrūh argues for a Trajanic foundation, perhaps associated with the construction of the road.¹⁷ As is well known, Trajan's road followed a long established Nabataean route. Surface pottery collected at many sites suggests a continuous occupation from the 1st to 2nd centuries and beyond. Therefore one might assume that Roman garrisons replaced Nabataean troops in many of these posts. On the other hand, there is no convincing evidence that these occupations were *military* in nature. We simply need more evidence to understand the nature of the frontier in the 2nd century.¹⁸

The initial provincial boundaries are fairly well defined. The

new province definitely included the northwestern Ḥejāz,¹⁹ although this sparsely populated region lay beyond the fortified frontier zone. Control of the Ḥejāz tribes was maintained by a Thamudic tribal confederacy under Roman supervision.²⁰ An effort was also made to protect the caravan traffic by the posting of garrisons along the route from Medā'in Šāliḥ.²¹

Recent discoveries have provided a much clearer picture of the Severan era (193–235), particularly for the northern sector between Amman and the Syrian border (FIG. 2). Several new military building inscriptions, abundant milestone inscriptions, and some literary evidence can be brought to bear. Excavation of the one certifiable Severan fort investigated to date, however, has been disappointing. Bisheh's work at Qaṣr el-Ḥallābāt has revealed a thorough cleanout and reconstruction of the interior of the *castellum* in the Umayyad period.²²

The evidence points to a considerable Severan military build-up in the northern sector, concentrated around Azraq and the northwestern outlet of the Wādī Sirḥān. Several new forts were built or expanded, such as Ḥallābāt and Qaṣr el-Uweinid. Whether direct Roman control extended down the wadi in this period is still unclear. The concentration of fort construction suggests that nomadic pressure was being exerted through the Wādī Sirḥān, but, in the absence of literary evidence, the nature and extent of this pressure cannot yet be ascertained. But Severan construction was not confined to the north. Milestone inscriptions indicate repair of this entire length of the *via nova Traiana* and several branch roads (FIGS 3–4).²³

Severan policy in Transjordan may be compared to other frontiers. The Euphrates, which marked the boundary between Rome and Parthia, had always been an unsatisfactory frontier from a strategic point of view.²⁴ The great western bend of the Euphrates left Parthian forces a short distance from Antioch and the heart of Syria. Septimius Severus conquered northwestern Mesopotamia and extended the imperial frontier to the Khabur River and the Jebel Sinjar. This greatly improved the Roman strategic situation.²⁵ In Africa the imperial frontier advanced deep into the Sahara by new forts built at oases in Tripolitania, Numidia, and Mauretania.²⁶

May one compare Severan policy in Arabia, with its emphasis on protecting the key Azraq oasis and other sites well east of the Trajanic road, with the general Severan policy of aggressive expansionism, particularly in Africa? This comparison has been advanced recently by D. L. Kennedy.²⁷ There are

¹⁹ For a full discussion, now see Bowersock (1983), 96–97.

²⁰ Sartre (1982), 27–29; Bowersock (1983), 97.

²¹ The evidence is summarized by Sartre (1982), 30–34.

²² Bisheh (1980), (1982).

²³ For a detailed treatment of this evidence, cf. Parker (1986a), 129–131.

²⁴ Cf. Luttwak (1976), 107–111, 150.

²⁵ Oates (1968), 73–80.

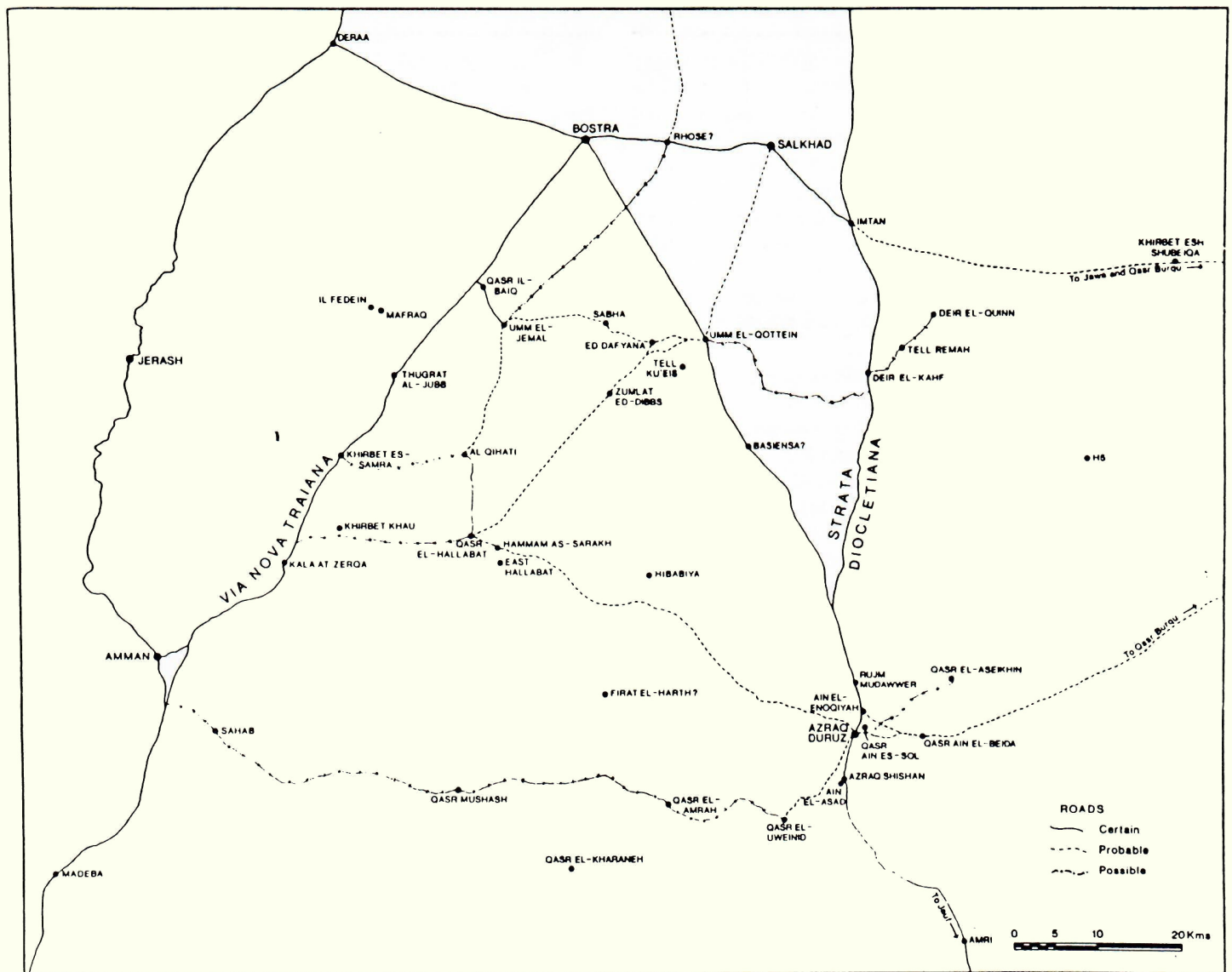
²⁶ Birley (1972), 216–219; Fentress (1979), 114–117.

²⁷ Kennedy (1982), 190.

¹⁷ Killick (1983a), 125.

¹⁸ For a detailed analysis, cf. Parker (1986a), 125–129.

2. 'The northern sector of the Arabian frontier.'



many differences in detail, of course, too numerous to outline here. But there seems to be a common element throughout: the determination to conduct a more forward defense against the perceived threats of nomadic tribes.

