The SOUTHERN TRANSJORDAN EDOMITE PLATEAU and the DEAD SEA RIFT VALLEY

The Bronze Age to the Islamic period (3800/3700 BC–AD 1917)

Burton MacDonald

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ABBREVIATIONS AND SYMBOLS

ACOR	American Center of Oriental Research
APAAME	Aerial Photographic Archive for Archaeology in the Middle East
ARNAS	The Ayl to Ras an-Naqab Archaeological Survey
asl	above sea level
B	Bronze
bods	body sherds
BDP	Beidha Documentation Project
BP or bp	Before the present, that is, before AD 1950
bsl	below sea level
Byz	Byzantine
c.	about/around
CBRL	Council for British Research in the Levant
Chal	Chalcolithic
Class	Classical
DLK	David L. Kennedy
DLS	Dolomite Limestone Shales
E	Early/East
ED	European Datum 1950
ELRAP	Edom Lowlands Regional Archaeology Project
EPI	Epipaleolithic
FFR	Francesca F. Radcliffe
FJHP	Finnish Jabal Haroun Project
GIS	Geographic Information System
GPS	Global Positioning System
Hell	Hellenistic
Isl	Islamic
Kh.	Khirbat
L	Late/Lower/Looking
L2HE	Lowlands to Highlands of Edom Project
M	Middle
MBS	Massive Brown Sandstone
Mod	Modern
N	North
Nab	Nabataean
NEPP	North-Eastern Petra Project
NHG	Naturhistorische Gesellschaft Nürnberg/Natural History Museum of Nürnberg
NRA	Natural Resources Authority
NRSV	New Revised Standard Version
Per	Persian
poss	possible
prob	probable/probably
RHB	Robert H. Bewley
Rom	Roman
RS(s)	Random Square(s)
S	South
SAAS	Shammakh to Ayl Archaeological Survey
SGNAS	Southern Ghors and Northeast `Arabah Archaeological Survey
SJIAP	South Jordan Iron Age II Survey and Excavation Project
TBAS	Tafila – Busayra Archaeological Survey
U	Upper
UAP	Udhruh Archaeological Project
UD	Un-diagnostic
W	West
WF	Wadi Faynan
WFLS	Wadi Faynan Landscape Survey
WGS	World Geodetic System 1984
WHS	Wadi al-Hasa Archaeological Survey
WMWSWP	Wadi Musa Water Supply and Wastewater Project
/	either/or
#	number
–	through/to

ARCHAEOLOGICAL PERIODS AND DATES

Bronze Period (3800/3700–1200 BC)
Early Bronze I (3800/3700–3100/3000 BC)
Early Bronze II (3100/3000–2900/2800 BC)
Early Bronze III (2900/2800–2300 BC)
Early Bronze IV (2300–2000 BC)
Middle Bronze (2000–1550 BC)
Late Bronze (1550–1200 BC)
Iron Period (1200–539 BC)
Iron I (1200–1000 BC)
Iron II (1000–539 BC)
Persian Period (539–332 BC)
Classical Period (Hellenistic–Byzantine) (332 BC–AD 640)
Hellenistic (and Nabataean) Period (332–63 BC)
Roman (and Nabataean) Period (63 BC–AD 324)
Early Roman (63 BC–AD 135)
Late Roman (AD 135–324)
Byzantine Period (AD 324–640)
Early Byzantine (324–500)
Late Byzantine (500–640)
Islamic Period (AD 640–1917)
Early Islamic (AD 640–1099)
Middle Islamic (AD 1099–1517)
Late Islamic (AD 1517–1917)
Modern Period (AD 1917–Present)

Dedicated to

Geoff, Larry, and Scott

1

INTRODUCTION

There is evidence of human presence in the southern part of Jordan for the past million years. The projects in which I have been engaged for the past three to four decades documented some of this evidence. However, it appeared to be too much to present all this evidence for the area in one volume. Thus, heeding the advice of other researchers, I have decided to narrow the focus of this work to the last five–six thousand years. Thus, this is a presentation of the archaeology and history of human presence during the Bronze Age to Islamic periods in the southern segment of the Transjordan or Edomite Plateau and the Dead Sea Rift Valley to the west. It is based on archaeological, literary, and epigraphic evidence. Archaeological evidence for the area is available for the entire period from the beginning of the Early Bronze Age (3800/3700 BC) to the end of the Islamic period (AD 1917). Literary and epigraphic evidence for the area is, however, available for only the past 4000 years, or from the Middle Bronze Age (2000–1550 BC). Once literary and epigraphic evidence are available, they complement the archaeological record. And, as frequently indicated, the written records can be clarified only through the archaeological ones. These sources are, thus, used to describe environments, resources, industries, settlement patterns, and the life styles of the area's inhabitants. The result is a "story" of the people who lived in the area from the beginning of the Bronze Age to the end of the Islamic period.

Geographical Area of Interest

The geographical territory of interest extends from Wadi al-Hasa in the north to Ras an-Naqab in the south, a distance of *c*. 115 km (Plate 1). From east to west, it spans a distance of *c*. 60 km, from the steppe to the international borderline between Jordan and Israel respectively (Plate 2). The western segment of the territory includes the Southern Ghors (Plate 3), Northeast `Arabah (Plate 4) as far south as Gharandal, including the Wadis Fidan and Fayan region. The total area covered is *c*. 6900 square kilometres (Fig. 1.1).

What must be initially emphasized about the area is that it encompasses three main morphological units, namely, Dead Sea Rift Valley, Transjordan Plateau/Western Highlands and desert (Fig. 1.2), and three plant geographical territories, namely, Mediterranean, Irano-Turanian and Saharo-Sindian. The former are outlined in more detail below. For the present, however, it is important to note that within these morphological units elevations range from more than 1700 m above sea level on the Transjordan Plateau/Western Highlands of Jabal ash-Sharah to *c*. 400 m below sea level to the west of as-Safi in the Dead Sea Rift Valley (see below). Relative to the plant geographical units, the Mediterranean territory is characteristic of the highlands, the Irano-Turanian of the desert, and the Saharo-Sindian of Wadi `Arabah in the Dead Sea Rift Valley. Due to the three main morphological units and the plant geographical territories, one would expect to find challenges relative to settlement and human adaptation within the area. Moreover, as will be pointed out in subsequent chapters, there are often major differences in settlement patterns, usually due to the availability of resources, in these units during different archaeological periods.

Topography

As indicated above, the land of Jordan, from east to west, is divided into three main morphological units. Bender (1974; see also Macumber 2001, 3, fig. 1.1; 2008, 10, fig. 2.2) points out that the landscape is more complex than this division suggests. However, for the purposes of this work, these three divisions suffice. Moreover, the interest is only in segments of these three units.

It must be noted that the present landscape of Jordan is very different from what it was during various periods in the past. This is verified by geomorphic research for the various archaeological periods. For example, Donahue (2003, 48) posits that Wadi al-Karak, the wadi on which the Early Bronze Age (3800/3700–2000 BC) site of Bab adh-Dhra` is located, has been down cut 28 m over the past four–five thousand years. Moreover, Wadi an-Numayra, just to the south of Bab adh-Dhra`, and the wadi on which the archaeological site of an-Numayra is located, has been down cut *c*. 50 m during the same period of time (Schaub and Chesson 2007, 246). This indicates a great deal of erosion of these wadis in a relatively short period of time. The erosion and deterioration of the landscape is continuing.

The Dead Sea Rift Valley is a morphological unit characterized by a landscape distinct from the other two indicated above. It is a north-south linear feature with significantly lower elevations than the Transjordan Plateau or Highlands to the east (Bender 1974; Macumber 2001; 2008). For example, the surface of the Dead Sea is presently *c*. 417 m below ocean level and is continuing to drop in elevation. The area along the southeast segment of the Dead Sea is

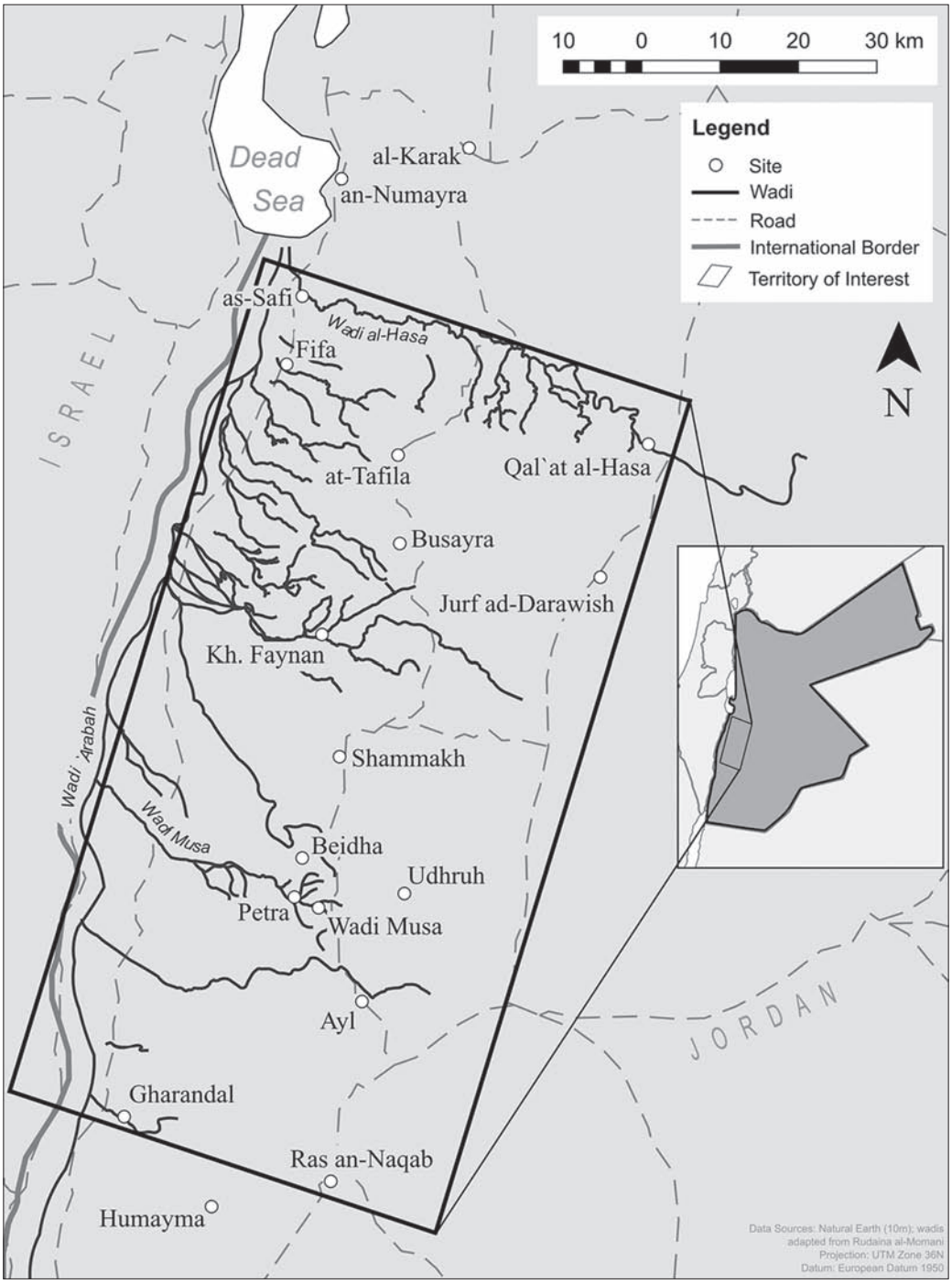

Fig. 1.1: Map of Jordan and with 'Geographical Area of Interest' indicated.

called the Southern Ghors. It extends southwards to the Khanazir Fault that is expressed as a 50 m high escarpment (Macumber 2001, 3; 2008, 9). Wadi `Arabah begins at the northern edge of the escarpment. Southward, over a distance of *c*. 74 km, the land rises to 230 m above sea level. This is the area of the watershed between the Dead Sea and the Red Sea. From here, the land gradually descends over a distance of *c*. 77 km to al-`Aqaba at the northern tip of the Red Sea.

The Transjordan Plateau/Western Highlands slopes gently towards the central plateau in the east. However, it is very steep towards the Dead Sea Rift Valley in the west and the Hisma Valley in the south. Specifically, on the west it drops over 1500 m in a little more than 25 km (Fig. 1.3); on the south, near Ras an-Naqab, the difference in altitude from top-to-base of the escarpment is *c*. 600 m over a distance of *c*. 1 km.

