Military Architecture and the Defense "System" of Roman - Byzantine Southern Jordan - A Critical Appraisal of Current Interpretations

#### . Introduction

Studies on the military architecture and organization in Roman-Byzantine Jordan were initiated almost a century 190. The pioneering work of Brüunnow and Domaszewski (1904; 1905; 1909) provided the first detailed description of military structures, especially in the northern 1901 military structures, especially in the northern 1901 military of the country. The German scholars were followed by other researchers who, through surveys, excavations and comparative studies, attempted a 1901 urther refinement of the chronology, typology and interpretation of military structures.

It has become conventional wisdom to apply the term imes to every frontier zone of the empire where the presence of Roman soldiers and military installations is ittested. The term "Limes Arabicus" has been applied to lenote a broad fortified zone in northern and central ordan with a single fortified line along the Via Nova Traiana in the Ḥisma (Parker 1979: 184-185, 215, 218; 987: 41). The "system" of fortifications and garrisons o defined served to hold off the nomads and to monitor heir movements (Parker 1986a: 639). Consequently, the o-called "Limes Arabicus" is often viewed as a part of he large-scale frontier defense system of the Roman East. Furthermore, the ratio between the strength or eadiness of this "system" to perform defensive function ersus the potential external threat is being measured by he number of manned military installations in the rontier zone in existence during a particular period of

While this line of thought possesses certain logical value – after all, Roman Arabia and Byzantine Palaestina Tertia were both frontier provinces – its practical application and the terminology used to describe it may lead toward unwarranted conclusions. For example, when the erm limes is used, it presupposes the existence of a "sysem" of defensive nature. Recent alternative interpretation of the military presence in the eastern provinces repreents a shift from emphasis on its pure defensive role to the underlining the needs of internal security and the unctioning of local administration and economy within

the provinces. Such studies emphasize the role of the Roman army as an occupation force and the instrument of imperial policy in controlling local economy and the sociopolitical affairs of indigenous populations living under the Roman rule (Graf 1989; Isaac 1990).

While this understanding of the military role is also advocated in this paper, its primary goal is to not to further criticize the defensive system concept, but rather to review certain aspects of its data base. In particular, it will be suggested that this concept may not be entirely compatible with the spatial and temporal distribution of military installations. Further, the evidence available at this time, i.e. literary and epigraphic sources as well as architectural studies and surface ceramics, may be still inadequate to warrant the conclusions offered by the proponents of the so-called "Limes Arabicus".

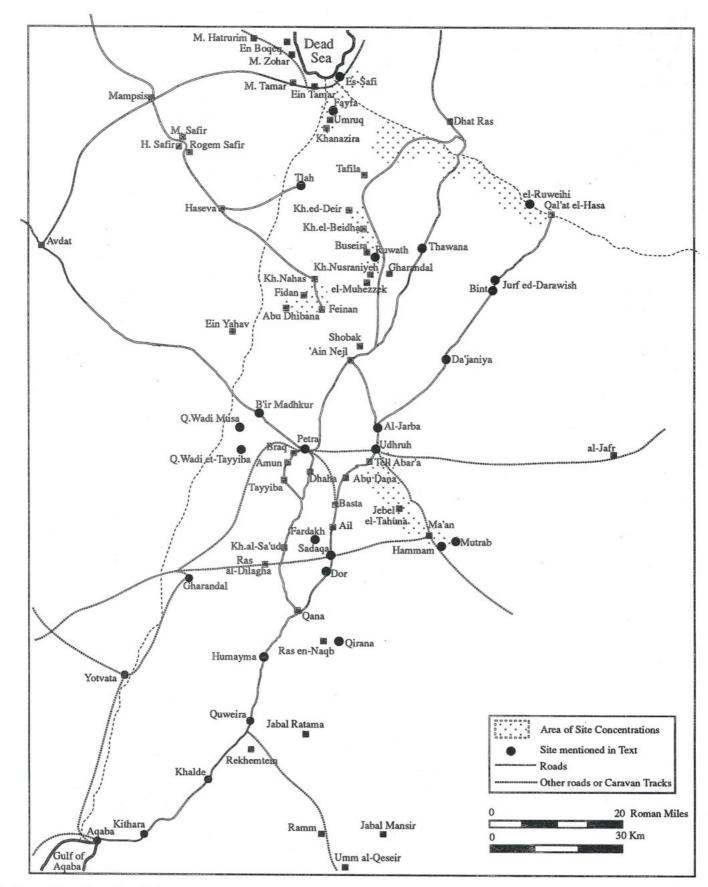
Southern Jordan, the area selected to test this review, is defined as the territory between Wādī al-Ḥasā and al-'Aqaba and limited by Wādī 'Arabah and the Syrian Desert (FIG. 1).