The mid 3rd century was a critical turning point in the evolution of many imperial frontiers.²⁸ In the East, Parthia was supplanted by the Sassanid Empire, a much more formidable threat to Rome. Serious Sassanid invasions of the East were followed by the rebellion and eventual destruction of Palmyra, formerly a Roman bulwark that protected the Syrian frontier south of the Euphrates. The impact of all this on the Arabian frontier is problematical. A contingent of the Arabian

army was defeated in Mesopotamia in 259,²⁹ although there is no concrete evidence that Persian armies reached Transjordan. The rebellious armies of Palmyra did invade Arabia, but it is difficult to assess damage to the frontier defenses.³⁰

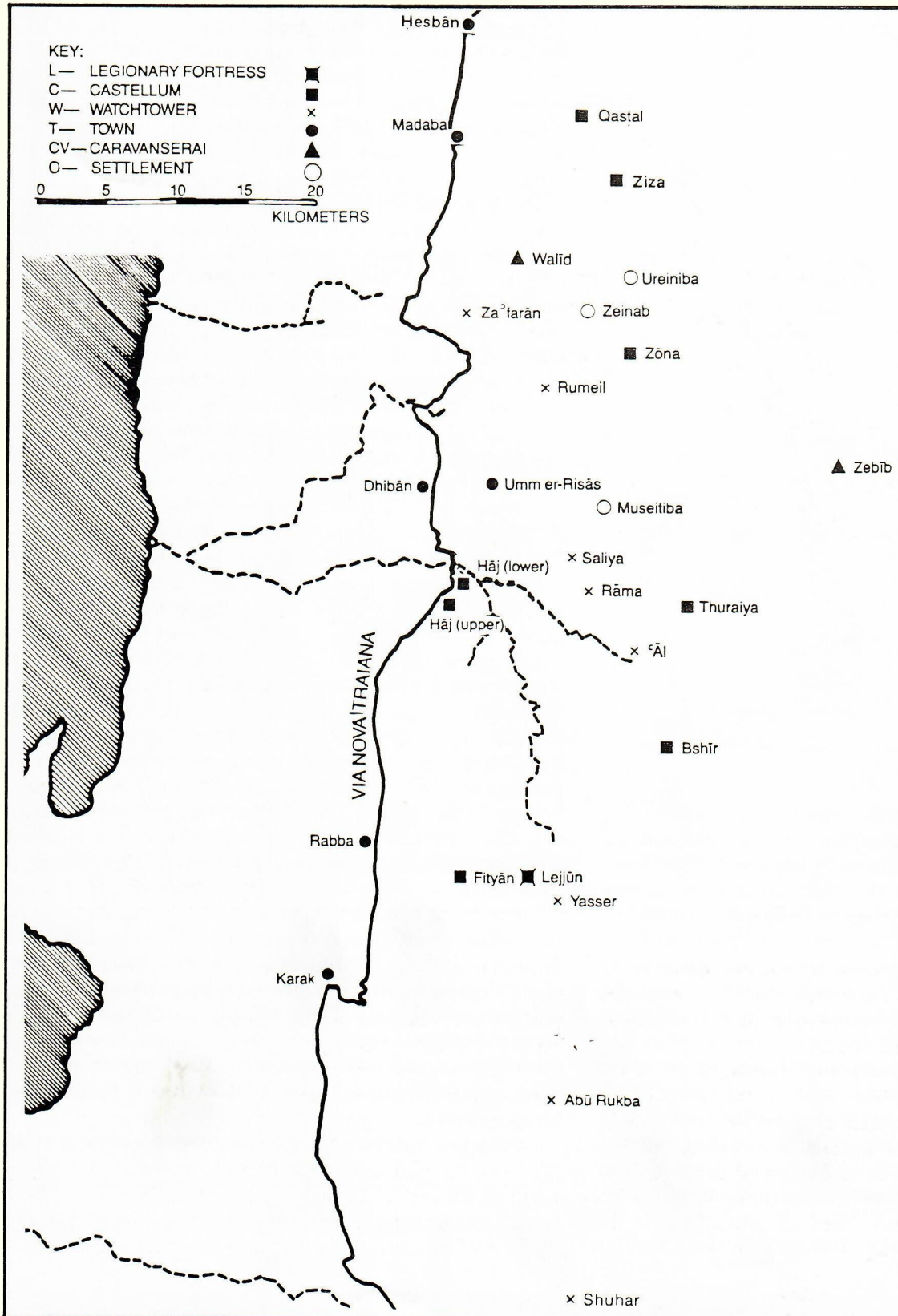
Of much greater importance is the nature of relations between Rome and the Arab tribes in this period. There were major tribal migrations, such as the movement of the Tanūkh from the northeastern Arabian peninsula into the Ḥaurān. Werner Caskel has argued for the 'bedouinization' of the Arab tribes in this period. Caskel suggested that the now impoverished nomadic tribes were tempted towards increased raiding by the very weakness of the Empire during the mid 3rd century

²⁸ To cite a few examples: the development of the Saxon Shore in Britain and the abandonments of Dacia on the Danube, the Agri Decumates in Germany, and much of Mauretania in Africa.

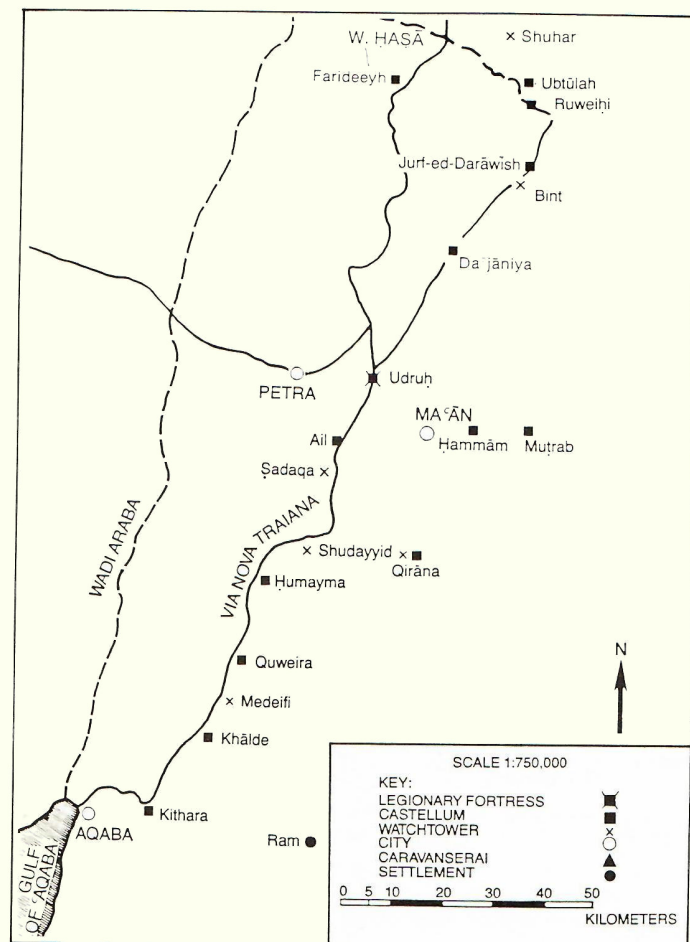
²⁹ Speidel (1977), 722.

³⁰ Parker (1986a), 132.

3. 'The central sector of the Arabian frontier.'