Within the Transjordan Plateau/Western Highlands morphological unit the Yarmuk River, Wadi az-Zarqa, Wadi al-Mujib, and Wadi al-Hasa, all flowing towards the west, have generally been designated as natural divisions of Jordan (Aharoni 1979, 36–41). They are seen, at least occasionally, as political, ethnic, and/or administrative boundaries. While

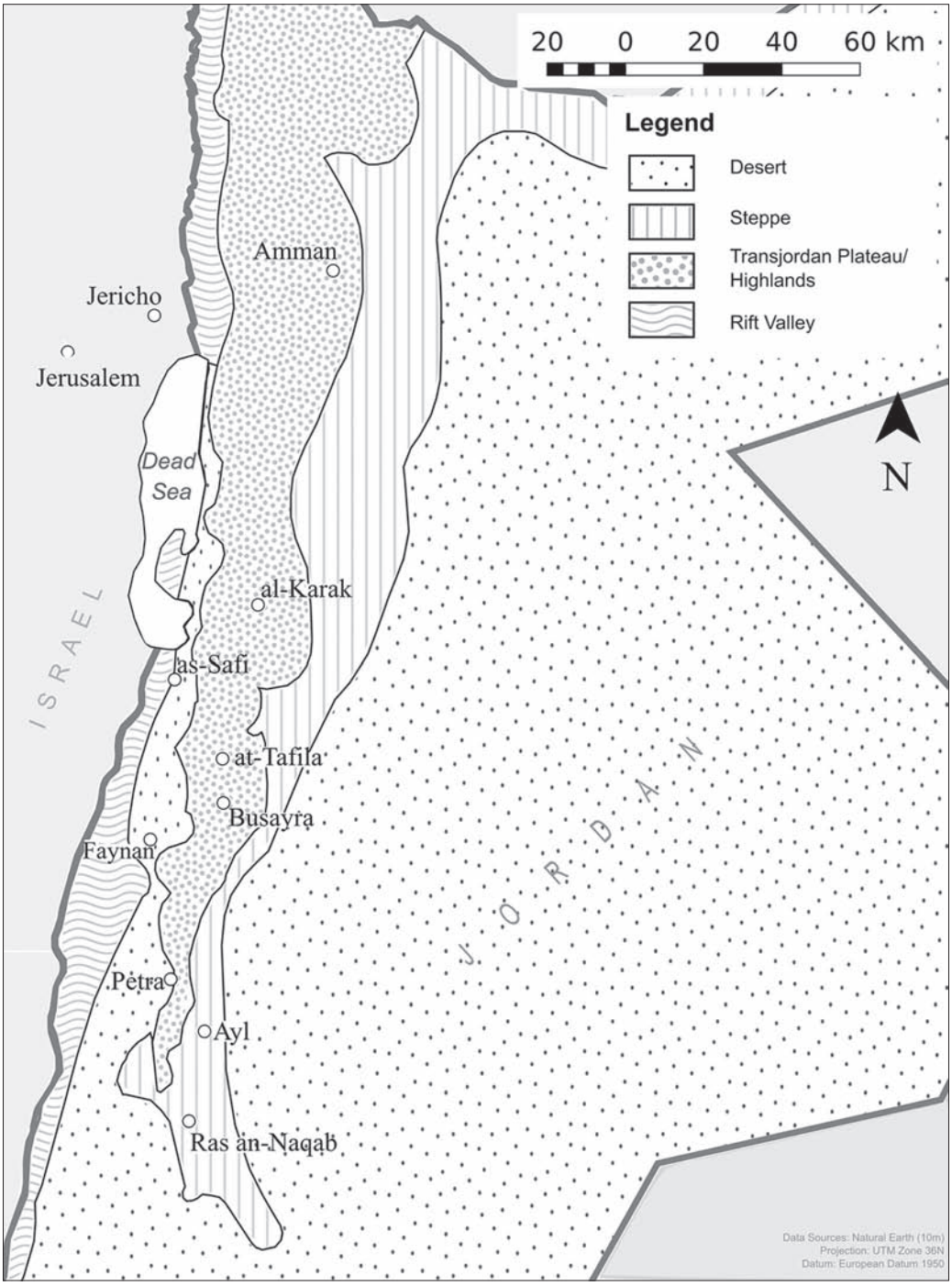

Fig. 1.2: Major morphological units of Jordan.

they are geographical divisions, they are also the main water-carrying sources for the region.

As indicated, it is the southern segment of the Transjordan Plateau/Western Highlands from Wadi al-Hasa in the north to Ras an-Naqab in the south that is of specific interest in this work. This area is also called – due mostly to the Hebrew Scriptures/Old Testament – the Edomite Plateau. The mountain ridge Jabal ash-Sharah, from ash-Shawbak to Ras an-Naqab, is located in the southern half of this area. Its peaks rise to more than 1700 m above sea level. Towards the west, that is, towards the Dead Sea Rift Valley, the land drops, as mentioned above, precipitously to below sea level in the Southern Ghors and the Northeast `Arabah. In the southern segment of the plateau, wadis flow both to the north, emptying into Wadi al-Hasa (for example, Wadis `Afra, La`ban, Ja`is, Anmein, al-`Ali, Ahmar, and ar-Ruweihi), and to the west, emptying into the Southern Ghors and Northeast `Arabah (for example, Wadis al-Hasa, Umm Jufna, Fifa, Umruq, al-Khanazir, at-Tilah, ad-Dahal, al-Hassiya, Fidan, Faynan, al-Buweirida, Um Mithia, Musa, at-Tayyibah, and Gharandal) respectively (see Fig. 1.1). Most of these wadis, whose names will often change from highlands to lowlands,

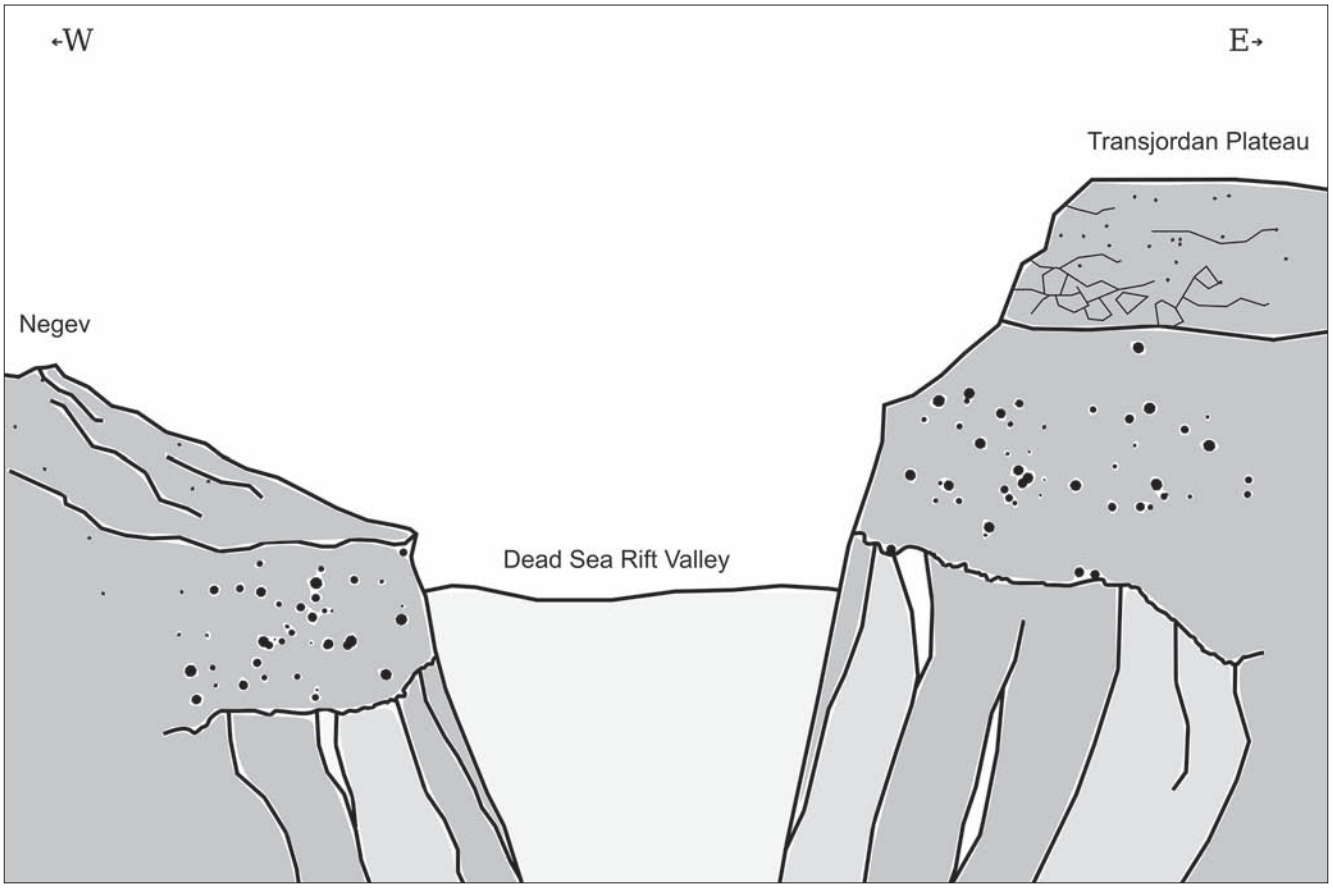

Fig. 1.3: Cross section of two morphological units in the Faynan region (adapted from Ravek and Shemida 2000).

will be mentioned in the following chapters since it was along the ridges between these wadis that ancient routes were located. Moreover, springs are located in both the wadis themselves and along the approximately 1200–1100 m line on both the west and the east, within the area of interest (Plate 5). It was at these places that agricultural villages, hamlets, farms, and pastoralists' camps were, of necessity, located in antiquity (Plate 6).

The desert also represents a distinct landscape. It is located immediately east of the Transjordan Plateau. However, it is the steppe, the transition zone between the highlands and the desert or between the desert and the sown, which is of interest here (see Fig. 1.2). For it is in this zone, at the eastern base of the highlands or at the western extremity of the steppe, that springs are located. As indicated above, springs are also located at the western base of the highlands.

Plant Geographical Territories

The three plant geographical territories/regions of Jordan are present in the study area. Each of these territories is characterized not only by its vegetation but also by its climate and soils (Zohary 1962, 51) (Fig. 1.4). These territories greatly impacted and continue to impact human settlement. The Mediterranean territory has an average annual rainfall of 300 mm or more. This area includes a long belt of the Transjordan Plateau/Western Highlands. Its boundaries with the adjoining Irano-Turanian territory cannot be precisely drawn because the Mediterranean vegetation of the eastern and southern margins, which border on the steppe and the desert, has been subject to heavy human devastation. As will be seen below, there is evidence that the Mediterranean territory expanded to the south and east during more mesic – a moderate or well-balanced supply of moisture – environmental interludes. This would result in an expansion of the steppe at the expense of the desert.

The Irano-Turanian territory encircles the Mediterranean from south, east and west. Its annual precipitation varies from 200 to 350 mm. Agriculture in this territory is very poor, unstable, and almost entirely confined to plains and valleys (Zohary 1962, 51).

The Saharo-Sindian territory includes areas in the east and south of the Transjordan Plateau as well as a narrow spur within Wadi `Arabah, protruding northwards from the Gulf of al-`Aqaba. The boundaries it shares with the Irano-Turanian territory are vague. The Saharo-Sindian territory has a typical desert climate with a short rainy season and a long, hot, dry summer. Annual precipitation varies from 25 to 200 mm. Agriculture is altogether lacking, except in oases or flooded wadis. Vegetation is extremely poor and mainly confined to depressions, wadis and runnels.

What must be noted relative to the plant geographical territories is that through time and with changes in climate there would have been shifts in the distribution of African versus Asian biotypes – a group of genetically identical plants within a species. Thus, hunter-gatherers, pastoralists,

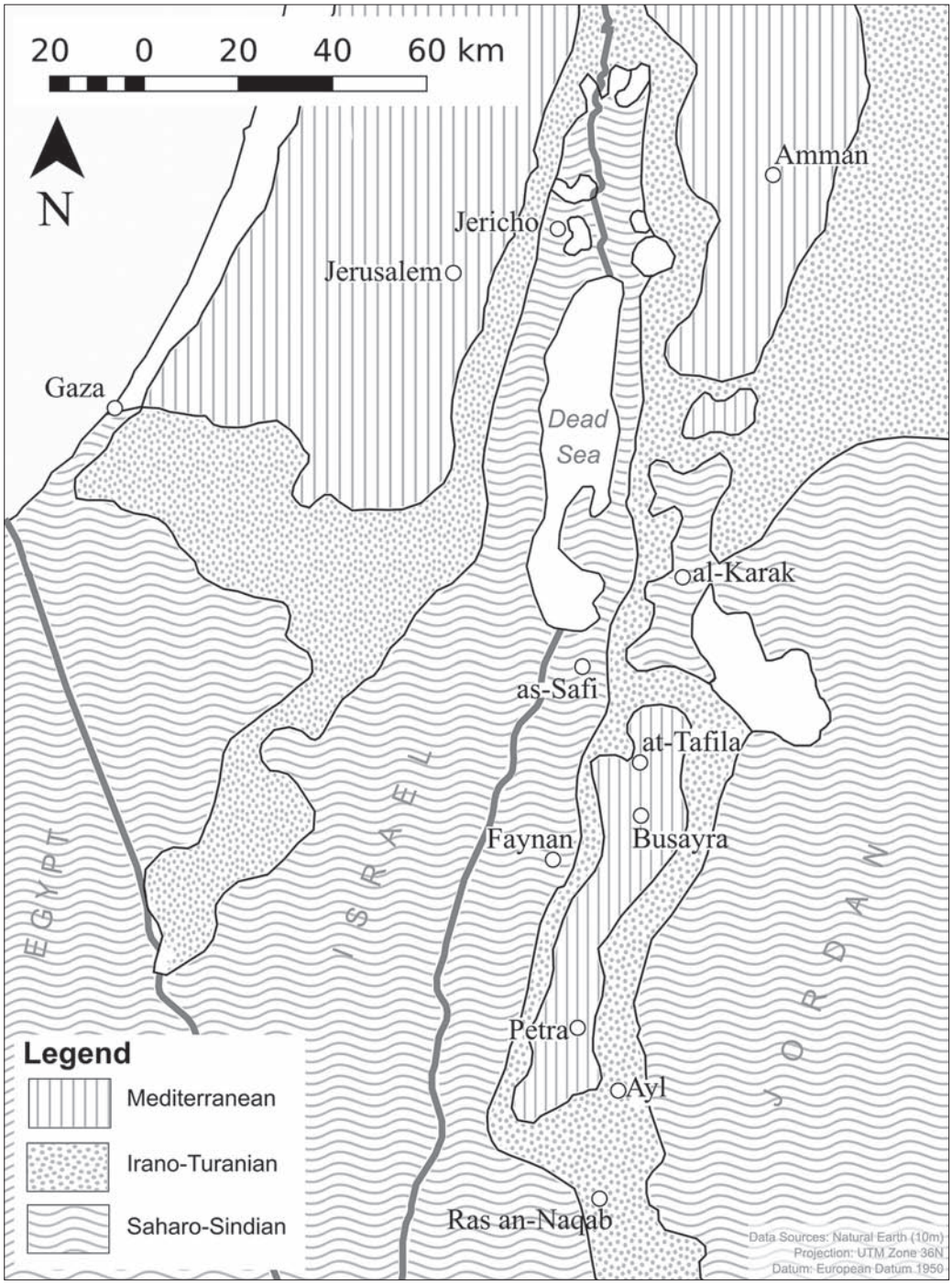

Fig. 1.4: Plant geographical territories of Jordan.