## II. Methodological Limitations

Historical Data

Initially, it is important to realize how scarce and incomplete is the evidence serving in the reconstruction of military arrangements in Roman-Byzantine southern Jordan. Doubtless, the investigations suffer from the very acute shortage of literary and epigraphic material. Besides brief notes mentioning some campaigns in "Arabia" which often cannot be specifically localized, the ancient historians are generally silent about the military situation. However, historical information on social unrest and internal disturbances, such as banditry, highway robbery and nomadic raids within Palestine and Sinai, is plentiful.

No military diploma are known from Arabia. Military inscriptions are few, often very laconic or undated, thus forcing conjectural interpretations. Important contributions concerning the *Exercitus Arabicus* have been made by T. Parker (1986b) and M. Speidel (1977), yet details



1. Roman - Byzantine southern Jordan.

concerning troop movements, transfer and duties remain argely in the domain of a guess. For example, discussion on the military aspects of the annexation of the Nabataean tingdom in AD 106, and the organization of the province eems still unresolved, in view of conflicting opinions on he identity of the first garrison of Arabia (Fiema 1987 and 1991 for bibliography).

The Notitia Dignitatum is the most relevant literary for military arrangements in Late Roman-Byzantine Jordan. Its usefulness, however, is restricted to egions where the location of mentioned military units an be reasonably identified with the extant military tructures, as in the Byzantine province of Arabia Parker 1989). In the neighboring *Palaestina Salutaris*/ Tertia, these attempts were less successful, or proved utile (Hartmann 1913; Fiema 1991: 295-305). This may be explained through the less-than-usual geopolitical ituation of Palaestina Salutaris/Tertia, where more han half of the garrisons seem to have been located far way from the usually recognized "border" of the empire. In fact, positive identifications were made more on the basis of studies of other historical sources, such as he Tabula Peutingeriana, the Madaba Map, and the Bi'r ıs-Saba' Edict (Bowersock 1983: 165-186). As a result, only 10 out of 20 actual garrisons traditionally thought to have been located in the eastern Palaestina Tertia could be positively recognized (TABLE 1). This meager state of iterary and epigraphic sources obliges a scholar to turn archaeological data in search for a inderstanding of the military arrangements Roman-Byzantine southern Jordan.

Spatial and Temporal Aspects of Archaeological Evidence

Despite the original enthusiasm of the proponents of "new archaeology" (Binford 1968: 211), it becomes increasingly apparent that archaeology possesses its limitations in recognizing and understanding the patterns of past socio-cultural systems, except when in a coordinated and meaningful effort with anthropology and history (Shaw 1980: 47). Especially the impact of anthropological theory on the domain of culture change in Roman-Byzantine southern Jordan is still woefully inadequate. This is also related to the fact that military aspects are usually treated separately from other aspects of culture history. For example, this "separatism" is noticeable in the divided and unequal attention given to the spatial distribution of sites recognized as military. Preoccupied with a postulated "external threat" and defensive purpose, historical reconstructions offered in the past presented images of strings of military installations located primarily in the frontier zone of the province, either in a linear or a "defense-in-depth," East-to-West pattern. While this approach may be partially justified because of the generally recognized duty of the military in all times, defense against an invader, it tends to ignore both the requirements of keeping internal security and the available archaeological data. After all, more than a half of the recognized military installations in southern Jordan are located well behind the Via Nova Traiana and their function may not necessarily be related to providing a "second line/screen" of defense. Rather, their location seems related to according security to a par-

able 1. Site indentifications.

Notitia Dignitatum or. XXXIV	Garrison	Indentification			
AILA	Legio decima Fretensis	al-'Aqaba			
ADMATHA	Ala Antana dromedariorum	al-Ḥammām			
ARIELDELA	Cohors secunda Galatarum	Gharandal (S)			
HAUANA (=HAUARRA)	Equites sagittarii indigenae	Ḥumayma			
PRAESIDIUM (N)	Ala secunda felix Valentiniana	Qaşr Fayfa			
PRAESIDIUM (S)	Cohors quarta Phrygum	Khirbat al-Khāldī			
ROBATHA	Equites sagittarii indigenae	Khirbat Ruwāth			
TOLOHA	Ala Constantiniana	Qaşr aţ-Ţilāḥ			
ZOARA	Equites sagittarii indigenae	aș-Ṣāfī			
0 ZODOCATHA	Equites promoti indigenae	Şadaqa			
1 AFRO	Cohors duodecima Valeria	Wādī al-Ḥasā area (?)			
2 ASUADA	Ala prima miliaria Sebastena	NE Wādī 'Arabah (?)			
3 CALAMONA	Cohors prima equitata	Bi'r Madhkūr (?)			
4 CARTHA (=SIRTHA?)	Cohors decima Carthaginensis	Wādī al-Ḥasā area (?)			
5 HASTA	Ala prima miliaria	NE Wādī 'Arabah (?)			
6 IEHIBO	Cohors secunda Gratiana	???			
7 SABAIA	Equites promoti indigenae	Jibāl region (?)			
8 SABURE SIVE VETEROCARIA	Equites primi felices sagittarii indigenae Palaestini	site in Wādī Ṣabra (?)			
9 TARBA	Cohors prima argentenaria	environs of Jarba (?)			
0 THAMANA	Cohors quarta Palestinorum	???			

ticular settlement, route or region, with no specific directional threat envisaged.