4. 'The southern sector of the Arabian frontier.'



crisis.³¹ We must also consider the impact of a major technological innovation: the north Arabian camel saddle. Richard Bulliet suggests that this substantially improved the military capability of the desert tribes. The implications of this technology were so profound, according to Bulliet, that control of the north Arabian Desert by the commercial Arabs of Petra and Palmyra was replaced in the 3rd century by anarchy among the nomadic tribes.³² It must be admitted, however, that we have little physical evidence thus far from Transjordan that relates to this period. We can point to no series of mid 3rd century destruction layers at several sites, for example, that could suggest serious nomadic raids. On the other hand, excavation of such sites has barely begun. And further, it is well known that the Arab tribes rarely assaulted fortified strongholds. Lacking the capability to conduct siege-warfare, they preferred plundering caravans, farms, and unfortified villages.

Increased nomadic pressures probably account for a Saracen

campaign led by Diocletian in 290. Although no details of this operation survive, the presence of the emperor himself suggests a major operation and not simply a police action.³³ A key question remains the political career of Imru' al-Qays, the Lakhmid buried at Nemāra in southern Syria who claimed to be 'king of all the Arabs'. Although it now seems certain that he was a Roman client by the time of his death in 328, his earlier relations with Rome are less clear.³⁴ The possibility remains that he could have led an anti-Roman tribal coalition in the late 3rd or early 4th century.

The best evidence for a major Arab threat in the late 3rd century is the dramatic Roman military buildup that began in this period. The *limes* as reorganized by Diocletian (284–305) is now well illuminated by recent research. A major strengthening of the frontier *c.* 300, suggested by earlier surveys,³⁵ may today be regarded as proven.³⁶ The essential ingredients of the buildup were provincial reorganization, repair of the regional road system, construction of new and refurbishing of old fortifications, and the introduction of new military formations. *c.* 295 Diocletian partitioned the province of Arabia. The region south of the Wadi el-Ḥaṣā was combined with the Negev and Sinai and joined to the province of *Palaestina*. The region north of the Ḥaṣā remained known as Arabia. A *dux* with considerable military forces was assigned to each.³⁷ Milestones document extensive repair of the road system. New military forts are attested epigraphically at such sites as Deir el-Kahf in the north and Qaṣr Bshīr in the central sector. Recent excavations have suggested that other forts were also built in this period, such as the newly discovered *castella* at Umm el-Jimāl and Khirbet es-Samra, the legionary fortress of el-Lejjūn (FIG. 5), and the fort at Khirbet el-Fityān. Many of the forts are so-called *quadriburgia* ('four-towered forts'), relatively small (*c.* 40–60 m square) structures protected by outset rectangular corner towers (FIG. 6). The forts were manned by new kinds of units. The legions were reduced in size to only 20–40 per cent of their Principate strength. The auxiliary units were also smaller, perhaps with only 120–160 men in each. There is also a clear preponderance of cavalry over infantry. In the *Notitia*, which reflects the Diocletianic reorganization, 18 of 30 units (60 per cent) in Palestine and 14 of 21 units (67 per cent) in Arabia are cavalry. A complex system of watchtowers maintained observation over nomadic routes of transhumance and possible avenues of infiltration (FIG. 7). Some towers were reused Iron Age or Nabataean structures; others were entirely new foundations. Signals transmitted from these posts could warn the larger garrisons of impending hostile movements.

Substantial evidence of Tetrarchic activity is attested in the

³³ *Latin Panegyrics* 11.5.4; 7.1. Also cf. Ensslin (1942), 27; Barnes (1982), 51; Parker (1986a), 136.

³⁴ For recent discussions cf. Sartre (1982), 132–140; Bowersock (1983), 138–147; Shahid (1984b), 31–47.

³⁵ Parker (1976); (1980).

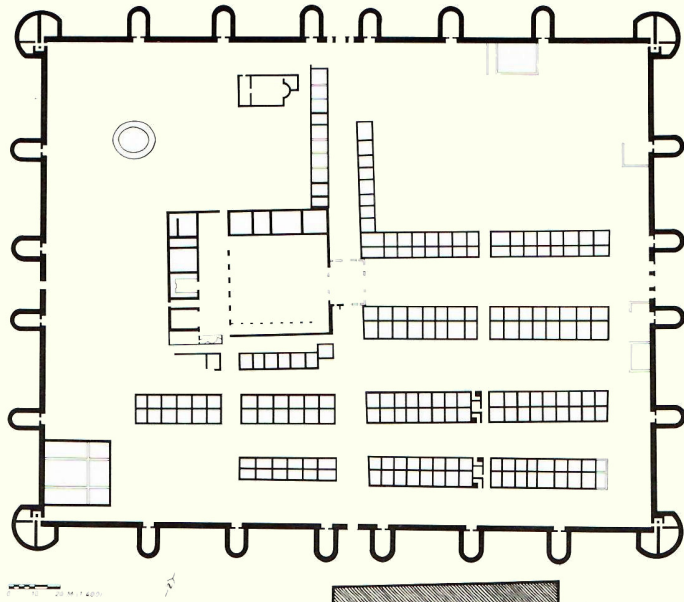
³⁶ For a detailed discussion, cf. Parker (1986a), 135–143.

³⁷ *Notitia Dignitatum* Or. 34, 37.

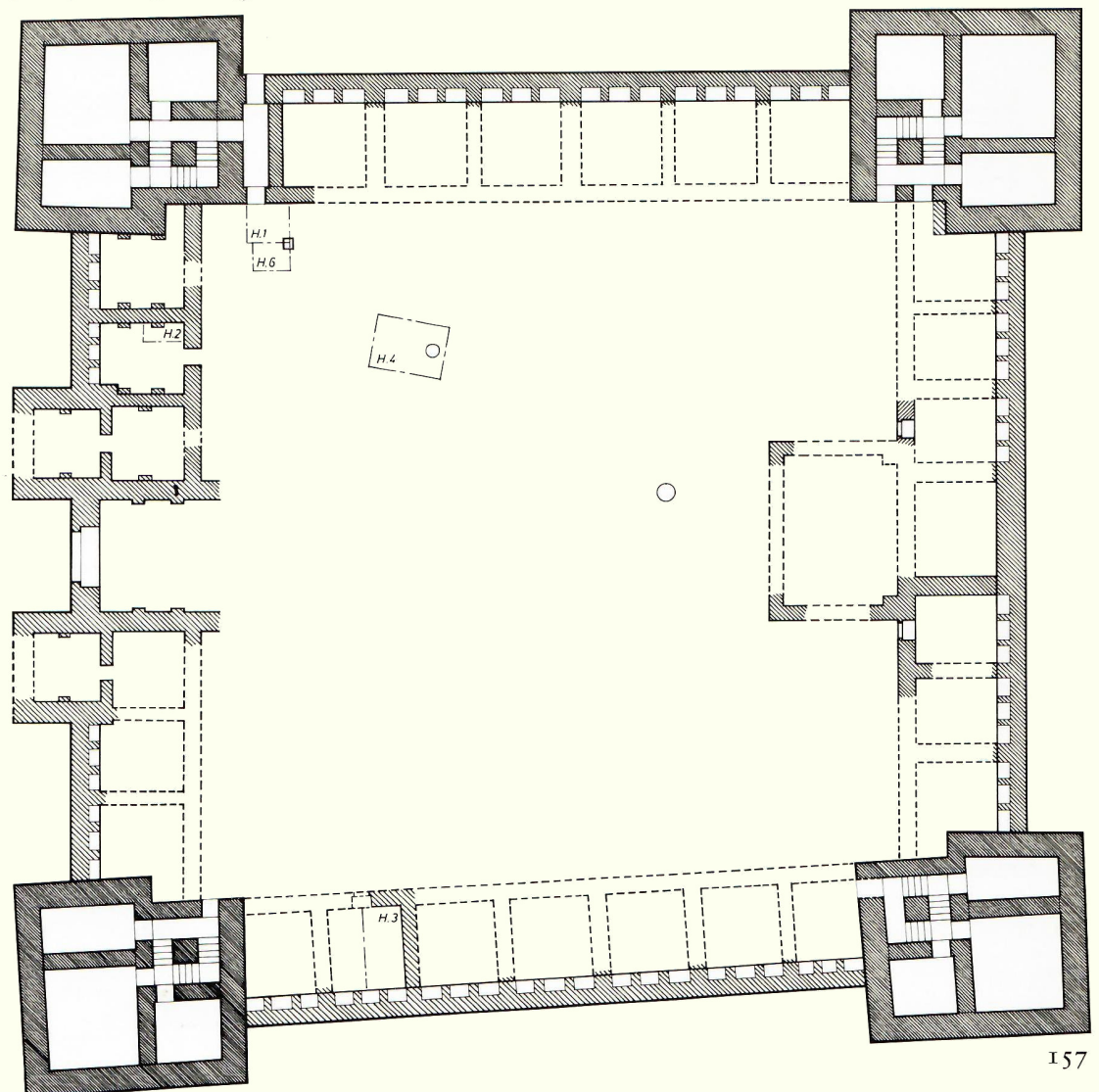
³¹ Caskel (1954), 36–46.