and farmers would have moved with these shifts in plant distribution. Moreover, if land use leads to degradation of resources such as arable soils, sites would be moved periodically to new areas with less degraded resources.

The region of interest here is a peripheral one. Due to this fact, as will be pointed out in subsequent chapters, there were periods in the past, of "filling up" and "emptying out" in terms of human population. What we are probably witnessing today is what the area looks like when it is "filled up". But as the archaeological evidence also shows, there were periods when this territory of southern Jordan was "emptying out".

A number of reasons are generally set forth to explain shifting settlement patterns, that is, the nature of the distribution of settlements. These include climate, biotypes, changes in technologies, and availability or the lack of resources. However, other influences, for example, the social and political situation, trade, and warfare, are also said to explain this shift (Levy 1995, 241–243). Nevertheless, it was probably a combination of factors that led to periods of changes in human settlements in the area of interest.

Precipitation is of special importance in a peripheral region. Due to this fact, the palaeoclimate for each archaeological period will be described at the beginning of each chapter.

Natural Resources of the Area

The natural resources of the area include water, plants, animals, bitumen, salt and sulfur, copper and manganese, and gypsum.

Water

The most critical resource is water. Water supply determines the abundance and distribution of other resources such as plants and animals available for hunting-gathering cultures, the crops that can be grown by farmers, and the animals that can be reared by both farmers and pastoralists. People are able to settle and continue to live in a place only when water is available and wisely used.

The primary source of water is rainfall. Secondary sources are springs, wells, flowing streams, and moisture stored in the soil. All of these are dependent ultimately on rainfall, which generally falls in the Transjordan Plateau/Western Highlands (Harlan 1988, 40–42).

Rainfall on the highlands infiltrates slowly through a chalky formation and is trapped by the hard limestone to emerge where erosion uncovers the impervious layers in the Dead Sea Rift Valley. The larger springs flow all year long and tend to be more stable, with less fluctuation, than the rainfall. Where the impervious layers are too deep, dug wells can tap sufficient water for irrigation. Wells are less reliable than springs and they often dry up. The ones that are dug on low terraces near perennial streams in wadi bottoms are more reliable and these are exploited on a limited scale.

Relative to water resources, Harlan notes that much of the life in the Southern Ghors and the Northeast `Arabah depends on rainfall in the highlands (1981, 162). Water delivery in these lowland areas depends not only on rain in the highlands but on water retention that is trapped and allowed to percolate slowly to the springs below or is released slowly from the upland soils to the perennial streams (Harland 1981, 162–163).

Plants

Cartwright's analyses of the archaeobotanical material from Dayr `Ain `Abata ("Sanctuary of Lot"), along the southeast coast of the Dead Sea, immediately to the north of the area of interest, have provided a great deal of information on the flora of the area. This material, dating principally to the fifth-seventh centuries AD, included charcoal, desiccated wood, charred grain, fruits and seeds (2012, 511–517). Her research determined that the most abundant taxa represented in the charcoal and wood assemblages show a separation into cultivated taxa and those selected from the surrounding environment. The cultivated taxa are date palm, olive, grapevine, carob and fig. These were grown on or close to the site. The remaining taxa in the charcoal assemblages are tamarisk, acacia and caper. These are typical components of the local vegetation on dry scrubland or rocky wadi slopes (Cartwright 2012, 513).

Hoppé (2012, 518–522) studied the macroscopic plant remains from the same site. Among the plant remains, she identified cereal – present in 50% of the samples – components of bread wheat, emmer wheat and hulled barley. Also identified were beans, peas, lentils and fruit stones including olive, date, grape, fig, peach and watermelon. The wild taxa identified were indicative of field and steppic environments (Hoppé 2012, 518).

To the south of Wadi al-Hasa and to the east of Wadi `Arabah, Meadows studied the plant remains from the fourth millennium (Early Bronze I) village generally known as Wadi Fidan 4 (Meadows 2001; see also MacDonald *et al*. 1992, 56, 58, 250–251; Adams and Genz 1995; and see below). He concludes "that the inhabitants of Wadi Fidan 4 grew, gathered, ate and used what was by then a traditional list of plant species: wheat, barley, lentil, flax, as well as the most-recently domesticated grapes, dates and figs" (2001, 158).

Animal Remains from Excavations

Whelton (1994) studied a highly fragmented assemblage of animal bones from the village site generally known as Wadi Fidan 4 (see below and MacDonald *et al*. 1992, 56, 58, 250–251; Adams and Genz 1995). He recovered "bones of adult cattle, sheep, goats and gazelle … possibly including wild goats, but no remains of dogs, pigs or equids" (Meadows 2001, 153).

The largest, Nabataean-archaeozoological assemblage studied to date comes from the Swiss excavations at az-Zantur, within the city of Petra. Studer, who analyzed the animal remains from az-Zantur, writes:

> … Domestic mammals served as the mainstay of the Nabataean economy and comprised 83% of all identified remains. Sheep (*Ovis aries*) and goat (*Capra hircus*) were the most common taxa, supplemented by pig (*Sus domesticus*), chicken (*Gallus gallus*) and cattle (*Bos Taurus*) as well as three beasts of burden: camel (*Camelus dromedarius*), donkey (*Equus asinus*) and horse (*Equus caballus*) (2007, 253–254).

Studer adds that the hunting of wild animals – gazelle, wild boar, hare, hyrax, carnivores and birds – does not appear to have been an important source of food for the Nabataeans. However, consumption of fish was relatively common, and there are some indications that marine mollusks were also consumed (Studer 2007, 254).

Studer concludes that the az-Zantur assemblage bears a close resemblance to faunal remains derived from other Hellenistic and Roman sites in the region. For this, she cites Tall Hesban in Jordan, Tel Anafa in northern Israel, and Horbat Rimmon in southern Israel. All of these sites contain a similar spectrum of domestic animals, a predominance of sheep and goat and a paucity of hunted species. In addition, traded items such as fish are found in all sites. In these features, the az-Zantur Nabataean animal economy is not markedly distinct (Studer 2007, 254).

Bitumen

The Dead Sea was once a major source of commercial bitumen – natural asphalt – in the ancient Near East

(Hammond 1959; Forbes 1964, 29–30; Le Strange 1965, 64–66; Sperber 1976, 138–139). It was used as a sealant for waterproofing, as an ingredient in medicines, and in agriculture (Josephus *War* IV.viii.4; see also Friedman 2012, 343). Egypt, as early as the Old Kingdom, may have imported both bitumen and salt from the Dead Sea (Sowada 2009, 202). Diodorus of Sicily, a first century BC Greek scholar who drew on the writings of earlier historians, writes in some detail about the Dead Sea which "produces asphalt in abundance" (II. 48; see also XIX. 98–99). He relates that the product springs forth from the centre of the sea as a solid mass. This mass floats on the surface, and the people who live about the sea on both sides chop it up into workable size with axes and load it into boats (Diodorus XIX.98–99; see also Strabo XVI.2.43; Josephus *War* IV.viii.4; and Tacitus *Histories* V.iv). Hammond concludes that Diodorus is correct in reference to the quantity of bitumen present and the extent to which the industry was of financial importance in the first century BC (1959, 42).

The Nabataeans had, at least for a time, a monopoly on the bitumen industry of the Dead Sea. For them, the industry had both economic and political importance (Hammond 1959, 47; Forbes 1964, 30). However, there was also an interest in the industry on the part of the Ptolemies of Egypt and the Seleucids of Syria (Diodorus XIX.100.2–3; Forbes 1964, 29–30).

Salt and Sulfur

The most prominent product in the Dead Sea region is salt and, presently, potash. In the past, the salt from the Dead Sea was used as a basic seasoning in various dishes. It was exported from the region to destinations around the country and to far-off lands (Amar 1998, 4). The Jewish religious community of Qumran, located on the northwestern shore of the Dead Sea, used the product in the last centuries BC and the first centuries AD.

Various types of salt were collected and mined from the Dead Sea region. For example, there is rock salt in the vicinity of the Dead Sea. Specifically, rock salt was mined at Mount Sedom, at the southwestern end of the Dead Sea, until the 1990s (Kurlansky 2002, 358). At-Tamimi, in the tenth century, makes special reference to the salt mined in the vicinity of Zara, probably the ancient village of Callirhoe, on the eastern shore of the Dead Sea (Amar 1998, 4–5). Furthermore, he claims that this salt was present farther south in the region of Gebalene, that is, an area to the southeast of the Dead Sea (Amar 1998, 4).

The mining of sulfuric minerals from the Dead Sea region is also mentioned in literature of the Byzantine and Arabic periods. For example, Zoar, at the southeastern end of the Dead Sea, was one of the places at which it was traded (Amar 1998, 5). White sulfur is found in the vicinity of the springs on the east side of the Dead Sea while black sulfur could be used for transferring fire produced from flint (Amar 1998, 5). Sulfur was used in antiquity in medicines, fumigation and bleaching cloth.

Copper and Manganese

There are two different ore horizons in the Faynan area, namely, mixed manganese and copper ores, and only copper ores (Hauptmann 1986, 415; Hauptmann and Weisgerber 1987, 421; 1992; Hauptmann *et al*. 1992). These resources and their associated technologies, for the various archaeological periods, have been extensively studied by a team from the German Mining Museum, Bochum (Bachmann and Hauptmann 1984; Hauptmann *et al*. 1985; Hauptmann 1986; 1989; 2007; Hauptmann and Weisgerber 1987) and by Levy *et al*. (2002), University of California, San Diego. Hauptmann *et al*. posit that copper production in the area extended from the Chalcolithic period up to the thirteenth century AD. The periods specifically noted for its production are: Chalcolithic; Early and Middle Bronze; Iron I; Iron II; Roman (and Nabataean); Byzantine, and the Middle Islamic (Ayyubid) periods (Hauptmann and Weisgerber 1987, 421–424; Hauptmann 2007; Jones *et al*. 2012). In the estimation of these researchers, the Faynan region may represent the oldest, large-mining area for copper in the Near East so far known (Hauptmann 1986, 416).

Gypsum

Gypsum is present around the Dead Sea as well as in the areas of Gharandal and Wadi Abu Barqa in Wadi `Arabah. It is used to make plaster and mixed in cement or mortar (Parker and Smith II 2014).

Archaeological, Literary and Epigraphical Sources

The archaeological evidence for the area is vast and has been documented and reported on for over 100 years. Part of this evidence comes from my personal, archaeological-survey work in the area from 1979 to the present.

My Work in the Area

From 1979 to the present I have carried out archaeological survey projects in the area of Jordan that is the focus of this publication. This work is the origin of this study. However, this study on the archaeology and history of the region uses not only the results of my efforts but also the work of the other researchers who have explored/surveyed and/or excavated in the area.

My work was carried out from Wadi al-Hasa in the north to the edge of the escarpment at Ras an-Naqab in the south. In addition, I did two seasons of survey work in the Southern Ghors and Northeast `Arabah (see Fig. 1.1). The five projects I carried out are: "The Wadi al-Hasa Archaeological Survey" (WHS) (1979–1983); "The Southern Ghors and Northeast `Arabah Archaeological Survey" (SGNAS) (1985–1986); "The Tafila-Busayra Archaeological Survey" (TBAS) (1999–2001); "The Ayl to Ras an-Naqab Archaeological Survey" (ARNAS) (2005–2007); and "The Shammakh to Ayl Archaeological Survey" (SAAS) (2010–2012) (Fig. 1.5).