Another, though unintentional, limitation in the proper assessment of military arrangements stems from the fact that almost all data on military structures come from regional surveys. The notable exceptions are ad-Da'jāniya (Parker 1991: 134-141), Yotvata (Meshel 1989) and Udhruḥ (Killick 1986; 1987), although the latter still awaits a full publication. Thus the temporal aspect of occupation on all other sites is strictly subjected to the analysis of surface ceramic finds and architectural typology. Sauer's ceramic chronology, developed on the basis of the Hisban excavations almost 20 years ago (1973), has been successfully tested in stratigraphic and numismatic controlled excavations at al-Lajjūn (Parker 1979: 22-26). It remains, however, less certain how accurately this chronology can be applied against the material from southern Jordan, where well-stratified and coin controlled sequences are few, and where the regional variations in longevity of certain types of wares may be easily implied.

A recent breakthrough in ceramic studies, effected by K. W. Russell (1990; 1991) on the basis of the material from Petra, strongly suggests the considerable longevity of Nabataean painted wares, with an implication of its existence up to the sixth century AD (e.g. 'Amr 1991: 318). It is possible then that a major chronological evaluation of sites with a Nabataean component, at least in southern Jordan, will be necessary.

Concurrently, the chronological assessment of occupation on the basis of surface finds is unlikely to provide precise information on possible gaps in occupation, the reoccupation of a site, or even a secure basis for the initial period of existence and the time of the final abandonment. Earlier studies on the Petra-Gaza road primarily based the date of its use on the surface ceramics recovered from the forts along this road (Meshel and Tsafrir 1974; 1975; Negev 1966), and concluded that the road went out of use in the latter first or early second century AD. However, subsequent excavations at Mawjat 'Awwād and Qaṣr al-'Abd (Hurvat Qasra) proved the continuity of occupation at these sites at least until the late third century AD; thereby showing that the Petra-Gaza road was still in use until that time (Cohen 1982).

Character of Occupation and Architectural Typology
Another problem which faces scholars of military studies
is the proper assessment of the nature and occupation
phases of a military structure. Frequently, the difficulty
is of a purely semantic character, i.e. reflecting possible
ambiguity in the terminology used. Not surprisingly, the
same structures are interchangeably referred to in scholarly reports as forts, fortified caravanserais, castella or
stationes. In fact, the ancient function of some of these

structures might have included, simultaneously, both military and civilian capacity. Extant sources indicate that some military installations garrisoned by troops also served as hostelries or lodgings for travellers (Gichon 1990: 205-206).

Towers, as an integral part of the military architecture, were frequently the subject of elaborate classifications, typologies and tactical considerations (e.g. Gichon 1974). Despite that, the very function of these particular structures may be equally ambiguous, as that of the "forts". An instructive example is the polemic presented by E. Banning (1986; 1987) and S. T. Parker (1987), including a discussion on civilian versus military use of towers in Palestine and Jordan. Although the respondents seemingly presented opposite views, they tended to recognize the fact that the functional interpretation may be strongly influenced by a scholar's general perspective.

In the absence of non-ambiguous epigraphic material, architectural features - i.e. general layout, construction method, internal arrangement, presence and form of towers, gates, etc. - are usually recognized, in addition to the ceramic material, as the safest method of dating military structures. In practice, however, these features provide only very general information on the time-frame and possible reconstruction, which may be improved only when the research is supplemented by soundings or excavations. For example, possible gaps in occupation, or later civilian reoccupation of original military sites, may not be easily inferred without excavation. Further, the pottery found in structures recognized architecturally as military, is usually recognized as a temporal indication of the military occupation of a structure. But, since the pottery of both military and civilian contexts would be the same, a fort might have been militarily abandoned and reinhabited by civilians (Freeman 1990:

While every attempt at assessment of the temporal span and phases of occupation of a structure should be appreciated, the following few examples illustrate the difficulties and the still-inadequate means of dealing with these problems, all of which may lead toward unintentional misinterpretation of the whole corpus of military remains.