³² Bulliet (1975), 90–105.

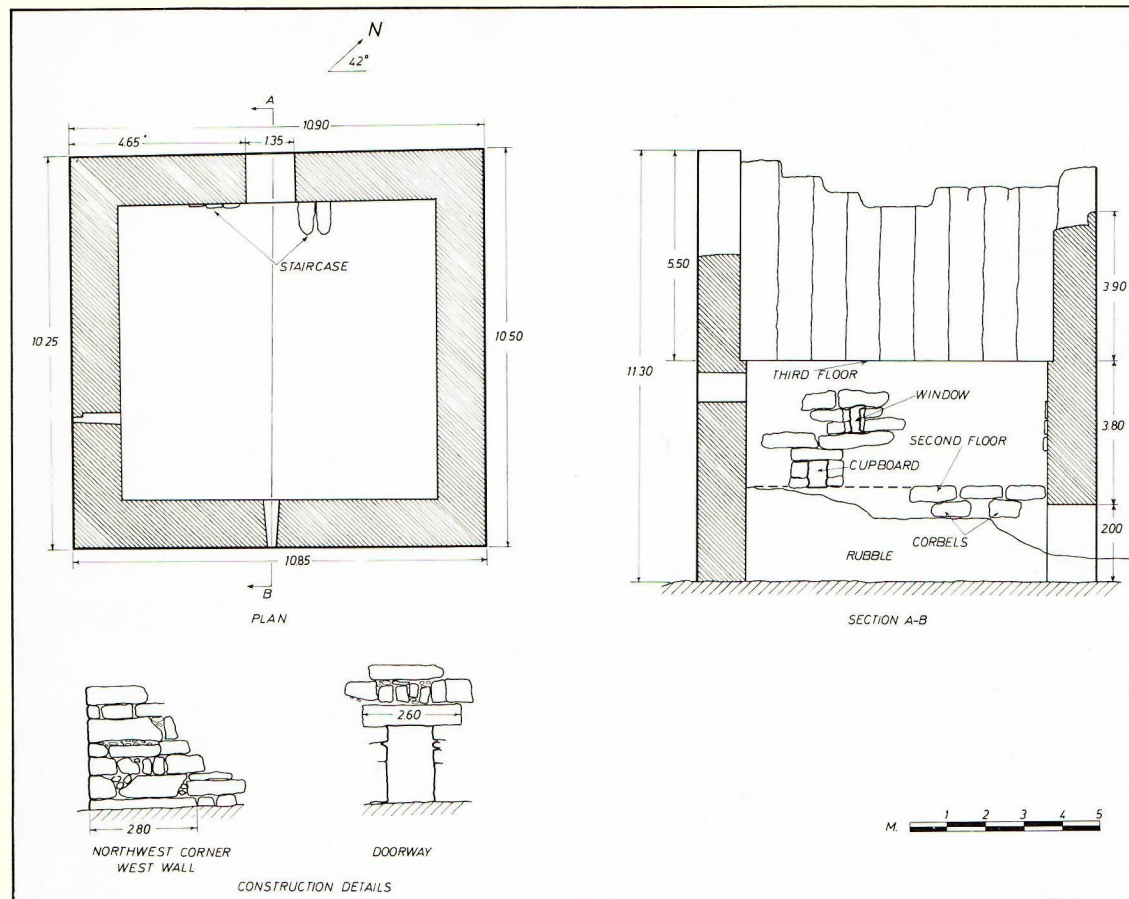
5. 'Plan of the legionary fortress of el-Lejjūn, base of *legio* IV *Martia*, constructed c. AD 300. The interior arrangements of this plan reflect some reconstruction in the late 4th and 5th centuries.'



6. 'Plan of Qaṣr Bshīr, a typical Diocletianic *quadriburgium*, built in AD 293–305.'



7. 'Plan and elevation of Qaşr Abū Rukba, a watchtower constructed during the Diocletianic buildup.'



northern sector, with renewed attention to the Wadi Sirhān (FIG. 8). A defense-in-depth based on a zone some 50–70 km in depth protected the Ḥaurān and the region of the Decapolis. An important Latin inscription originally found near Azraq by Aurel Stein and recently published by Kennedy attests detachments from six different legions.³⁸ The text, though fragmentary, seems to refer to stations along the Wadi Sirhān as far as Jawf. Speidel, who is publishing a slightly different reading of the text, sees it as evidence of a road that linked Jawf to the *Strata Diocletiana*.³⁹ If this interpretation stands, the text represents the first concrete evidence for Roman military control of the entire wadi and an extension of military power well beyond the established military frontier.

In the central sector of the frontier east of the Dead Sea, there is evidence of construction of a new chain of forts east of the *via nova Traiana* (FIG. 9). The new foundations included the legionary fortress of el-Lejjūn (for *legio* IV *Martia*), the *castella* of Khirbet ez-Zōna, Qaşr eth-Thuraiya, Qaşr Bshīr,

Khirbet el-Fityān, and a number of watchtowers. Special attention was devoted to areas that could serve as routes of infiltration, such as the upper Wadi Mūjib catchment, which were guarded by thick clusters of fortified posts (FIG. 10). This created a defense-in-depth with a shallow zone extending from Trajan's road 20–30 kms eastwards to the edge of the desert.⁴⁰

The southern sector is more problematical due to the lack of much excavation and the complete absence of building inscriptions (FIG. 11). But nearly all the forts of this sector have produced pottery of the 4th and 5th centuries, suggesting continued occupation from earlier periods. Milestone inscriptions document continued maintenance of the road system. A major problem remains the identity of the garrison of the Udrūḥ fortress, which appears to be almost a twin of Lejjūn. I have suggested elsewhere, expanding upon an idea originally proposed by Speidel, that Udrūḥ may have been designed for *legio* VI *Ferrata*, transferred from northern Palestine.⁴¹ Only south of Rās en-Naqb, in the northern Ḥismā, is there no evidence of an extension of the Roman frontier to the east.