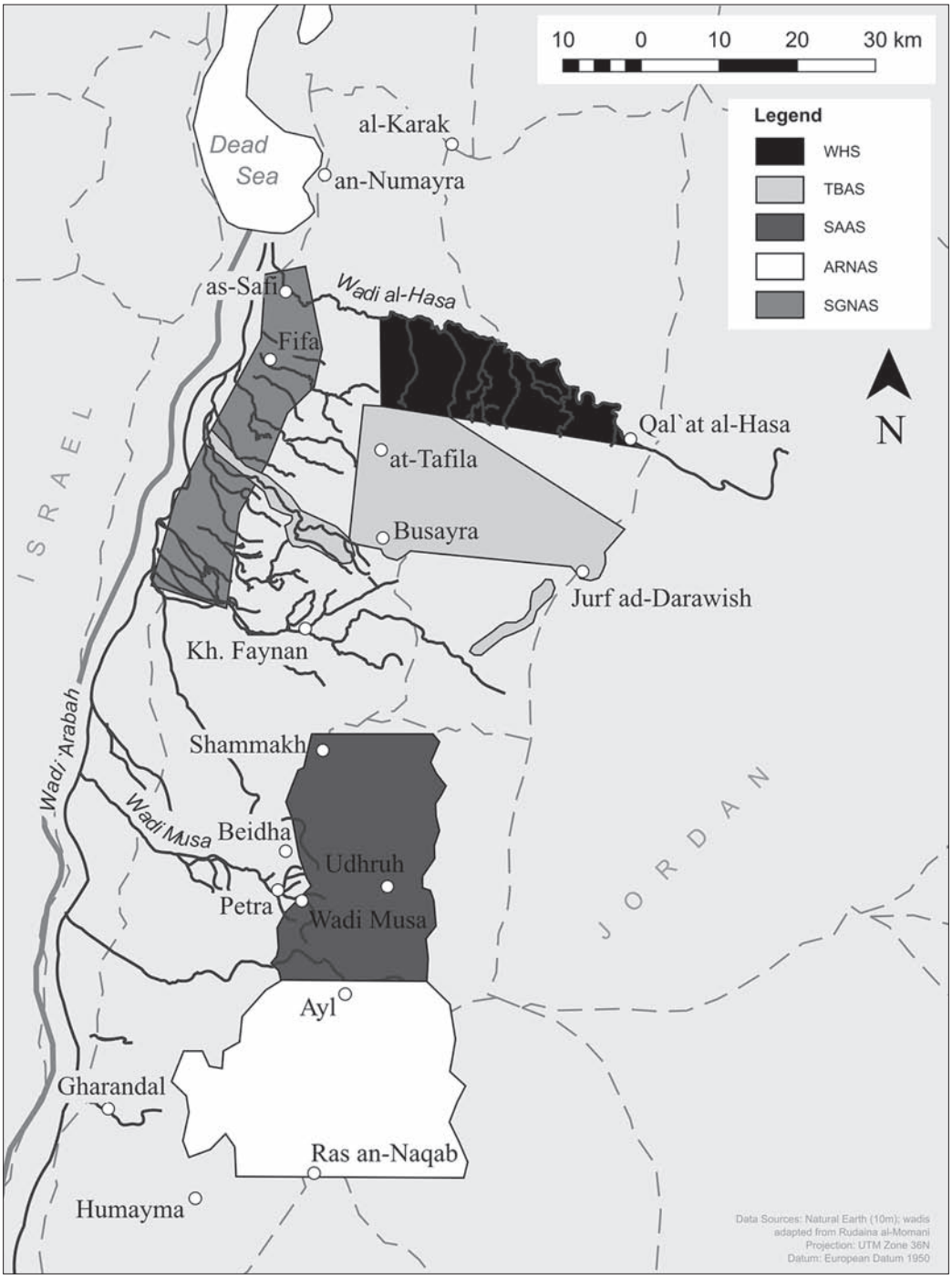

Fig. 1.5: Areas covered by the WHS, TBAS, SAAS, ARNAS, and SGNAS projects.

I have published both preliminary and final reports on these projects as well as on specific sites and/or periods that the work documented.

During the life of the above-listed surveys, team members documented 2359 sites. Many of these sites provide the data contained in this work and they will be mentioned throughout the subsequent chapters. The vast majority of the surveyed sites had never been previously recorded. However, some of them – for example, Busayra and Tawilan, which are both on the plateau – had been excavated prior to our visit, while others – for example, Khirbat adh-Dharih and Khirbat an-Nahas, on the plateau and in the Rift Valley respectively – have been excavated since. Due to the rate of development in Jordan, many of these documented sites probably no longer exist. I made no attempt, however, in the preparation of this work, to revisit the surveyed sites and note their present state.

The only area between Wadi al-Hasa and Ras an-Naqab in the highlands that team members of the above-listed projects did not survey intensively is the area from just south of Busayra to just north of Shammakh, which is just south of ash-Shawbak. This is the territory between the TBAS and SAAS projects. That area, as will be outlined in subsequent chapters, was surveyed partially by Findlater

(2000) as part of his "Dana Archaeoligical Survey" and by Levy *et al.*'s (2014) "Lowlands to Highlands of Edom" project. Moreover, I did not survey the steep ridges between the highlands and the Dead Sea Rift Valley or in the area of the "Petra Archaeological Park", which was not within the parameters of the survey permits. Relative to the Northeast `Arabah, I did not conduct survey work south of Wadi Fidan. However, as will be pointed out below, a number of teams carried out surveys and excavations in the Wadis Fidan and Faynan region and southward towards Gharandal.

Archaeological Work by Others in the Area

As indicated above, this study includes the results of all published surveys and excavations that have been carried out in the area. In addition to my own work, it includes, among others, the explorations and/or surveys of: Brünnow and von Domaszewski (emphasis on the Roman Road); Musil (Wadi `Arabah and Western Highlands); Glueck ("Explorations in Eastern Palestine"); Rast and Schaub (Early Bronze Age sites in the Southern Ghors); Parker (*Limus Arabicus* – desert frontier of the Roman Empire in Arabia Petraea); Hart ("Edom Survey Project"); Raikes (Wadi `Arabah); Jobling ("`Aqaba – Ma`an Archaeological and Epigraphic Survey"); Graf (*Via Nova Traiana* [Roman Road in southern Jordan]); Lindner (throughout the Petra region); King *et al*. (Southern Ghors and Wadi `Arabah – Byzantine and Islamic sites); Hauptman and Weisgerber (Wadis Fidan and Faynan – copper production); Findlater ("Dana Archaeoligical Survey"); Abudanh (Udhruh to Petra region); Killick (Udhruh area); `Amr and al-Moumani ("Wadi Musa Water Supply and Waste Water Project"); Levy *et al*. ("Edom Lowlands Regional Archaeological Project"); Levy *et al*. ("Lowlands to Highlands of Edom"); Whiting ("South Jordan Iron Age Project" – Udhruh and ash-Shawbak regions); Barker *et al*. ("Wadi Faynan Landscape Survey"); Tholbecq ("Jabal ash-Sharah Survey"); Politis (as-Safi area); Smith II ("The Southeast `Araba Archaeological Survey"); Johnson *et al*. (Wadi al-Mataha); Adams *et al*. ("Barqa Landscape Survey"); and Knodell and Alcock (Petra area and Wadi Sulaysil).

A number of sites have been excavated and published, at least in preliminary form. The excavations, among others, include: Kh. Tannur (Glueck; McKenzie); Kh. adh-Dharih (Villeneuve and al-Muheisen); Busayra (Bennett and Bienkowski); Fifa and al-Khanazir (Rast and Schaub); Gharandal in al-Jibal (Walmsley); Kh. an-Nahas (Levy and Najjar); Kh. Hamrat Fidan (Adams, Levy and Najjar); Bir Madkhur (Smith II); Ash-Shawbak (Brown and "The 'Medieval' Petra Mission"); Kh. ad-Dabba (Whiting); Udhruh (Killick and the Department of Antiquities of Jordan); Classical Beidha (Bikai); Tawilan (Bennett and Bienkowski; Smith); Kh. an-Nawafla (`Amr and al-Moumani); Petra (Hammond; American Center of Oriental Research; Department of Antiquities; Bidal; Bikai; Fiema; Hammond; Joukowsky; Schmid; Kolb; Swiss-Liechtenstein Excavations; Tholbecq; etc.); Wadi Farasa (Schmid); Umm al-Biyara (Bennett; Bienkowski; Schmid); Kh. an-Nahas, Rujm Hamrat Fidan, etc. (Levy *et al*.); Kh. al-Iraq Shamaliya, Kh. Kur, etc. (Smith); Wadi al-Mataha, Site 1 (Johnson); Gharandal in al-Jibal (Walmsley); Gharandal in Wadi `Arabah (Darby); and the Mountain of Aaron (Finnish Archaeological Mission). The results of these surveys and excavations will be used throughout this work.

The reader will note that some sites, for example, Kh. an-Nawafla and Kh. an-Nahas, appear in more than one chapter of this work. The reason for this is that they are located where there was a resource, for example, water and/or copper, which attracted people to them in different periods.

The bibliography for all these projects is extensive and I will not attempt to include all of it in this work. The publications included in the "References" are ones that are cited in the text.

Other surveys and excavations have been carried out in the territory of interest. However, since these are unpublished they are not part of this work. Moreover, frequently, during the course of infield work, we documented sites that appear to have been professionally excavated. However, we were generally not able to ascertain who did the work.

The literary sources that shed light on the area are the Egyptian, Assyrian, Babylonian, Persian, Hellenistic, Nabataean, Roman, Byzantine, Islamic and biblical texts. In addition, there is the epigraphic material, consisting of inscriptions, seals, seal impressions and ostraca, from the region. All these sources will be used in subsequent chapters.

Approach

Knowledge of the spatial distribution of sites over time is essential for reconstructing transformations in settlement patterns, for establishing hierarchic relationships between types of settlements, for evaluating the settlement areas in the various periods, and for estimating the resultant demographic changes over time. This has been achieved through field surveys combined with the study of ancient geographic, ecological, and environmental factors. All this needs to be interpreted, synthesized, and fully published.

Archaeological excavations carried out in the area have revealed the inner structures and developments of various types of settlements over time. Each excavator has to address what might seem to be an endless number of questions regarding her or his site. What were the environmental resources, such as water and land, available to the site's inhabitants? When exactly was the site settled? Was the population of the site stable or were there population changes or fluctuations? How many occupation phases do the various "strata" reflect and can we define gaps in the occupation? Which part of the site was settled in each period? What reasons brought an end to each occupation phase? What was the town plan in each of these occupation periods? What were the building materials and techniques used? What kind of subsistence strategy was employed in each settlement period? If there were violent destructions, who or what caused them? Can we relate such destructions to historical

events known from other sources? These are only a few of the many questions which archaeologists have asked about the sites excavated in the area. The answers to these questions contribute to the archaeology and history of the area.

Modern research tools such as the computerized Geographical Information System (GIS) help in analyzing the settlement pattern maps in relation to the topography, geology, soil types, land uses, water resources, ancient roads, and so on. These studies are combined with the results of surveys and excavations at various sites. It will thus be possible to reconstruct an integrated picture of the ancient settlement system. Detailed settlement maps, tables, and graphs will enable the reader to follow changes in settlement and demography through time in the area and to provide information about such topics as the response of human societies to environmental challenges.

Chronology

There is not complete agreement among archaeologists and historians relative to the dates for the different archaeological periods/time-stratigraphic units of Jordan. As a result, there is ongoing discussion relative to this topic. A present tendency among many researchers is to push dates for various archaeological periods further back in time. This is especially true for the earlier periods and is a result of the increased use of Radio Carbon 14 technology to date sites and their various strata. A case in point is: when did the Chalcolithic period end and when did the Early Bronze Age begin? Relative to this matter, Klimscha posits that the traditional chronology of the Levant was imprecise concerning the end of the Late Chalcolithic (2009, 395), and that the Early Bronze Age I period is earlier than previously known (2009, 401). Thus, the date for the beginning of the Early Bronze Age has been put back to 3800/3700 BC (Philip 2008; Klimscha 2009). Likewise, there is disagreement among scholars relative to the divisions of the Iron Age period (see Chapter 3). In this particular work, where the results of both surveyors and excavators are used, I will generally follow the chronological scheme that these researchers use. However, what is important for the reader to realize is that some dates given for archaeological periods in the previous century are not followed today.

I include the term "Classical" in the "Archaeological Periods and Dates". The reason for this is that in pottery analysis specific sherds are dated to sometime in the range from the Hellenistic to the Byzantine period. Due to the weathering on many sherds, especially those found on archaeological surveys, this is the best that can be done.

Radiocarbon dates are generally accepted as absolute dates for archaeological sites. However, when radiocarbon dates for a site are not available, the lithic and ceramic assemblages are still the most reliable data for dating. This relative dating method is common for sites recorded on archaeological surveys around the world. In must be noted, though, that there are inherent dating difficulties with survey data. Therefore, their assigned dates should be regarded as tentative.