The fort of ad-Da'jāniya, one of the largest and best preserved military structures in southern Jordan, has received much attention in scholarly literature. Original chronological assessment, through studies on the survey material, suggested an early date for this structure, perhaps as early as the Trajanic period, since Early Roman IV pottery was found among the surface material (Parker 1979: 142). Further studies, which concentrated on the fort's shape and internal layout, suggested a later date, probably the Severan period (Lander 1984: 144-146) or

the late third/early fourth century (Kennedy and Riley 1990: 172-175). Historical analysis, centering on the Ghassanid buildup of the early sixth century AD, leaned toward the Byzantine date for the fort's construction (Bowersock 1976: 226). Recent soundings at the fort presented firm evidence for early fourth century existence, although in some places traces of earlier occupation could have been removed if the fourth century marked only the reconstruction phase (Parker 1991: 140).

The major forts along the *Via Nova Traiana* in southern Jordan – Kīthārā, al-Khāldī and al-Quwayra – were originally thought to have been built by the Romans (Alt 1936). This conclusion was made on the basis of architectural features, mainly the masonry type and the general layout. Recent investigations and soundings revealed a very strong Nabataean "imprint," i.e. the typical Nabataean stone dressing marks and an inscription (Graf 1983: 650-653). The possibility of a thorough Roman reconstruction at the later period cannot be dismissed, yet the Nabataean origins of these structures, whether initially military or civilian, seem evident.

The initial controversy over the massive fortifications excavated by the University of Chicago in al-'Aqaba, whether of the early Islamic town of Ayla (Whitcomb 1987; 1988; 1990) or of an original legionary fortress (Knauf and Brooker 1988: 181) was mainly based upon the seemingly striking resemblance of these fortifications to the fortresses at al-Lajjūn and Udhruḥ. The ultimate solution to this controversy may be found when the lowest levels at Ayla, which lie under the current water table, are investigated. Furthermore, the ruins recently surveyed in western 'Aqaba (Meloy 1991) may, in fact, be a better candidate for the earlier settlement and the legionary camp of the X Fretensis. In addition, and despite its seemingly clear architectural parallel with Diocletianic fortresses, Udhruh is itself an enigma. While noting the existence of Early Roman material, the excavations have failed to produce a conclusive final statement concerning the chronological and structural development of the site.

The architectural parallells may then serve as useful indicators in a general temporal assessment. They fail, however, to account for regional variations, phenomena of reconstruction, rebuilding, gaps of occupation and civilian reoccupation, unless accompanied by a more comprehensive research based upon excavation. Furthermore, architectural studies should consider a potential combination of new elements, be it Roman or Byzantine architecture, with traditional architectural designs which could have been incorporated or subjected to subsequent modifications. Recent studies confirm the longevity of Hellenistic and Nabataean designs in military architecture. As recently suggested for the courtyard fortification pattern in southern Palestine, this architectural type represents an unbroken tradition since the tenth century BC (Gichon

1990: 206).

The critical remarks offered above are by no means intended to diminish the substantial scholarly contribution towards the better understanding of the military problems in Roman-Byzantine southern Jordan. These attempts at dating and classifying military installations, even though supported by a still-insufficient data base, should be appreciated. However, in light of the aforementioned difficulties and shortcomings, any general statement about spatial and temporal distribution of military installations, which insists on the existence of a defensive system with its growth and decline, is indeed based upon shaky ground. In the case of southern Jordan, it seems premature to discuss the phases of strengthening or weakening of the so-called "Limes Arabicus," because the term "limes," if defined as a working defensive "system," may not be the most appropriate designation for the extant remains of the military arrangements in that area. Furthermore, the overemphasis on the defensive aspects of the "limes," its strategic value and tactical arrangements will overshadow the integral relation between the military and the internal sociopolitical and economic situation in the province.

## **III. Historical Comments**

The TABLE 2 is by no means a complete inventory of military sites in southern Jordan. Initially, the sites presented here were tentatively recognized as larger installations of military significance (forts), although some may have been simple fortified road stations. Out of 30 listings, only 10 were directly related to the Via Nova Traiana, the major Roman highway in Jordan. Eight are located east of the Trajanic Road, and twelve to the west of it, within the province. The location of these sites will hardly account for the existence of a military monitoring zone, barrier, or a defense-in-depth system. Instead, the common feature which is enjoined by these sites is that all are located at places of importance for the proper administrative and economic functioning of the province, without, however, any common direction. These forts are located along the main roads, at the crossroads, high ground passes, or in the vicinity of major settlements or areas of economic importance.

Further, in reconstructing the military arrangements, one cannot dwell only upon the archaeological evidence of structures recognized as military. One should include sites recognized as civilian but with a possible military garrison component attested by extant sources. To these belong Petra (Bennett and Kennedy 1978; Zayadine and Fiema 1986), Zoara (N.D. *Or.* 34.26) and possibly at-Tuwwāna and Khirbat Ruwāth, the latter recognized as garrisoned (Robatha, N.D. *Or.* 34.27) but with no substantial traces of a military installation (Graf 1991, personal communication).