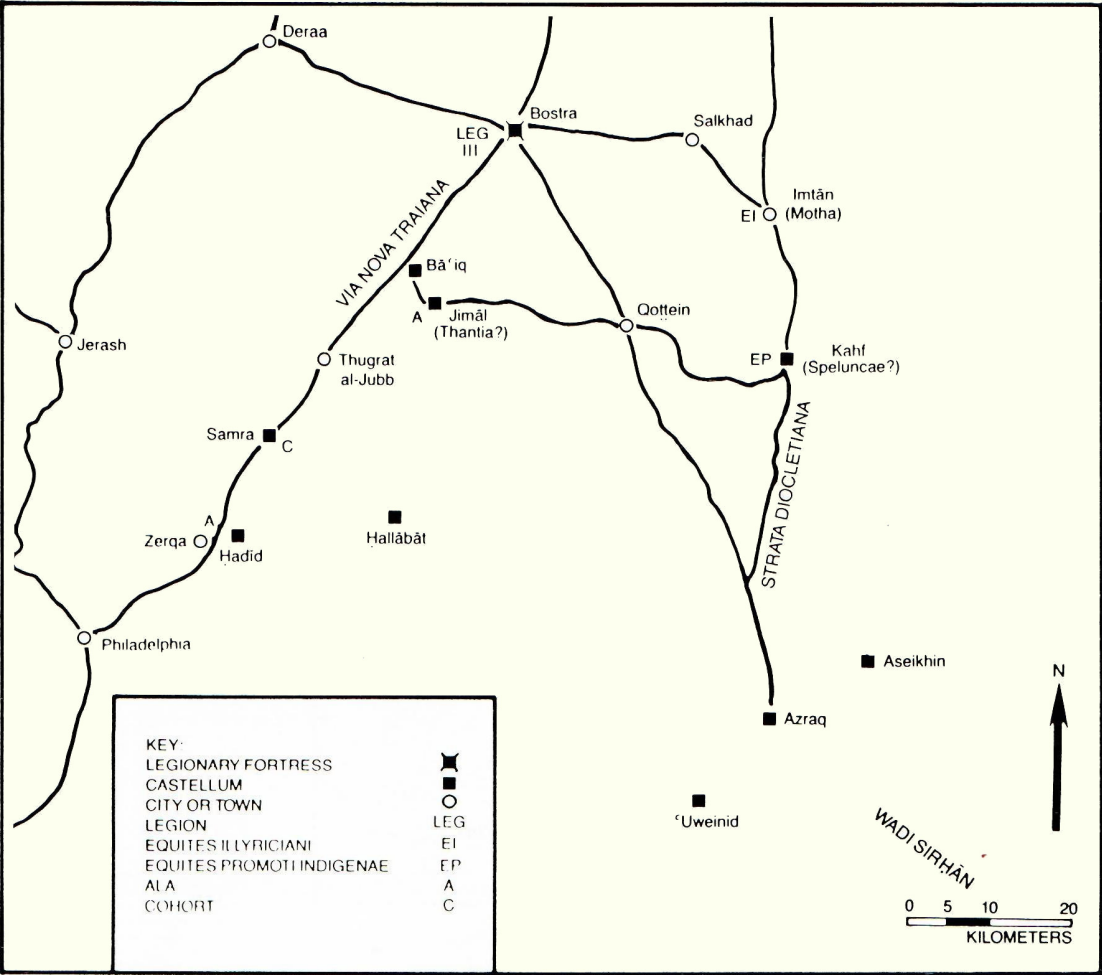
³⁸ Kennedy (1982), 179–183; for an expanded reading, cf. Kennedy and MacAdam (1985), 100–104.

³⁹ Speidel unpublished. I am grateful to Professor Speidel for showing this paper to me in advance of publication.

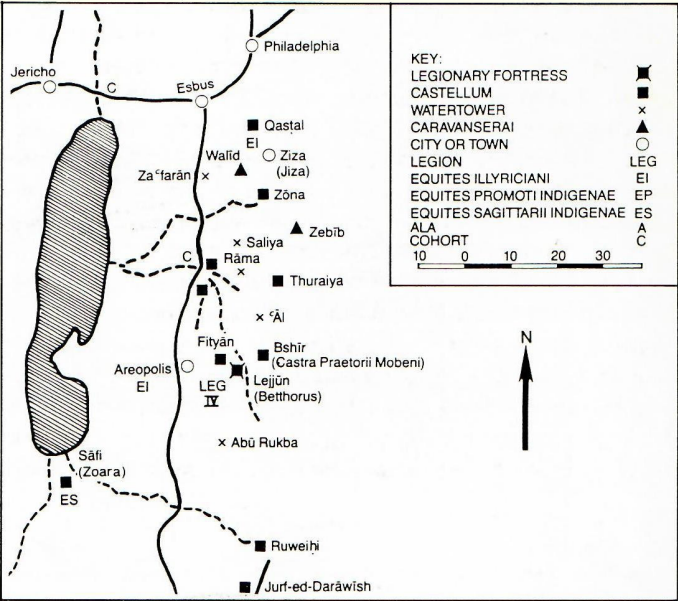
⁴⁰ Parker (1982); (1983); (1985); (1986b).

⁴¹ Cf. Parker (1986a), 141–142.

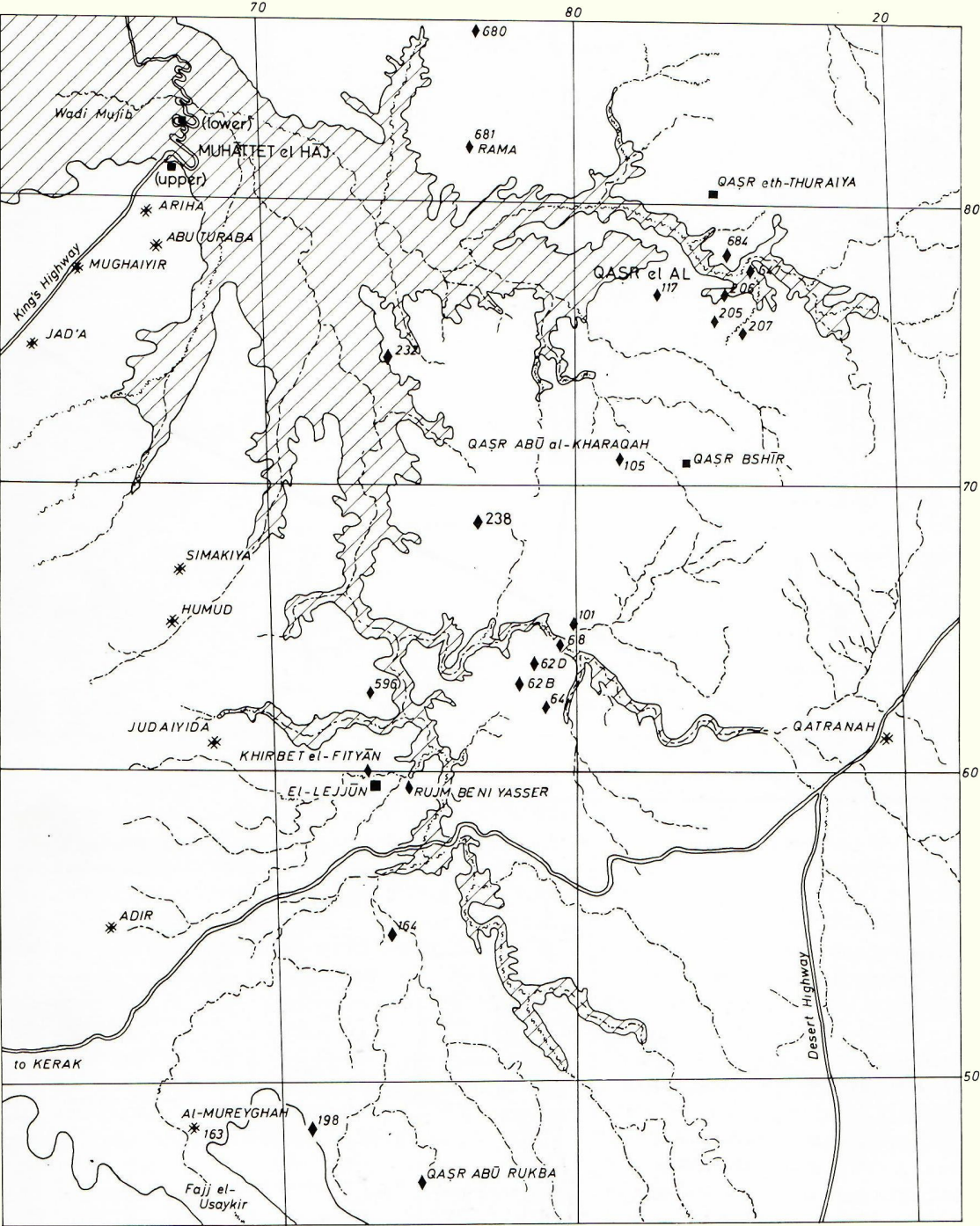
8. 'The northern sector of the Arabian frontier in the 4th century.'