Methodology and Manner of Procedure

The methodologies employed by the five survey projects that I directed in southern Jordan differed. The difference is especially noticeable between the WHS and SGNAS projects on the one hand and the TBAS, SAAS, and ARNAS ones on the other. Relative to the earlier or first two listed projects, team members employed, for the most part, a purposive pedestrian methodology. This consisted of following natural features such as ridge-tops and valley bottoms. In some instances, this purposive survey method was guided by informants, published reports, maps, and/or aerial photographs. In contrast, for the TBAS, SAAS, and ARNAS projects, survey-team members divided, for the most part, the territories investigated into three topographical zones. However, since each project has peculiarities, separate paragraphs are devoted to them.

For the TBAS project, survey-team members divided the territory into topographical zones based on the K737 Series Maps of Jordan (Scale 1:50,000): Zone 1, the gorges, that is, the area of steep wadis that generally flow in a northwesterly direction towards the Southern Ghors and Northeast `Arabah; Zone 2, an area of the southern Transjordan/Edomite Plateau; and Zone 3, the desert region immediately north of Jurf ad-Darawish. Within Zones 1 and 2, TBAS team members designated an area encompassing a 3-km radius around the main site of Busayra as Zone Busayra. The reason for this was to carry out a "hinterlands" survey of the site in conjunction with Bienkowski's final report on the site (2002). Random squares that TBAS team members transected within these four zones were chosen on the basis of a GIS database. The random squares measured 500 × 500 m for Zones 1, 2 and 3, and 200 × 200 m for Zone Busayra. Once survey-team members encountered Pleistocene lakes in the area of Jurf ad-Darawish, they added a fifth zone – the Lake Zone. It was designated a separate zone because the survey methodology employed was different than that in the other four zones and the ancient lake deposits indicated a unique and spatially-restricted, prehistoric-environmental setting relative to the other zones (MacDonald *et al.* 2004, 6).

For archaeological-investigative purposes, survey-team members divided the SAAS territory into three topographical zones: Zone 1 (the western segment), where elevations are between 1200 and 1500 m; Zone 2 (the west-central segment), the mountainous region – a segment of Jabal ash-Sharah – where elevations values are greater than 1500 m; and Zone 3 (the eastern segment), the area from the 1500 m to the 1200 m line. As for the TBAS project, team members chose random squares, each measuring 500 × 500 m, for pedestrian transecting (MacDonald *et al*. 2010, 332–333).

For the ARNAS project, the three topographical zones were: Zone 1 (on the west), elevations between 1100 and1500 m; Zone 2 (central segment – also a segment of Jabal ash-Sharah), where elevations exceed 1500 m; and Zone 3 (on the east), elevations between 1500 and 1200 m. As for the TBAS and SAAS projects, team members chose random squares, each measuring 500 × 500 m (MacDonald *et al.* 2012, 3).

The different elevations encompassed in the zones for the three above-described projects is due to the fact that team

members wanted to transect territory on the west that was accessible and, in the case of the ARNAS project, to avoid surveying in the suburbs of the city of Ma`an.

The main objective of all survey projects was to discover, record, and interpret archaeological sites in the territories chosen for investigation. The principal method that team members of the TBAS, SAAS, and ARNAS projects used for discovering sites was a technique based on recording the archaeological remains collected while transecting randomly-chosen squares that represent about five percent of the total area of each of the topographical zones in the territory. The investigation of these random squares in each zone performs three primary functions: 1) it provides a baseline, against which artifactual material collected from archaeological sites in the region may be compared; 2) it forces survey team members into all areas of the territory, eliminating any sampling bias the team may have toward easily accessed areas; and 3) recording random squares has proven to be an effective means of discovering sites, within, adjacent to, and while traveling to/from the squares. In essence, the recording of random squares provides access to a statistically valid sample of archaeological materials, including sites, within the territory (Herr and Christopherson 1998, 52). Once the random square and any archaeological sites within it were recorded, survey-team members turned their attention to the surrounding area in their search for sites. They spent a reasonable amount of time searching for and recording archaeological sites in the vicinity of the square. In addition, they spoke with the people living in and/or working in the area, for example, farmers and shepherds, about the whereabouts of sites. Moreover, while driving to/from the square, team members were on the lookout for sites.

Spelling

The spelling of toponyms in this work follows, for the most part, that of the editors of the Department of Antiquities of Jordan in the most recent issues of the *Annual of the Department of Antiquities of Jordan* and *Studies in the History and Archaeology of Jordan*. Many of these spellings are found in Nabeel and Zaghloul (1988) and Nabeel and al-Taher (2003). However, the macron over the long vowels and the dots under selected consonants are not used. Also, the Arabic definite article is given as "al-"; "tall" is preferred to "tell"; and "khirbat" to "khirbet". The plural form of Arabic terms is not generally employed. Plurals are indicated by the addition of "s" to the singular form. Of course, when quoting from specific authors, and in the "References", their spelling is followed.

2

EARLY, MIDDLE AND LATE BRONZE PERIODS (3800/3700–1200 BC)

Introduction

The beginning of the Early Bronze Age is generally associated, in Jordan, with the transition from village settlement to a complex urban lifestyle (Bourke *et al.* 2009). Such would have been an important transit in human history, for with the towns there came fortifications. This resulted in the necessary negotiations that are the result of living in densely populated places. There would have been the organization of daily schedules, such as trips out of and into the fortified settlements to herd, farm, hunt, and/or trade. In conjunction, there would also have been social differentiation and the impact of the town's bureaucracy on one's daily activities; living in a town would have involved issues such as sanitation, payment of tithes and/or taxes, and entrusting oneself and one's family to the governing structure of the community (Schaub and Chesson 2007, 245).

The Early Bronze Age, however, is not one with a constant trajectory. For, the Early Bronze IV period (2300–2000 BC) is generally recognized to have been a non-urban interlude between the first urban horizon in the fourth millennium BC and an urban renaissance in the Middle Bronze Age (2000–1550 BC) in the second millennium BC (Berelov 2006b, 7). This period saw the abandonment of talls, a population shift to rural areas, and "a change in socio-economic strategies from intensive agriculture, industry and trade to pastoralism and small-scale mixed agro-pastoralism" (Dever 1995, 282). In other words, there was a "collapse" from an urban to a rural and pastoral nomadic pattern of social organization within the Early Bronze Age (Dever 1995, 295; Nigro *et al.* 2010).

Although the period is labelled the "Bronze Age", except for the extraordinary amount of metal objects in the *Nahal Mishmar* hoard find, the production of metal objects must have been limited. Tools and other items for daily use such as adzes, sickles, knives, etc. were certainly overwhelmingly made from stone and they continued to be used for most of the Bronze period (Hauptmann 2007, 263–264).

In the territory of interest, that is, in the southern Transjordan/Edomite Plateau and the Dead Sea Rift Valley to the west, the above description of the Early Bronze period is not precise. For, no Early Bronze I–III urban centres have been identified. For urbanism with its fortifications, one must look to the north of Wadi al-Hasa, to the area of Bab adh-Dhra` (Schaub and Rast 1989; Rast and Schaub 2003; Schaub and Chesson 2007) and an-Numayra (Coogan 1984), in the southeast plain of the Dead Sea, and/or to Lejunn, to the east of al-Karak on the central segment of the Transjordan Plateau (Chesson *et al*. 2005). Nevertheless, evidence for Early Bronze presence is, indeed, found on the southern Transjordan Plateau between Wadi al-Hasa and Ras an-Naqab as well as in the Dead Sea Rift Valley, specifically in the Southern Ghors and Northeast `Arabah between as-Safi and Wadi Faynan. This evidence comes from my survey-directed projects in both areas as well as the work of other surveyors and excavators, especially in the Petra area and in Wadis Fidan and Faynan.

Archaeological evidence for Middle and Late Bronze presence in all the areas indicated above is minimal to non-existent. However, as we will see below, Middle Bronze presence is attested to north of the region of interest, in the area of Bab adh-Dhra` and Dayr `Ayn `Abata.

It is with the Bronze Age that the first literary evidence for Jordan is available. Thus, after some comments on the climate of the period, I will begin with this evidence before dealing with the archaeology of the area.

The Early Bronze Age chronology for Jordan presented in "Archaeological Periods and Dates" at the beginning of this work is based on recent discussions among researchers (Kerner 2008; Bourke *et al*. 2009; Nigro *et al*. 2010; Nigro 2013). These discussions are ongoing. Relative to this, it must be noted that the presented chronology does not coincide in all aspects with the chronology used by researchers when analyzing materials from surveys and excavations carried out years ago.

Climate

The Early Bronze I–III period (3800/3700–2300 BC) is generally recognized to have been the moistest period during the last 6000 years (Frumkin *et al*. 1991; 1994). During this time, there was increased precipitation throughout the Dead Sea basin. It was followed, during the Early Bronze IV period, by an arid climate that was similar to, or maybe even more arid than, the present one. Relative to this, Harlan states: "In general, it is agreed that the Early Bronze Age opened during a minor pluvial with a temperature averaging somewhat below the present, and the rainfall being somewhat higher" (2003, 56).

Some climatologists think that a warm, dry period, similar to the present climate, perhaps even more arid, contributed to the collapse of the empires of the Middle East *c*. 2000 BC

(Weiss *et al*. 1993; Issar 1995, 354). This climatic situation continued until *c*. 1200 BC and was probably one of the factors contributing to the end of the Late Bronze Age.

Literary Evidence

The earliest literary evidence for the southern Transjordan/Edomite Plateau and the Dead Sea Rift Valley comes from Egypt. It is pertinent for the present work since it mentions the "lands of Seir" and "Edom" (see also next chapter). This is significant as it is generally thought that these toponyms encompass the area of study.

Kitchen finds evidence from the Middle Bronze period for the presence of mainly nomadic pastoralists in what later became the land of Edom. This evidence comes from the story of Sinuhe (*c*. 1900 BC) and from the Brussels series of Egyptian "Execration Texts" (*c*. 1800 BC). In the texts, Kitchen sees reference to "chiefs" of clans of (the territory) of Kushu (Kushan), which is, in his opinion, the territory south of Wadi al-Hasa and east of Wadi `Arabah (1992, 21–23; 2003, 473).

Egyptian literary evidence from Tall al-Amarna (early fourteenth century BC) refers to the "lands of Seir" (Pritchard 1969, 488). Thus, the Egyptian scribes knew of a land of "Seir" at this early date (Kitchen 2003, 473).

The term "Edom" appears for the first time in Egyptian literary texts during the time of Merneptah (1236–1223 BC) in Papyrus Anastasi VI (British Museum 10245) in a group of letters, which served as models for schoolboys. One communication presents the form in which an official on the eastern frontier of Egypt might report the passage of Asiatic tribes into the better pasturage of the Nile Delta region. Specifically, the text indicates that "the Bedouin tribes of Edom" are permitted to pass the fortress of Merneptah "to keep them alive and to keep their cattle alive" (Pritchard 1969, 259). The picture is one of pastoralists with their livestock (Kitchen 1992, 27; 2003, 474). Thus, according to the Egyptian literature, there is some evidence for an inhabited Edom/Seir and at least intermittent relations with Egypt from the early Middle Bronze and into the Late Bronze period (Kitchen 1992, 21–27; 2003, 473).

While the Hebrew Scriptures identify the land of Seir with Edom (Genesis 32.3; 36.8–9, 21; Numbers 24.18; etc.), we have no certainty as to just what territory the Egyptian writers had in mind when referring to both "Mount Seir" and "Edom". Are they one and the same territory? Is it the same region as the later biblical writers had in mind? Is it the one that is traditionally designated in the Bible as the "lands of Seir" and the "land of Edom", that is, territory to the east of Wadi `Arabah and south of Wadi al-Hasa?

The most that can be said, on the basis of the Egyptian texts, is that pastoralists were in the area during at least some of the Middle and Late Bronze periods, that is, over a time-span of around 800 years.

Archaeological Evidence

Comments about Early Bronze Age sites documented by team members of the WHS, TBAS, SAAS, ARNAS, and SGNAS projects, are primarily based on observations and analyses over the past 30 or more years. However, if some of these sites have been excavated, the findings are included here.

In the preparation of this work, I made no attempts to revisit the sites documented by my various infield projects and assess their present condition, that is, whether or not they have suffered further damage and/or whether or not they indeed still exist. Over the centuries, archaeological sites, generally speaking, have suffered damage due to such factors as erosion and human interference. The latter is generally associated with development.

The presentation of archaeological evidence will be geographical, that is, from north-to-south, first on the plateau and then in the Dead Sea Rift Valley.

Wadi al-Hasa Archaeological Survey Territory

During the WHS project, team members collected the following: Early Bronze I pottery from 38 sites (however, they collected five or fewer sherds from the period from 21 – or 55% – of these sites); Early Bronze I–II pottery from one site; Early Bronze I–III pottery also from one site; Early Bronze IV pottery from two sites (however, only one Early Bronze IV sherd was collected from one of these sites); and Early Bronze sherds, without further specification, from eight sites (however, five or fewer Early Bronze sherds at three – or 37.5% – of these sites). In summary, survey team members collected Early Bronze Age pottery from 50 sites. At 25 – or 50% – of these sites, however, they collected five or fewer Early Bronze Age sherds.