#### ZBIGNIEW T. FIEMA

Table 2. Larger military installations in southern Jordan.

Site	Remains	Location	V.N.T.	Nabataean	Roman	Fourth	Fifth	Sixth Century
1 ar-Ruwayhi	fort	Northern Jibāl	W	X	X	X	X	X
2 al-Qasr	fort	Northern Jibāl	W	X	?	X	X	X
3 Rujm Farrīdiya	fort	Northern Jibāl	W	X	X	X	?	
4 WHS 296	fort	Northern Jibāl	W	X	X	X	X	
5 Jurf ad-Darāwish	fort	Eastern Jibāl	E		Severan?	X	?	
6 ad-Da'jāniya	fort	Eastern Jibāl	E		Severan?	X	X	until c. 520
7 QasrFayfa	fort	Southern Ghawr	W		X	X	X	X
8 Oasrat-Tilāh	fort	NE Wādī 'Arabah	W	X	X	X	X	X
9 Umm aţ-Ţuwābīn	stronghold	SE of Southern Ghawr	W	X	X	X	X	
10 Udhruh	fortress-cum-town	East of ash-Sharāh	E		X	X	$\mathbf{X}$	garrisoned?
11 Jarba	fort	East of ash-Sharāh	E		X	X	?	
12 al-Mutrab	fort	East of ash-Sharāh	E		?	X	X	
13 al-Ḥammām	fort	East of ash-Sharāh	E			X	X	
14 Ayl	fort	ash-Sharāh	X	?	Severan?	X	$\mathbf{X}$	mid 6th century
15 Fardhakh	fort	ash-Sharāh	X	?	X	X	?	0 C. V. C.
16 Şadaqa	fortified settlement/fort?		X	?	$\mathbf{X}$	X	X	?
17 Dor	fort	ash-Sharāh	X	?	X	X	?	
18 Suwaymira	fortlet	ash-Sharāh	X	?	X	X	?	
19 Khirbat al-Oīrāna	fort	East of ash-Sharāh	E	?	X	X	X	early 6th century?
20 Ḥumayma	military (?) enclosure	Hisma	X	?	X	X	X	X
20 i ulliayilla	and two (?) forts							
21 al- Quwayra	fort	Hisma	X	X	X	X	X	
22 Khirbat al Khāldī	fort + caravanserai (?)	Hisma	X	X	X	X	X	X (fort)
23 Kithāra	fort	Hisma	X	X	X	X	X	X
24 Bir Madhkūr	fort (?)	W. foothills of ash-Sharāh		X	X	X	?	
25 Oasr Wādiat-Tayyiba	fort	W. foothills of ash-Sharāh		X	X	?		
26 Oasr Wādī Mūsā	fort (?)	W. foothills of ash-Sharāh		?	X	X	X	
(=Qaşr Umm ar-Ratam)	ioit (:)	W.100thinis of ash-offarar	. ,,			**		
27 Oasr as-Sa'idiyin	fort (?)	Central Wādī 'Arabah	W	X	X	?		
28 Gharandal	fort	Central Wādī 'Arabah	W	X	X	X	X	
	legionary fortress	on the Gulf of 'Aqaba	X	21	late 3rd?	X	X	?
29 al-'Aqaba	fort	Southern Wādī 'Arabah	W		end of	X		*
30 Ghadyān (Yotvata)	1011	Southern water Araban	**		3rd	21		

E=East of; W=West of; X=occupied/on the road; ?=uncertain; V.N.T.=Via Nova

Elsewhere (Fiema 1991) I have proposed that the political and military viability of southern Jordan varied in accordance with fluctuations in the economics of long-distance Oriental trade. In particular, it was suggested that economic conditions conducive to sociopolitical growth varied according to the volume of trade passing through the area, and that the process involved the appearance of concomitant forms of administrative and military arrangements which facilitated that trade. Conversely, the decline of trade in southern Jordan, as a function of political and economic decisions outside the area, resulted in subsequent changes in these administrative and military structures.

In the domain of military studies this economic argument implies two specific propositions. Firstly, the spatial and temporal distribution of troops and installations in the area is directly related to the sociopolitical and economic situation, primarily within the province and only secondarily in relation to some large-scale strategic considerations in the Roman East. Further, the strength of the military in the area, when measured by the number of military installations manned in particular time periods, does not necessarily mean increase/decrease of external

threat, or "strengthening/weakening" of the "system", but rather is a function of a conscious and economizing investment policy on behalf of central government in relation to the economic significance of the province.