9. 'The central sector of the Arabian frontier in the 4th century.'



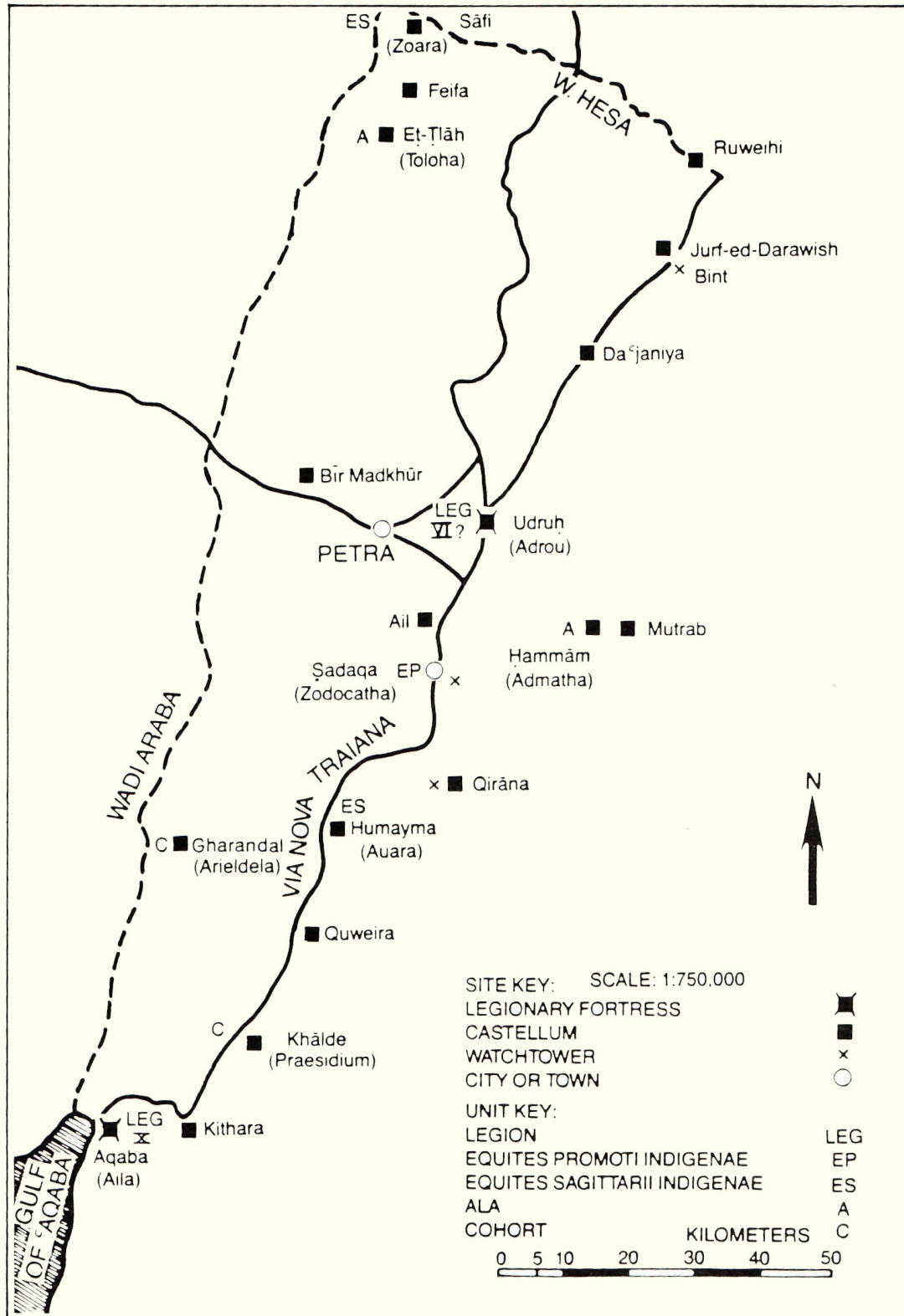
10. 'The *limes* zone in the vicinity of el-Lejjūn that monitored the upper Wadi Mūjib. Note the clusters of the watchtowers near the eastern approaches.'



FORT: ■
WATCH TOWER: ◆
TOWN: *

0 1 2 3 4 5 7.5 10 km

11. 'The southern sector of the Arabian frontier (*Limes Palaestinae*) in the 4th century.'



The *limes* here consisted of only a single line of forts along the Trajanic road. The southern terminus of the *via nova Traiana* was now held by *legio x Fretensis* at Aila. The southern sector was backed up by a secondary line of defense in southern Palestine.⁴²

Close parallels are apparent between the Diocletianic reorganization of the Arabian frontier and the *Strata Diocletiana* in Syria. Both frontiers were designed as a defense-in-depth. Construction of the latter was necessitated by the collapse of Palmyra and by the enhanced threat from the Sassanids and the Arab tribes. The *Strata Diocletiana* extended from Azraq north to the Euphrates. Second class units (*alae* and *cohortes*) garrisoned *castella* erected at intervals along the *strata*, which basically follows the 100 mm annual rainfall line along the edge of the desert. Stationed behind the *strata* were mobile units of *equites* in towns and other strategic points, forming a broad fortified zone up to 70 km in depth.⁴³ This system is closely paralleled in Transjordan, although the depth of the zone was not so great south of Amman.

There is clear evidence for the deterioration of the frontier defenses by the 6th century. The most striking evidence for the decline of the fortified frontier in Transjordan is the widespread abandonment of forts. This conclusion, suggested originally by the relative scarcity of Late Byzantine pottery at most forts surveyed in 1976, has since been confirmed by excavation of several forts. Lejjūn was abandoned following an earthquake in 551, and Qaṣr Bshīr, Khirbet el-Fityān, and Rujm Beni Yasser were abandoned before 500. This corresponds with the statements of Procopius that Justinian disbanded the bulk of the regular Roman frontier forces and handed over primary defensive responsibility to Arab federates under the Ghassānids.⁴⁴ Only in the north is there evidence of continued military activity, with the reconstruction of Hallābāt in 529 and the continued occupation of most forts in the 6th and early 7th centuries. But even some of these may not have contained military garrisons, as suggested by the excavation of the Barracks and *castellum* at Umm el-Jimāl.⁴⁵ A similar pattern of abandonment has been advanced for the Syrian frontier.⁴⁶

Justinian's decision to abandon the fortified frontier in favor of the Ghassānid phylarchy was not necessarily poor policy. In fact, the Ghassānids proved to be loyal and generally efficient allies.⁴⁷ But the successors of Justinian fatally weakened the Ghassānids without any corresponding revitalization of the old frontier defenses. This disastrous policy contributed significantly to the success of the Muslim invasion in the 7th century.