Among the above-listed Early Bronze I-period sites, survey team members judged seven of them to be significant. These are: Site 47, Umm Qerbeh, 55 sherds; Site 61, Khirbat `Ayn Saubala, 444 sherds; Site 166, Radwan, 85 sherds; Site 180, Umm Sararah, 24 sherds; Site 196, 80 sherds; Site 260, 203 sherds; and Site 915, 10 sherds (MacDonald *et al*. 1988, 156–158) (Fig. 2.1).

There was only one site that WHS team members judged significant for the Early Bronze I–II period; namely, Site 181, al-Manaqid, from which they collected 222 sherds. Also, they judged only one site, from which they collected four Early Bronze I and 19 Early Bronze I–III sherds, to be significant; this was Site 165, Beidar Radwan. Finally, Site 23, Mashmil/al-Mushimmin, from which they collected 18 Early Bronze IV sherds, may also be so categorized.

Comments on some of the above-listed sites will be from west to east. Relative to this, it ought to be noted that the western segment of the WHS territory is best suited for agricultural pursuits while the eastern segment is steppe terrain, that is, it generally receives less than 200 mm of precipitation annually.

WHS Sites 196 (80 Early Bronze I sherds) and 181, al-Manaqid (222 Early Bronze I–II sherds) are now no more than extensive sherd scatters in the western extremity of the survey territory (MacDonald 1988, 155–159). The latter site, which now consists of stone piles, probably from field clearance, terracing, and remnants of what may have been stone fences and other architectural features, could have

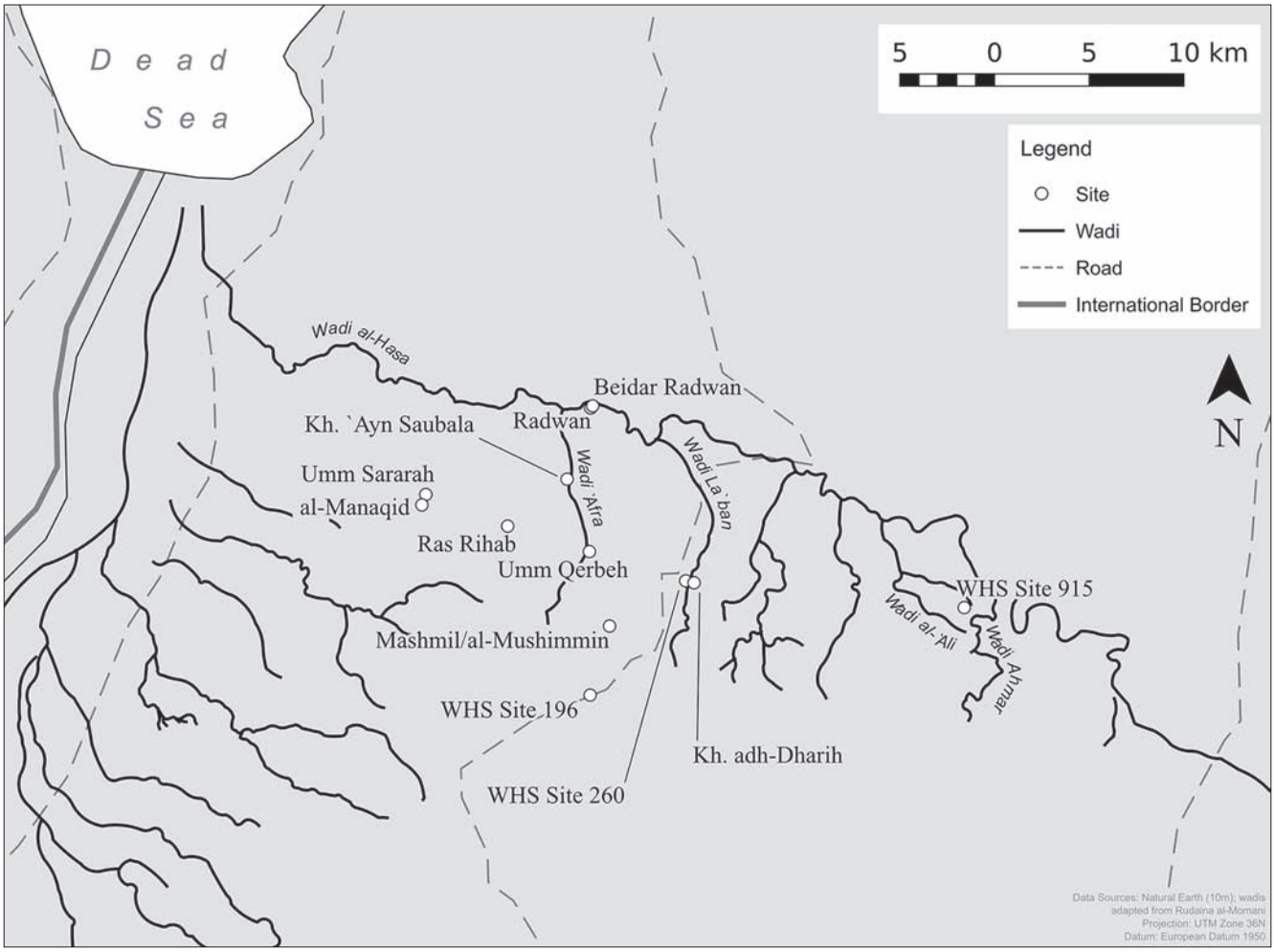

Fig. 2.1: Map of Bronze Age sites and places mentioned in this chapter located within or nearby the WHS territory.

been a major habitation site in antiquity. However, there is the possibility that both sites may be the remains of pastoral activities in the areas where they are located (MacDonald *et al*. 1988, 166). The number of sherds collected, however, appears to indicate otherwise.

WHS personnel documented seven Early Bronze I-period sites in Wadi `Afrā, also located in the western segment of the territory. It is an area in which there are a number of springs, including hot springs. The wadi may have been intensely settled in the period under discussion. At least two of these sites, namely, Site 47, Umm Qerbeh, and Site 61, Khirbat `Ayn Saubala, which are now mostly destroyed, may have been Early Bronze habitation sites (MacDonald *et al*. 1988, 155). This possibility is based on the fact that landowners informed us that these sites were destroyed, by the removal of stonewalls and a great deal of pottery, in the process of land clearance for agricultural purposes. Other Early Bronze-period sites in the wadi are in the form of possible animal pens, retaining walls and the remnants of what may have been platforms and/or towers. It must be noted, however, that many of these sites are multi-period ones and the architectural remains may not come, if at all, from just the Early Bronze period. Only further investigations, particularly in the form of excavations, can help in the determination of the period(s) when the sites were inhabited.

WHS Sites 165 and 166, Beidar Radwan and Radwan respectively, are located on the edge of Wadi al-Hasa, just to the east of Wadi `Afra and west of Wadi La`ban, and may have been Early Bronze I–III habitation sites. Here again, landowners informed us that the second of the two sites was destroyed in the process of preparing the area for the growing of vegetables. However, this area, due to the water available in the wadi, could have been a place where people settled in several different periods.

Of the three Early Bronze I sites documented in Wadi La`ban, WHS Site 260, located in what is now a parking lot just to the west of a spring and across from Khirbat adh-Dharih (WHS Site 254, see below), could have been a major one. As noted above, survey team members collected a large quantity of Early Bronze I sherds from the area. Additionally, there is an ash layer in a nearby road-cut associated with the parking lot, which may have some in situ materials from the Early Bronze I period (MacDonald *et al*. 1988, 160). Further investigation of this site may be warranted.

WHS Site 915, at which survey team members collected both Chalcolithic and Early Bronze sherds, is a unique one. It is located on the plateau between Wadi al-`Ali and Wadi Ahmar and consists of three circles of stones, one inside the other (MacDonald *et al*. 1988, 136, fig. 41). The dominant pottery collected at the site is Early Bronze. However, it may

just as well date to the previous period. In any case, survey team members were not able to determine its function.

WHS Site 23, Mashmil/al-Mushimmin, which is located between Wadis `Afra and La`ban, was the only site in the WHS territory from which survey team members collected a significant number of Early Bronze IV sherds (MacDonald *et al*. 1988, 163). However, since the site is a multi-period one, only excavations will reveal whether or not the architectural remnants at it date to the Early Bronze IV period. As we will see below, Early Bronze IV presence is minimal on the plateau while in the Southern Ghors, the Northeast `Arabah and in Wadis Fidan and Faynan it is significant, especially in the form of tombs and metallurgical activity (MacDonald *et al*. 1992).

WHS survey team members documented two clusters of Early Bronze-period sites in the eastern extremity of the survey territory. They could have served as seasonal camps for herders since they do not appear to be substantial enough to have served as full-time occupation camps (MacDonald *et al*. 1988, 161–163). They are similar to sites excavated in southern Israel and southern Sinai, which are dated to the first half of the third millennium BC (Beit-Arieh 1981).

The WHS project did not document any significant Middle and/or Late Bronze presence in the area. In fact, there were only three sites at which survey team members collected pottery from these periods: Middle Bronze–Late Bronze sherds at one site; Middle Bronze/Late Bronze/Iron Age at one site; and Late Bronze at one site. In addition, they collected Late Bronze–Iron Age pottery at two sites; Late Bronze–Iron IA at one site; and Late Bronze–Iron Age, without further specification at three sites. It appears that WHS Site 178, Ras Rihab, is the best candidate for Late Bronze presence in the survey territory. All of these sites, from which team members collected pottery that they read as Middle Bronze–Late Bronze, are located in the western universe of the territory, specifically, to the west of Wadi La`ban (MacDonald *et al*. 1988, 166–170).

It is evident, from the information that survey team members received from the inhabitants of the area and/or landowners while documenting between 1979 and 1983, that many of the above-mentioned sites have been severely or completely destroyed. This destruction was caused by development, especially as land was cleared for agricultural purposes, often by bulldozing. Moreover, many of the sites in question could have been destroyed centuries ago due to land clearance and/or the use of materials from the remnants of ancient structures for building purposes.

Tafila-Busayra Archaeological Survey Territory

Relative to the Early Bronze period, TBAS team members collected Early Bronze II sherds from one site (MacDonald *et al*. 2004, 55, table 17) and sherds from the same period in the western half of Zone 2 (MacDonald *et al*. 2004, 49–50, table 11). Moreover, they collected Early Bronze sherds, without further precision, from three sites (MacDonald *et al*. 2004, 55, table 17). These sites are not concentrated in any one segment of the territory (MacDonald 2004, 56). Moreover, the quantity of sherds collected, in each instance, was small. What is striking about the TBAS territory, in comparison to Early Bronze presence in the territory of the WHS project, is the lack of materials from the period in question.

TBAS team members did not find Middle Bronze Age ceramics at either the random squares or the sites documented in the area. Moreover, there was only a reading of probable Late Bronze ceramics from one of the topographical zones of the TBAS territory. On the basis of the evidence to date, it can be concluded that there is virtually no evidence of human settlement in the entire territory during either the Middle or Late Bronze periods (MacDonald *et al*. 2004, 56).

Shammakh to Ayl Archaeological Survey Territory

SAAS team members collected Early Bronze pottery, without further specification, from only two of the 108 random squares accessed. Both are located in Zone 3, or the eastern segment of the survey territory. In addition, they collected pottery from the same period at four SAAS sites (MacDonald *et al*. 2010; 2011). Two of these sites are traditional, south-Jordan, agricultural villages, now mostly abandoned; one is the location of a spring area and one gives the appearance of having been an ancient agricultural village. All of these sites yielded ceramics from several periods. As a result, there are no indications to date that they were substantial Early Bronze-period settlements in antiquity. Excavations, however, could alter this conclusion.

Team members collected Middle Bronze/Late Bronze pottery from only one SAAS site. It appears to be a pastoralists' seasonal camp (MacDonald *et al*. 2011).

As a result of their excavations at Khirbat an-Nawafla (SAAS Site 358), located in the northern segment of the town of Wadi Musa, `Amr *et al*. report "scarce indications of the Early and Middle Bronze Age…, namely an EB IV 'Canaanean blade' and a few pottery sherds that may date to the MB II with no associated structures" (2000, 231–232) (Fig. 2.2).

Petra Region

The work of the "Natural History Museum of Nürnberg" (NHG), under the directorship of Lindner, has resulted in the discovery of a number of Early Bronze sites in the Petra region. In an area about 10 km to the north of Petra, which abounds in sites from various periods, Lindner *et al*. discovered five Early Bronze Age sites. These sites are Jabal Fidre, Umm Babayn, Hariq, Jabal Shudayfah, and Umm Saysaban (Lindner and Genz 2000). Lindner and Genz state that "the majority of the finds should be dated to the Early Bronze Age II" (2000, 57). They found only slight evidence for later occupation at all five sites (2000, 57). Prior to these findings, Lindner *et al*. had proposed similar dates for two sites, namely, Sabra/Ras Dakhlallah (Lindner and Zeitler 1990) and as-Sadah (Lindner *et al*. 1990), which they investigated south of Petra.