This hypothesis was tested through studies on extant settlement patterns of Nabataean through Late Byzantine periods, with emphasis on the spatial and temporal distribution of settlements, road network, military sites and the existence of exploitation activities in some regions with mineral resources. Although also based upon stillinsufficient archaeological data, the results strongly indicate that the distribution of military installations directly followed the economic and administrative needs represented by the Nabataean kingdom and later the provinces of Roman Arabia and Byzantine Palaestina Tertia. It is clear that forts were constructed, rebuilt, regarrisoned and abandoned, not with regard to some large-scale strategic considerations, but, presumably, with regard to the constantly changing political and economic environment of the area. The military arrangements in southern Jordan hardly display any regard to the possibility of a large-scale, well-organized invasion which, in fact, did not materialize until the early seventh century. Hence, the comparisons with the massive military buildup in other parts of the Roman frontier, such as the *Strata Diocletiana* in Syria, hardly seem appropriate. Low-intensity threat of nomadic incursions from the East could have been easily contained without a need of an elaborate defensive "system", and low-level protective measures (patrolling beyond the frontier, diplomatic negotiations) seem to have been a secure and sufficient means to preserve peace.

In general, throughout time the central government developed a logical and economizing policy in response to a fluctuating level of protective needs. The second century arrangements, characterised by Roman nongarrisoning of some Nabataean military installations, as well as the troops' location either in towns or in spots of commercial or communication importance, are a good indication of such policy. The third century arrangements may represent an increase in military deployment, in relation to the generally unstable political situation and the unrest among the eastern native populations under Roman rule. This situation had also partially contributed to the decline of international trade traffic in southern Jordan, and consequently to the general economic decline of the area in the later Byzantine period.

The suggested Tetrarchic buildup seems to be a phantom, at least in southern Jordan. Only three forts (al-Mutrab, al-Ḥammām, Yotvata) may be safely associated with the fourth century construction, while all previously constructed forts may have been manned as well. In fact, the fourth century situation indicates an economic recovery exemplified by unparralleled expansion into more remote marginal lands of the Byzantine East. Evidence of lively interregional trade, which had largely replaced the international trading contacts by the later third century, attests to prosperity in some areas. As one scholar observed, "sometimes evidence of increased military presence may reflect stability rather than insecurity" (Isaac 1986: 391).

The number of fortifications during the fourth-fifth century is only insignificantly higher than in the Severan period. It is clear that the greatest potential danger to the proper functioning of the province still remained within the province itself. The army was more involved in policing the countryside than preoccupied with an external threat. Not surprisingly, the extant historical sources describing the conditions of Palestine, an-Naqab and Sinai indicate that the endemic banditry, nomadic raids and social unrest all originated to the west of the so-called "Limes Arabicus" (Issac 1984: 194; Mayerson 1986: 38-40; 1989).

What has been suggested as a "gradual weakening of the Arabian frontier" starting in the second half of the fifth century (Parker 1986b: 152), is usually supported by the evidence of the abandonment of forts along the

frontier. This numerical comparison may, however, be misleading. In fact, the abandonments represent a new policy of minimizing the investment in the areas of less importance to the empire, and are also related to changes in tactics. It appears that Justinian retained the older military perspective of preserving the military strength only where a real threat existed for the regions most important politically and economically. This is supported by the evidence of massive fortification reconstructions in Mesopotamia, Armenia and northern Syria (Procopius De Aed. 2.3). In southern Jordan, military arrangements reflected the gradual economic decline of the area, thus its relative insignificance in considerations of the central government. This decline is well perceived through the settlement patterns of the later Byzantine period, characterised by growing isolation of settlement clusters, and the disappearance of means for international and interregional communication. It is characteristic, however, that in areas still economically important, such as the Southern Ghawr, and the Udhruh and Humayma regions, where agricultural production and interregional trade were still seemingly thriving, the forts and garrisons are still attested. The same applies to the main communication lines which largely bypassed southern Jordan but still run on its outskirts. The examples are Ayla and the roads between an-Naqab and northern Hijaz, and the Zoara region through which the communication lines passed between Palestine and Moab. The lack of necessity to maintain forts in other locations was also related to changed tactics in which the mobile groups of the foederati, well accustomed to policing the countryside, played the dominant role. One cannot consider the emperors of the sixth century responsible for the vicissitudes of the seventh. The political and military arrangements maintained in the Justinianic period were appropriate and adequate for the conditions of that century, but simply inadequate for those of the seventh.

The remarks offered above coincide with the new approach in military studies which points out that the Roman army in Arabia/Palestine was the force of occupation which, in addition to being an instrument of imperial trade policy both inside the province and across the frontier, performed the ever important task of policing the countryside and keeping security in towns (Isaac 1980: 894; 1990: 34). Additionally, the observed fluctuations in the number of the troops and the location of military installations may be better explained in relation to intricate sociopolitical phenomena such as dissidence and opposition of local populations to Roman rule (Graf 1978; 1991: 152) rather than in relation to the 'defensein-depth' assumed to have been generated against nomadic incursions. Future military studies will be associated not only with more extensive archaeological exploration of forts and towers, and a search for better

classifying means, but primarily with a better understanding of the interrelationship and interdependence of the regional sociopolitical and economic situation and the military means effected by the empire to assure the proper and undisturbed functioning of these arrangements.