To summarize, the last ten years have witnessed a remarkable advance in our understanding of the Roman frontier in Transjordan. We have made considerable progress in understanding the development of the Roman road system, the typology of Roman fortifications, the Roman army units that garrisoned the frontier, and the Saracen Arab tribes that acted both as allies and enemies of Rome. Many years of work lie ahead before knowledge of the Arabian frontier approaches that of other Roman frontiers. But at least we are now well underway.

Bibliography

- Barnes, Timothy D. 1982. *The New Empire of Diocletian and Constantine*. Cambridge: Harvard University.
- Berchem, Denis van 1952. *L'armée de Dioclétien et la réforme constantinienne*. Paris: Geuthner.
- Birley, Anthony 1972. *Septimius Severus, the African Emperor*. Garden City, NY: Doubleday.
- Bisheh, Ghazi 1980. Excavations at Qasr al-Hallabat, 1979. *Annual of the Department of Antiquities of Jordan* 24, 69–77.
- 1982. The Second Season of Excavations at Hallabat, 1980. *Annual of the Department of Antiquities of Jordan* 26, 133–143.
- Bowersock, G. W. 1971. A Report on Arabia Provincia. *JRS* 61, 219–242.
- 1975. The Greek–Nabataean Bilingual Inscription at Ruwwāfa, Saudi Arabia. Pp. 513–522 in *Le monde grec: Hommages à Claire Préaux*, eds J. Bingen, G. Cambier and G. Nachtergaele. Brussels: University of Brussels.
- 1976. *Limes Arabicus*. *Harvard Studies in Classical Philology* 80, 219–229.
- 1980. Mavia, Queen of the Saracens. Pp. 477–495 in *Studien zur antiken Sozialgeschichte: Festschrift F. Vittinghoff*. Cologne: Bohlau.
- 1983. *Roman Arabia*. Cambridge: Harvard University.
- Caskel, Werner 1954. The Bedouinization of Arabia. Pp. 36–46 in *Studies in Islamic Cultural History*, ed. G. E. von Grunebaum, *Memoirs of the American Anthropological Association* 76. Menasha, WI: George Banta.
- Desreumaux, A. and Humbert, J.-B. 1981. Hirbet Es-Samra. *Annual of the Department of Antiquities of Jordan* 25, 33–84.
- 1982a. Exploration à Khirbet Es-Samra: Une question pour l'histoire de la Jordanie. Pp. 239–242 in *Studies in the History and Archaeology of Jordan* 1, ed. Adnan Hadidi, Amman: Department of Antiquities.
- 1982b. La première campagne de fouilles à kh. Es-Samra. *Annual of the Department of Antiquities of Jordan* 26, 173–182.
- De Vries, Bert 1979. Research at Umm el-Jimal, Jordan, 1972–1977. *Biblical Archaeologist* 42, 49–55.
- 1981. The Umm el-Jimal Project, 1972–1977. *Bulletin of the American Schools of Oriental Research* 241, 53–72.
- 1982. The Umm el-Jimal Project, 1972–1977. *Annual of the Department of Antiquities of Jordan* 26, 97–116.
- Forthcoming. *Umm el-Jimal Excavations* 1.
- Ensslin, Wilhelm 1942. *Zur Ostpolitik des Kaisers Diocletian*. Sitzungsberichte der Bayerischen Akademie der Wissenschaften. Munich: Beck.
- Fentress, Elizabeth 1979. *Numidia and the Roman Army*. BAR International Series 53. Oxford: British Archaeological Reports.
- Gichon, Mordechai 1967. The Origin of the Limes Palaestinae and the Major Phases of its Development. Pp. 175–193 in *Vorträge des 6. Internationalen Limes-Kongressus in Süd-deutschland*. Cologne: Bohlau.
- 1980. Research on the Limes Palaestinae: A Stocktaking. Pp. 843–864 in *Roman Frontier Studies* 1979, eds W. S. Hansen and

⁴² Gichon (1967), 186–191; (1980), 844, 852.

⁴³ Poidebard (1934), 27–94; Berchem (1952), 10–17.

⁴⁴ Procopius, *Secret History* 24.12–14; *Persian War* 1.17.45–48.

⁴⁵ Parker (1986), 149–155, with full references.

⁴⁶ Liebeschuetz (1977).

⁴⁷ Kawar (Shahīd) (1955); (1957), who shows how effective the Ghassānids were despite Procopius' bias against them.