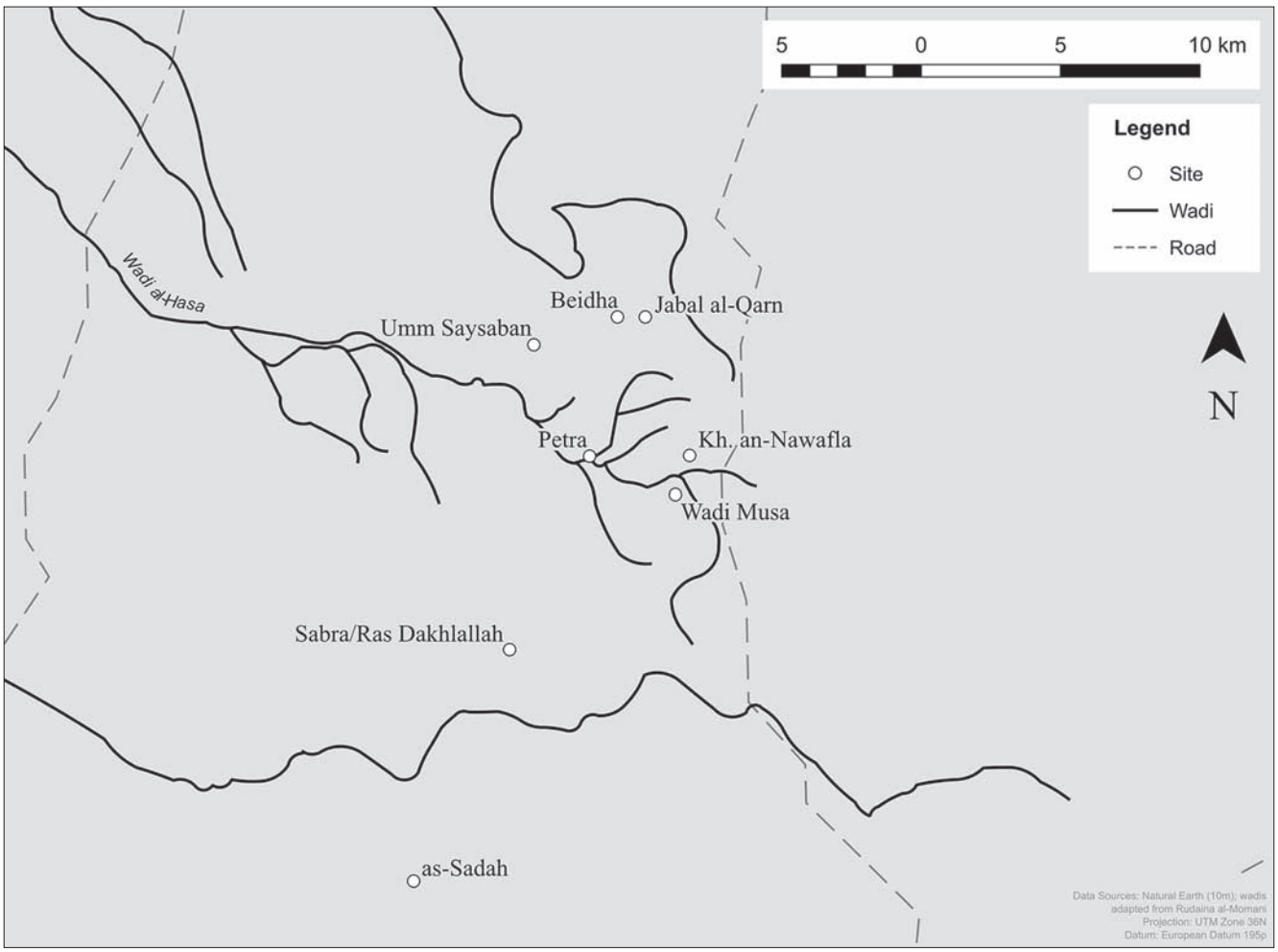

Fig. 2.2: Map of Bronze Age sites and places mentioned in this chapter located within or nearby the SAAS territory and the Petra region.

For the most part, Lindner *et al*.'s documented Early Bronze-period sites are located in defensive locations *c*. 800–1200 m above sea level. Four campaigns of excavations at one of these, Umm Saysaban, revealed rectangular structures made from sandstone slabs. The concentration of storage jars and grinding installations along with the absence of cooking and serving vessels in these buildings suggest, to Lindner *et al*., a storage function, perhaps used on a seasonal basis (2001; see also Philip 2008, 190 and Hübner 2012, 729).
In 2012, "The Brown University Petra Archaeological Project" discovered and tested an Early Bronze Age, without further specification, site at Jabal al-Qarn, located on an isolated hilltop in the northern hinterland of Petra, at the eastern limits of the Amareen tribal village of Beidha. The site is described as a multi-phased settlement in an area that provides a 360º view of the surrounding landscape and a perennial spring to its east (Vella *et al*. 2012; Urban *et al*. 2014).

Ayl to Ras an-Naqab Archaeological Survey Territory

Although ARNAS team members collected Chalcolithic-Early Bronze Age materials, in the form of both lithics and sherds, from ARNAS sites, they did not collect any that they "called" only Early Bronze or Middle Bronze. The same holds true for all 141 random squares of the project. In addition, they collected only Late Bronze sherds, in small quantity, from only one site (MacDonald *et al*. 2012, 421).

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

An improved climate may have played a role in the increase in population, especially in the Southern Ghors and Northeast `Arabah, evidenced by the cemeteries dating to the Early Bronze Age. Moreover, improved technologies for extracting and smelting the copper ore may have been a factor. In addition, the development of urban centres to the north at Bab adh-Dhra` (Schaub and Rast 1989; Rast and Schaub 2003) and an-Numayra (Coogan 1984), and to the west of the area of interest at Arad (Amiran and Ilan 1996; Sowada 2009, 44–45), may have been associated with the resources of the area, for example, copper ores, bitumen, and salt (Sowada 2009, 202) (Fig. 2.3).

Neeley identified 17 Early Bronze-period lithic sites in the SGNAS territory (1992, 37, table 19). However, he thinks that this is not representative of the number present

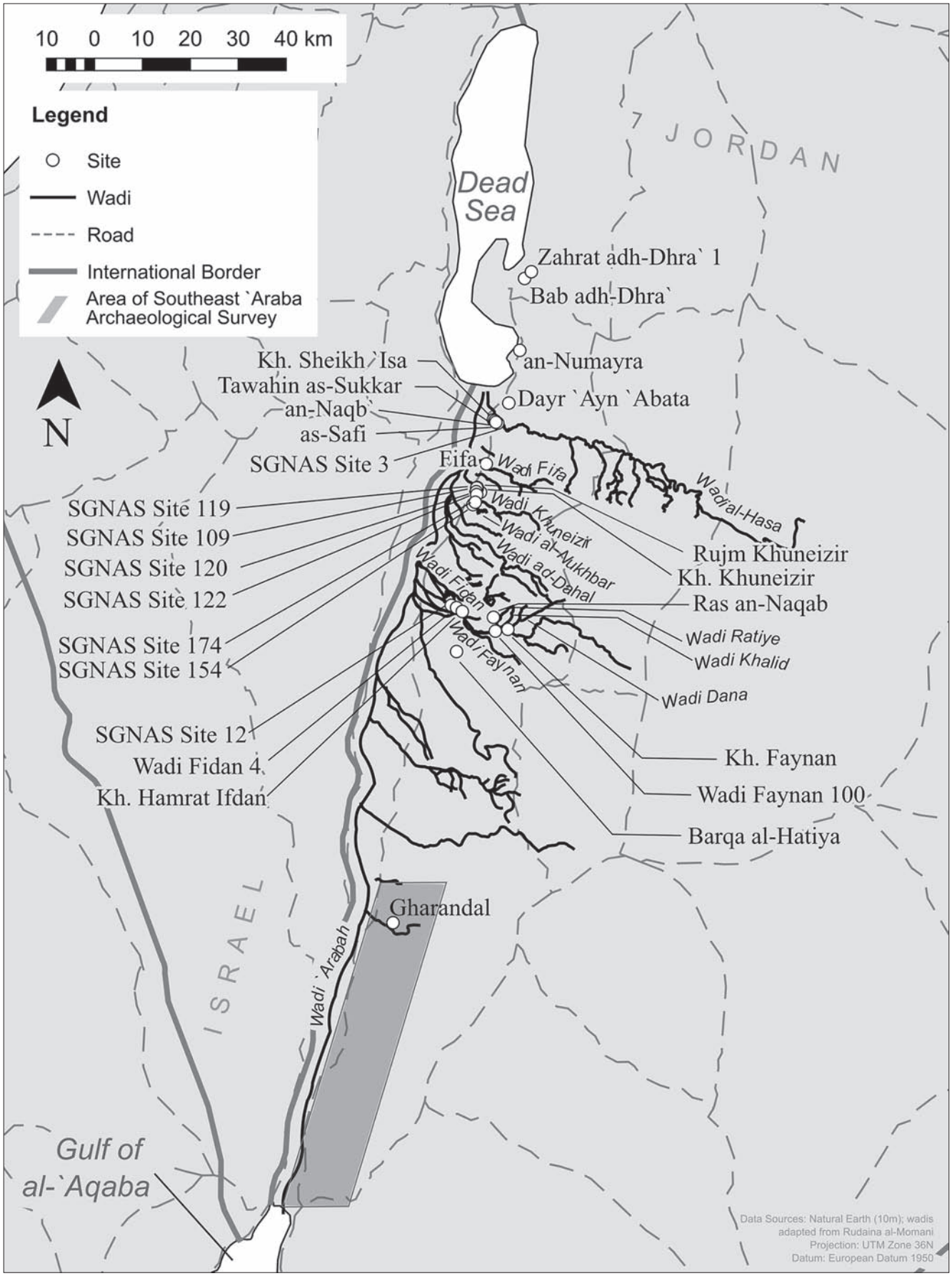

Fig. 2.3: Map of Bronze Age sites and places mentioned in this chapter located within or nearby the SGNAS territory and the Faynan region.

in the territory due to the number of Chalcolithic/Early Bronze ones (1992, 37, table 19). Moreover, he omits those sites, discussed below, from which SGNAS team members collected a large number of Early Bronze sherds along with lithics from the same period.

Relative to areas of intensive occupation in Wadi Fidan during the Early Bronze period, Neeley thinks that settlement patterns changed little from the previous Chalcolithic period. This may be due to the transport of copper ore through Wadi Fidan. Continuity in settlement pattern from the previous period also continued in the Wadi Fifa area. However, new evidence for lithic materials and, thus, activity, from the Early Bronze Age appear in the Wadis Khuneizir and al-Nukhbar region (Neeley 1992, 41). The most frequent site "types" for the Early Bronze Age lithic sites are (in order of frequency): graves; surface scatters; architectural features; wall alignments; and cemeteries (Neeley 1992, 41).

The Early Bronze Age II–III town site of Bab adh-Dhra` (Schaub and Rast 1989; Rast and Schaub 2003; Schaub and Chesson 2007) and the Early Bronze III town site at an-Numayra (Coogan 1984), along the southeastern shores of the Dead Sea to the north of Wadi al-Hasa, are well known. Although the destruction/abandonment of Early Bronze III marks the end of the urban era at both Bab adh-Dhra` and an-Numayra, occupation and agricultural activities continued at the former of these sites, both within and outside the former town site in the Early Bronze IV period (Rast and Schaub 2003, 8, 17; McCreery 2003, 463). Moreover, Bab adh-Dhra` is also the location of a major Early Bronze cemetery (Schaub and Rast 1989).

Early Bronze Age presence continues, especially in the form of cemeteries, south of Wadi al-Hasa at SGNAS Sites 2 (as-Safi), 75 and 76 (the western and eastern segments of ancient Fifa, respectively), as well as at multiple sites in the Wadi Khuneizir and Wadi al-Nukhbar region, located at the southern extremity of the Southern Ghors and the northeastern extremity of Wadi `Arabah. Several of these are multi-period sites. However, the ones that attest to Early Bronze presence are cemeteries rather than town sites. The cemeteries date from the Early Bronze I–Early Bronze IV periods. Thus, the area of the Southern Ghors and the northeastern segment of Wadi `Arabah were a major burial ground throughout the Early Bronze Age.

SGNAS survey team members collected Early Bronze I-period ceramics at five sites: Site 2 (as-Safi) (Plate 7), Site 3, Site 4 (Khirbat Sheikh `Isa), Site 75 (Fifa, western segment), and Site 76 (Fifa, eastern segment); Early Bronze IB pottery at Site 2 (as-Safi); Early Bronze IIB at Site 75 (Fifa, western segment); Early Bronze II–III sherds at three sites: 1 (Tawahin as-Sukkar), 2 (as-Safi), and 141 (Khirbat Khuneizir/Abu Isharieheb); Early Bronze III pottery at Sites 109 and 154A; Early Bronze IV ceramics at 18 sites; Early Bronze IVA at five sites; Early Bronze IVB sherds at seven sites; Early Bronze ceramics, without further specification, at 29 sites; and Early Bronze IV–Middle Bronze I pottery at one site, namely, Site 12 (MacDonald *et al*. 1992, 61–71). Comments on some of the most significant of these sites are warranted.