# **Bibliography**

- Alt, A. 1935. Aus der 'Araba II. Römische Kastelle und Strassen. *ZDPV* 58: 1-78.
- 1936. Die Südliche Endabschnitt der Römischen Strasse von Bostra nach Aila. *ZDPV* 59: 92-111.
- 'Amr, K. 1991. The Petra National Trust Site Projects: Preliminary Report on the 1991 Season at Zurrabah. *ADAJ* 35: 313-324.
- Banning, E. B. 1986. Peasants, Pastoralists and Pax Romana: Mutualism in the Southern Highlands of Jordan. *BASOR* 261: 25-50.
- —— 1987. De Bello Paceque: A Reply to Parker. *BASOR* 265: 52-55.
- Bennett, C. M. and Kennedy, D. L. 1978. A New Roman Military Inscription from Petra. *Levant* 10: 163-165.
- Binford, L. R. 1968. Archaeological Perspectives. Pp. 5-32 in S. R. Binford and L. R. Binford (eds.), *New Perspectives in Archaeology*. Chicago.
- Bowersock, G. W. 1976. Limes Arabicus. *Harvard Studies in Classical Philology* 80: 219-229.
- 1983 Roman Arabia. Cambridge, Mass.: Harvard University Press.
- Brünnow, R. and von Domaszewski, A. 1904. *Die Pro*vincia Arabia I. Strassburg: Trubner
- 1905. Die Provincia Arabia II. Strassburg: Trubner.
- 1909. Die Provincia Arabia III. Ein Ueberblick uber die Geschichte der Provinz Arabia von R. Brünnow. Strassburg: Trubner.
- Cohen, R. 1982. New Light on the Date of the Petra-Gaza Road. *BA* 45: 240-247.
- Fiema, Z. T. 1987. The Roman Annexation of Arabia: A General Perspective. *The Ancient World* 15 (1-2): 25-35.
- 1991. Economics, Administration and Demography of Late Roman and Byzantine Southern Transjordan. Ph.D. Dissertation. University of Utah, Salt Lake City.
- Freeman, P. 1990. Recent Work on a Roman Fort in South Jordan. Pp. 179-191 in H. Vetters and M. Kandler (eds.), *Akten des 14. Internationalen Limeskongresses in Carnuntum*, 1986. Wien: Verlag des Oesterreichischen Akademie der Wissenschaft.
- Gichon, M. 1974. Towers on the Limes Palaestinae. Forms, Purpose, Terminology and Comparisons Pp. 517-545 in Actes du IXe congres international d'études sur les frotieres Romaines. Mamaia, 1972.

- Bucuresti: Editura Academiei.
- 1990. The Courtyard Pattern Castellum on the Limes Palaestinae - Strategical and Tactical Features. Pp. 193- 215 in H. Vetters and M. Kandler (eds.), Akten des 14. Internationalen Limeskongresses in Carnuntum, 1986. Wien: Verlag des Oesterreichischen Akademie der Wissenschaft.
- Graf, D. F. 1978. The Saracens and the Defence of the Arabian Frontier. *BASOR* 229: 1-22.
- 1983. The Nabataeans and the Hisma: In the Footsteps of Glueck and Beyond. Pp. 647-662 in C. Meyers and M. O'Connor (eds.), The Word of the Lord Shall Go Forth. Winona Lake.
- 1989. Rome and the Saracens: Reassessing the Nomadic Menace. Pp. 341-400 in T. Fahd (ed.), *L'Arabie Preislamique et son environnement historique et culturel*. Actes du Colloque de Strasbourg 1987. Leiden: Brill.
- —— 1991. Review of "Romans and Saracens" by S. Th. Parker. *JNES* 50 (2): 151-153.
- Hartmann, R. 1913. Materialen zur historischen Topographie der Palaestina Tertia. ZDPV 36: 100-113; 180-198.
- Isaac, B. 1980. Trade Routes to Arabia and the Roman Army. Pp. 889-903 in W. S. Hanson and L. J. F. Keppie (eds.), *Roman Frontier Studies 1979*. Papers presented at the 12th International Congress of Roman Frontier Studies. Oxford.
- 1984. Bandits in Judaea and Arabia. *Harvard Studies in Classical Philology* 88: 171-203.
- 1986. Reflections on the Roman Army in the East. Pp. 383-395 in P. Freeman and D. Kennedy (eds.), The Defence of the Roman and Byzantine East. Proceedings of a Colloquium at the University of Sheffield, April 1986. Oxford: British Archaeological Reports.
- 1988. The Meaning of the Terms Limes and Limitanei. JRS 78: 125-147.
- —— 1990. The Limits of Empire. The Roman Army in the East. Oxford: Clarendon Press.
- Kennedy, D. and Riley, D. 1990. Rome's Desert Frontier from the Air. London: Batsford.
- Killick, A. 1986. Udhruh: Eine antike Stätte vor den Toren Petras. Pp. 44-57 in M. Lindner (ed.), *Petra: Neue Ausgrabungen and Endeckungen*. München: Delp.
- 1987. *Udhruh. Caravan City and Desert Oasis*. A Guide. Romsey.
- Knauf, E. A. and Brooker, C. H. 1988. Review of "Aqaba, Port of Palestine on the China Sea", by D. Whitcomb. ZDPV 104: 179-181.
- Lander, J. 1984. *Roman Stone Fortifications*. Oxford: British Archaeological Reports.
- MacDonald, B. 1983. The Wadi el-Hasa Archaeological Survey 1979-1983, West-Central Jordan. Waterloo:

- Wilfrid Laurier University Press.
- Mayerson, P. 1986. The Saracens and the Limes. *BASOR*. 262: 35-48.
- 1989. Saracens and Romans: Micro-Macro Relationships. BASOR 274: 71-80.
- Meloy, J. L. 1991. Results of Archaeological Reconnaissance in West Aqaba: Evidence of the Pre-Islamic Settlement. ADAJ 35: 397-411.
- Meshel, Z. 1989. A Fort at Yotvata from the Time of Diocletian. *IEJ* 39(3-4): 228-238.
- Meshel, Z. and Tsafrir, Y. 1974. The Nabataean Road from 'Avdat to Sha'ar-Ramon I. *PEQ* 106: 103-118.
- —— 1975. The Nabataean Road from 'Avdat to Sha'ar-Ramon II. *PEQ* 107: 3-21.
- Negev, A. 1966. The Date of the Petra-Gaza Road. *PEQ* 98: 89-98.
- Notitia Dignitatum. 1962. *Notitia Dignitatum*. O. Seeck, ed. [1876]. Reprinted in Frankfurt: Minerva.
- Parker, S. T. 1979. *The Historical Development of the Limes Arabicus*. Ph.D. Dissertation. University of California, Los Angeles.
- 1986a. Retrospective on the Arabian Frontier after a Decade of Research. Pp. 633-660 in P. Freeman and D. Kennedy (eds.), *The Defence of the Roman and Byzantine East*. Proceedings of a Colloquium at the University of Sheffield, April 1986. Oxford: British Archaeological Reports.
- —— 1986b. Romans and Saracens: A History of the Arabian Frontier. Philadelphia: ASOR Press.
- —— 1987. Peasants, Pastoralists and Pax Romana: A Different View. BASOR 265: 35-51.
- 1989. The Fourth Century Garrison of Arabia: Stra-

- tegic Implications. Pp. 355-372 in D. H. French and C. S. Lightfoot (eds.), *The Eastern Frontier of the Roman Empire*. Proceedings of a Colloquium held in Ankara, September, 1988. Oxford.
- 1991. Preliminary Report on the 1989 Season of the Limes Arabicus Project. BASOR Supplement 27: 117-143.
- Russell, K. W. 1990. *Household Excavations at Petra*. Paper presented at the 92nd Annual Meeting of the American Institute of Archaeology, San Francisco.
- 1991. Household Excavations in the "Rose Red City:" Hellenistic through Byzantine Occupations at Petra. MS in possession of ACOR.
- Sauer, J. 1973. *Heshbon Pottery 1971*. Andrews University Monographs VII. Berrien Springs.
- Shaw, B. D. 1980. Archaeology and Knowledge. The History of the African Provinces of the Roman Empire. Florilegium 2. Pp. 28-60. Carleton University Press.
- Speidel, M. 1977. The Roman Army in Arabia. Pp. 687-730 in H. Temporini and W. Haase (eds), *Aufstieg und Niedergang des Romischen Welt*, II.8. New York: De Gruyter.
- Whitcomb, D. 1987. Excavations in Aqaba: First Preliminary Report. *ADAJ* 31: 247-266.
- —— 1988. *Aqaba*, "Port of Palestine on the China Sea". Amman: Al Kutba Publishers.
- —— 1990. "Diocletian's" Misr at 'Aqaba. *ZDPV* 106: 156-161.
- Zayadine, F. and Fiema, Z. T. 1986. Roman Inscriptions from the Siq of Petra. Remarks on the Initial Garrison of Arabia. *ADAJ* 30: 199-205.