- L. J. F. Keppie. BAR International Series 71. Oxford: British Archaeological Reports.
- Graf, David F. 1978. Saracens and the Defense of the Arabian Frontier. *Bulletin of the American Schools of Oriental Research* 229, 1–26.
- 1979. A Preliminary Report on a Survey of Nabataean-Roman Military Sites in Southern Jordan. *Annual of the Department of Antiquities of Jordan* 23, 121–127.
- 1983. The Nabataeans and the Hismā: In the Steps of Glueck and Beyond. Pp. 647–664 in *The Word of the Lord Shall Go Forth: Essays in Honor of David Noel Freedman*. eds Carol L. Meyers and M. O'Connor. Philadelphia: American Schools of Oriental Research.
- Ibrahim, Moawiyah M. and Gordon, Robert L. 1983. *A Cemetery at Queen 'Alia International Airport (Zizia) Jordan*. Irbid: Yarmouk University.
- Ingraham, Michael Lloyd et al. 1981. Saudi Arabian Comprehensive Survey Program: Preliminary Report on a Reconnaissance Survey of the Northwestern Province (with a note on a brief survey of the Northern Province). *Atlat* 5, 59–84.
- Isaac, Benjamin 1978. Milestones in Judaea, from Vespasian to Constantine. *Palestine Exploration Quarterly* 90, 47–60.
- Isaac, Benjamin and Roll, Israel 1982. *Roman Roads in Judaea 1: The Legio-Scythopolis Road*. BAR International Series 141. Oxford: British Archaeological Reports.
- Johnson, Stephen 1983. *Late Roman Fortifications*. London: Batsford.
- Kawar (Shahīd), Irfan 1955. Arethas, Son of Jabalah. *Journal of the American Oriental Society* 75, 205–216.
- 1957. Procopius on the Ghassānids. *Journal of the American Oriental Society* 77, 79–87.
- Kennedy, D. L. 1980a. The Frontier Policy of Septimius Severus: New Evidence from Arabia. Pp. 879–887 in *Roman Frontier Studies 1979*, eds W. S. Hansen and L. J. F. Keppie. BAR International Series 71. Oxford: British Archaeological Reports.
- 1980b. Legio vi Ferrata: The Annexation and Early Garrison of Arabia. *Harvard Studies in Classical Philology* 84, 283–309.
- 1982. *Archaeological Explorations on the Roman Frontier in North-East Jordan*. BAR International Series 134. Oxford: British Archaeological Reports.
- Kennedy, D. L. and MacAdam, Henry Innes 1985. Latin Inscriptions from the Azraq Oasis, Jordan. *Zeitschrift für Papyrologie und Epigraphik* 60, 97–107.
- Killick, A. C. 1983a. Uduh- the Frontier of an Empire: 1980 and 1981 Seasons, a Preliminary Report. *Levant* 15, 110–131.
- 1983b. Uduh – 1980, 1981 Seasons, A Preliminary Report. *Annual of the Department of Antiquities of Jordan* 27, 231–244.
- Lander, James 1984. *Roman Stone Fortifications. Variation and Change from the First Century AD to the Fourth*. BAR International Series 206. Oxford: British Archaeological Reports.
- Liebeschuetz, Wolfgang 1977. The Defences of Syria in the Sixth Century. Pp. 487–499 in *Studien zu den Militärgrenzen Roms II*. Cologne: Rheinland.
- Luttwak, Edward N. 1976. *The Grand Strategy of the Roman Empire from the First Century AD to the Third*. Baltimore: Johns Hopkins.
- MacAdam, H. I. 1979. *Studies in the Roman Province of Arabia*. Ph.D. dissertation, University of Manchester.
- MacDonald, Burton 1981. The Wadi al-Ḥasā Survey. *Biblical Archaeologist* 44, 60–61.
- 1982. The Wadi el-Ḥasā Survey 1979 and Previous Archaeological Work in Southern Jordan. *Bulletin of the American Schools of Oriental Research* 245, 35–52.
- 1984a. A Nabataean and/or Roman Military Monitoring Zone along the South Bank of the Wadi el Ḥasā in Southern Jordan. *Classical Views/Echos du Monde Classique* 27.3, 219–234.
- 1984b. The Wadi el Hasa Archaeological Survey. Pp. 113–128 in *The Answers Lie Below: Essays in Honor of Lawrence Edward Toombs*, ed. Henry O. Thompson. Lanham, MD: University Press of America.
- MacDonald, Burton, Banning, Edward B. and Pavlish, L. A. 1980. The Wadi el Hasa Survey, 1979. *Annual of the Department of Antiquities of Jordan* 24, 169–183.
- MacDonald, Burton, Rollefson, Gary and Roller, Duane W. 1982. The Wadi el Hasa Survey 1981. A Preliminary Report. *Annual of the Department of Antiquities of Jordan* 26, 117–131.
- MacDonald, Burton, Rollefson, Gary O., Banning, Edward B., Byrd, Brian F. and D'Annibale, Cesare 1983. The Wadi el Hasa Survey 1982: A Preliminary Report. *Annual of the Department of Antiquities of Jordan* 27, 311–323.
- Miller, J. Maxwell 1979. Survey of Central Moab. *Bulletin of the American Schools of Oriental Research* 234, 43–52.
- Mittmann, Siegfried 1964. Die römischen Strasse von Gerasa nach Adraa. *Zeitschrift des Deutschen Palästina Vereins* 74, 113–136.
- 1970. *Beiträge zur Siedlungs und Territorialgeschichte des nördlichen Ostjordanlandes*. Weisbaden: Harrassowitz.
- 1982. The Ascent of Luhith. Pp. 175–180 in *Studies in the History and Archaeology of Jordan 1*, Adnan Hadidi, ed. Amman: Department of Antiquities.
- Oates, David 1968. *Studies in the Ancient History of Northern Iraq*. London: British Academy.
- Parker, S. Thomas 1976. Archaeological Survey of the Limes Arabicus: A Preliminary Report. *Annual of the Department of Antiquities of Jordan* 21, 19–31.
- 1980. Towards a History of the Limes Arabicus. Pp. 865–878 in *Roman Frontier Studies 1979*, eds W. S. Hansen and L. J. F. Keppie. BAR International Series 71. Oxford: British Archaeological Reports.
- 1981. The Central Limes Arabicus Project: The 1980 Campaign. *Annual of the Department of Antiquities of Jordan* 25, 171–178.
- 1982. Preliminary Report on the 1980 Season of the Central Limes Arabicus Project. *Bulletin of the American Schools of Oriental Research* 247, 1–26.
- 1983. The Central Limes Arabicus Project: The 1982 Campaign. *Annual of the Department of Antiquities of Jordan* 27, 213–230.
- 1984. Exploring the Roman Frontier in Jordan. *Archaeology* 37.5, 33–39.
- 1985. Preliminary Report on the 1982 Season of the Central Limes Arabicus Project. *Bulletin of the American Schools of Oriental Research Supplement* 23, 1–34.
- 1986a. *Romans and Saracens: A History of the Arabian Frontier*. ASOR Dissertation Series no. 6. Winona Lake, IN: American Schools of Oriental Research.
- 1986b. Preliminary Report on the 1985 Season of the Limes Arabicus Project. *Annual of the Department of Antiquities of Jordan* 30, forthcoming.
- 1986c. A Tetrarchic Milestone from Roman Arabia. *Zeitschrift für Papyrologie und Epigraphik* 62, 256–258.
- In Press. The Roman Barracks. In *Umm el-Jimal Excavations I*. Bert DeVries, ed.
- Parker, S. Thomas and Lander, James 1982. Legio iv Martia and the Legionary Camp at el-Lejjūn. *Byzantinische Forschungen* 8, 185–210.
- Parker, S. Thomas and McDermott, Paul M. 1978. A Military Building Inscription from Roman Arabia. *Zeitschrift für Papyrologie und Epigraphik* 28, 61–66.
- Parr, P. J. 1969. Exploration archéologique du Hedjaz et de Madian. *Revue Biblique* 76, 390–393.
- 1977. Saudi Arabian Archaeological Reconnaissance- 1976: Preliminary Report on the First Phase of the Comprehensive Archaeological Survey Program. *Atlat* 1, 21–40.
- 1978. Preliminary Report on the Second Phase of the Northern Province Survey 1397/1977. *Atlat* 2, 29–50.

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- Parr, P. J., Harding, G. L. and Dayton, J. E. 1969. Preliminary Survey in N.W. Arabia, 1968. *Bulletin of the Institute of Archaeology, University of London* 8–9, 192–242.
- 1971. Preliminary Survey in N.W. Arabia, 1968. *Bulletin of the Institute of Archaeology, University of London* 10, 23–61.
- Poidebard, A. 1934. *La trace de Rome dans le désert de Syrie*. 2 vols. Paris: Guethner.
- Sartre, Maurice 1982. *Trois études sur l'Arabie romaine et byzantine*. Collection Latomus 178. Brussels: Latomus.
- Sauer, James A. 1973. *Heshbon Pottery 1971*. Andrews University Monographs 7. Berrien Springs, MI: Andrews University.
- Shahid, Irfan 1984a. *Rome and the Arabs. A Prolegomenon to the Study of Byzantium and the Arabs*. Washington: Dumbarton Oaks.
- 1984b. *Byzantium and the Arabs in the Fourth Century*. Washington: Dumbarton Oaks.
- Speidel, Michael P. 1977. The Roman Army in Arabia. *Aufstieg und Niedergang der römischen Welt*, ed. H. Temporini and W. Haase, 11.8, 687–730. Berlin: Walter De Gruyter.
- 1979. A Tile Stamp of cohorts I Thracum Milliaria from Hebron in Palestine. *Zeitschrift für Papyrologie und Epigraphik* 29, 171–172.
- Unpublished. The Roman Road to Dumata (Jawf in Saudi Arabia). The Frontier Concept of *Praetensio*.
- Thomsen, P. 1917. Die römischen Meilensteine der Provinzen Syria, Arabia, und Palaestina. *Zeitschrift des Deutschen Palästina Vereins* 40, 1–103.