The mound of as-Safi (SGNAS Site 2), immediately to the south of the Wadi al-Hasa gorge, is a ridge that at one time jutted farther to the west. It is the site of an Early Bronze Age cemetery, comprised of cist-type graves. Survey team members collected Early Bronze IB, Early Bronze II–III, and Early Bronze ceramics, without further specification, at the site. The area has been severely looted/plundered by "robbers" in their search for saleable ceramic pots and other grave goods. Additionally, it has been cut, over the centuries, by agricultural fields as well as by Tawahin as-Sukkar (SGNAS Site 1, a sugar mill). Presently, a Jordan Valley Authority town site is located at its top.

As noted above, SGNAS Sites 75 and 76 are the western and eastern segments of the mound/ridge of ancient Fifa. They are located to the east of the modern road in the Southern Ghors. Both are multi-period sites. However, the interest here is in the Early Bronze cemetery at the site. From it, survey team members collected Chalcolithic/Early Bronze, Early Bronze I, Early Bronze II, Early Bronze IV, and Early Bronze sherds, without further specification. The Early Bronze presence is mostly in the form of cist graves, which, like the Early Bronze cemetery at as-Safi, have been ravaged by "robbers". Although there are architectural features other than graves at the sites, they do not appear to date to the Early Bronze Age. It is safe to posit that neither SGNAS Site 2 (as-Safi) nor SGNAS Sites 75 and 76 (ancient Fifa) were ever Early Bronze Age settlement sites.

The "Expedition to the Dead Sea Plain" excavated Early Bronze IA cist tombs, constructed with large stone slabs and wadi cobbles, at Fifa in 1989–1990. Each tomb contained the disarticulate remains of between one and three individuals along with some grave goods (Rast and Schaub 2003, 15; Chesson and Schaub 2007, 255).

Others have excavated Early Bronze Age tombs at both as-Safi and Fifa. However, they have yet to publish their findings.

As mentioned previously, SGNAS team members collected Early Bronze IV, Early Bronze IVA, and Early Bronze IVB pottery at 30 sites. Many of these sites are graves, located, for the most part, in the Wadi Khuneizir and Wadi al-Nukhbar region. Significant among these SGNAS graves sites are: Sites 108 (Rujm Khuneizir), 109, 119 (the latter is possibly one with 109), 120, 122, 141 (Khirbat Khuneizir/Abu Isharieheb), 154, and possibly 174.

In 1989–1990, Rast and Schaub directed the excavation of a number of the tombs at SGNAS Site 141. The Early Bronze IV tombs, numbering 85, at Khirbat Khuneizir/Abu Isharieheb are of four types: two may be categorized as shaft tombs, resembling miniature, subterranean houses; a third is a cist tomb; and the fourth is a long, collective one (MacDonald 1995). These types do not fit neatly into the Early Bronze IV tomb types of either Dever (1987) or Palumbo (1990). The excavated graves contained the disarticulated remains of the dead along with grave goods of pottery and beads (Rast and Schaub 2003, 15; Chesson and Schaub 2007, 258).

The SGNAS team identified neither Middle nor Late Bronze-period sites in the territory. The only exception is that at SGNAS Site 12, a Pre-Pottery Neolithic site located

at the mouth of Wadi Fidan (MacDonald *et al*. 1992, 250), they collected one Early Bronze IV–Middle Bronze I sherd. Moreover, they collected what are possible Middle Bronze I-period sherds at one site in Wadi ad-Dahal (MacDonald *et al*. 1992, 71).

Relative to the Middle Bronze period, Collins *et al*. (2012, 52) report Middle Bronze sherds in association with the mostly Early Bronze burials at an-Naqb`, as-Safi, immediately south of where Wadi al-Hasa enters the Southern Ghors. Otherwise, one has to look just to the north of Wadi al-Hasa, in the area of Dayr `Ayn `Abata, for evidence of Middle Bronze presence, in the form of burials from the Middle Bronze IIA/B period (Collins *et al*. 2012; see also Politis 1993, 505–506, 518, pl. VI.1–2; 1995, 483–489; 1997, 342, 344–347). In addition, even farther to the north, in the vicinity of Bab adh-Dhra`, there is a Middle Bronze II village called Zahrat adh-Dhra` 1. This 12 ha site is the only known early second millennium settlement in south Jordan (Berelov 2006b, 2). Moreover, it is part of the evidence for sustained human settlement of the Dead Sea Plain from the Neolithic period to the Middle Bronze Age (Berelov 2006a, 5; 2006b). However, there is no evidence of Late Bronze presence in the area.

Wadis Fidan and Faynan Region

Wadis Fidan and Faynan are eastern tributaries of Wadi `Arabah. Early Bronze presence is attested in both. A great deal of this human activity has to do with the mining, smelting and transporting of copper.

Work, since 1983, by personnel from the German Mining Museum, Bochum, has produced evidence for ancient mining and smelting from a number of periods, including the continuous exploitation of the Faynan ores throughout the Early Bronze Age (Hauptmann *et al*. 1992; Hauptmann 2000; 2007). Hauptmann (2000; 2007) has presented in detail the evidence from copper extraction, including geological characteristics and distribution of the ores, the technology of mining operations, smelting methods and various technical aspects of copper production. Genz (2000) summarizes these finds: copper mines dating to the Early Bronze II–III period are known from Wadis Dana, Khalid, and Ratiye/Qalb Ratiye; one mine in Wadi Khalid produced some Early Bronze IV sherds that were used as lamps; mining tools are found at most sites in the region; smelting furnaces, dated by radiocarbon means to Early Bronze II–III, are attested on hilltops at Faynan and Ras an-Naqab. (The Ras an-Naqab mentioned here is within the Wadi Faynan area, located about 4 km northwest of Khirbat Faynan. It is, therefore, not the one that is located at the southern extremity of the Transjordan/Edomite Plateau). Slag heaps, also dated by radiocarbon means, are from Early Bronze II–III and the estimation is that copper production reached amounts of several hundred tons (Genz 2000, 56–57). Support for this comes from the excavated sites of Wadi Fidan 4, Wadi Faynan 100, Khirbat Hamrat Ifdan, and Khirbat Faynan.

Wadi Fidan 4

The late fourth millennium BC (Early Bronze I) village site of Wadi Fidan 4 (Adams and Genz 1995; SGNAS Sites 10 and 20 [MacDonald *et al*. 1992, 59, 250–251]) represents a small agricultural settlement – about 0.87 ha in size – whose inhabitants practiced floodwater irrigation alongside the small-scale production of copper (Adams 2002, 25; Meadows 2001). There is evidence, in the form of ores, crushed slag, crucible fragments, remains of small clay-built hearths, and copper droplets, for the on-site processing of small quantities of copper, probably using a crucible technology (Adams 1999; 2002, 26; Hauptmann 2000, 189). Thus, the first local control of the production of copper can only be proven in the second half of the fourth millennium BC at this site (Hauptmann 2007, 306). It is possible that both ore and processed copper were traded. Moreover, there is evidence to suggest that Faynan ores may have reached Maadi in the Nile Valley as well as Chalcolithic sites in the Beersheba Valley (Hauptmann and Pernicka 1989, 137–141; Philip 2008, 191; Klimscha 2009, 377; Sowada 2009, 47).

Evidence for the Early Bronze II or transitional Early Bronze II–III-period presence in Wadi Fidan comes from Barqa al-Hatiya, a site that Fritz (1994) excavated; Adams (1999; 2002) revaluated Fritz's findings, and Flinder re-excavated in 1993 as part of the German Mining Museum team (unpublished). The site consists of a rectilinear building on a hill, the summit of which is covered with the remains of slag and other metallurgical debris, reaching a depth of 50 cm in places. Both ceramic and radiocarbon evidence point to a date in the earlier third millennium BC. Locally produced vessels and those imported from sites to the west are both present at Wadi Fidan 4. Philip states:

> the increasing sophistication of the material culture, and the evidence for closer integration with wider regional developments appears consistent with the increase in both scale and sophistication of the extractive metallurgy at this time, as was documented by Hauptmann (2000). It appears, then, that Faynan copper was assuming a much greater role in the regional economy (Philip 2008, 191).

Wadi Faynan 100

Wadi Faynan 100, measuring 11 ha, is a late fourth millennium BC (Early Bronze I, 3800/3700–3000 BC) site in the middle of the Wadi Faynan valley. Initially, it was thought to be an Early Bronze Age settlement. However, definite evidence for the site being a large settlement has not yet been uncovered (Levy *et al*. 2012; however, see Wright *et al*. 1998, 33). Nevertheless, in a clear Early Bronze Age I context, numerous crucible fragments, ores, crushed slags and casting moulds were found (Hauptmann 2007, 11).

Najjar *et al*. (1995; see also Hauptmann and Weisgerber 1987; Hauptmann 1989; 2000; Levy *et al*. 2004; and Grattan *et al*. 2007) posit that methods of extractive metallurgy reached a high technological level in the middle of the third millennium BC.

Khirbat Hamrat Ifdan

Developments during Early Bronze III and later are represented by the specialist manufacturing site of Khirbat Hamrat Ifdan (Genz 2000, 60; MacDonald *et al*. 1992, 59, 252, SGNAS Site 30), in Wadi Fidan. Khirbat Hamrat Ifdan is both a settlement and smelting site located on an island-like "iselberg" (Plate 8). It rises *c*. 25 m above Wadi Fidan and is *c*. 1 km north of the oasis of `Ayn al-Fidan. The site is dated, by both pottery and radiocarbon means, to late Early Bronze III-Early Bronze IV (Adams 2000; Hauptmann 2007, 134–136). It was during the Early Bronze III period, however, that the site was most extensively occupied. Adams (1992) and Levy *et al*. (2002), who excavated the site, conclude that it appears to be a specialist manufacturing location since the metal processing activities were concentrated in some 80 rooms, courtyards and other spaces within the excavated area (Hauptmann 2007, 134–136). The site yielded extensive evidence for the production of copper artifacts, including smelting and melting crucible fragments, and a large number of broken clay moulds intended for the production of tools such as axes, pins, chisels, but also bar-shaped metal ingots (Adams 1999; 2002; Levy *et al*. 2002, 429, table 3). These items look as if they were intended for onward distribution. They are very similar to examples found on sites and metal hoards from the Negev, dated to the late third millennium BC. The distribution of these ingots may indicate that Faynan copper was being exported on a large scale to sites to the north and west, and perhaps even as far as Egypt to the southwest (Adams 2002, 33; Sowada 2009, 39; Kerner 2010). According to Philip, "there appears to have been an increase in the scale and sophistication of metallurgical operations in the region. It is not clear, however, whether these developments can be correlated with changes in political control (Adams 1999; 2002; Genz 2001)" (2008, 191).

Khirbat Faynan

Khirbat Faynan is a major Early Bronze Age settlement (*c*. 3400–2000 BC) dated to the first peak of copper production in the Faynan Valley. Excavators have unearthed Early Bronze III foundation walls and three definite rooms. In addition, recovered metallurgical remains include casting implements, crucibles and other finds related to copper metallurgy (Levy *et al*. 2012, 430–434).

Wadi Faynan Landscape Survey (WFLS)

The "Wadi Faynan Landscape Survey" (WFLS) found evidence for a densely occupied landscape in the Early Bronze Age with marked differentiation between arable, pastoral, and metallurgical activities. This occupation involved the development of simple floodwater farming systems (Barker and Mattingly 2007, 427). This is especially the case for the Early Bronze I–III periods.

WFLS project team members posit that the decline in the exploitation of Faynan copper in the second half of the third millennium BC probably reflects both shifts in Egyptian trade and the vulnerability of the agricultural system to deteriorations in environments. The latter was probably both climatically and humanly induced. They think that the area was used predominantly by pastoralists throughout the course of the second millennium BC. Nevertheless, some people were still visiting the mountain rim from time-to-time to extract and process copper ores (Barker and Mattingly 2007, 427).

The Southeast `Araba Archaeological Survey Territory

Only a few sites yielded evidence from the Early Bronze Age in the entire region of "The Southeast `Araba Archaeological Survey" territory (see Fig. 2.3). However, as mentioned in the previous chapter, analyses of lithic and pottery data from the region is at such an early stage that it does not permit a reliable distinction between Late Chalcolithic and Early Bronze Age settlement activity in the area (Parker and Smith II 2014).

The project did not identify either Middle or Late Bronze Age sites in the Gharandal region. This is in keeping with findings throughout the southern Transjordan Plateau and in the Dead Sea Rift Valley to the north.

Analyses of Copper Artifacts From the Area

Analyses of copper-ore artifacts from Bab adh-Dhra`, an-Numayra, Jericho, and Arad have been undertaken. The results indicate that the materials constituting these tools could have come from the Faynan region.

The isotopic composition of the dagger JD-46/5 from Bab adh-Dhra` does not exclude the possibility that locally produced copper might have been mixed with imported tin. The isotopic pattern of this dagger lies well within the area formed by the ores and metals from the Dolomite Limestone Shales (DLS) in Faynan (Hauptmann 2007, 283).

Fourteen metal artifacts and four crucible fragments were found at an-Numayra. The excavator writes that "the infrequent small finds included remains of secondary copper refining (Room 15)…." (Coogan 1984, 77). Analyses indicate that the lead isotope rations of the two adzes and the needle are identical with each other and with the pattern of Faynan copper, which had been produced, since the Early Bronze Age, from the ore of the DLS. It is also possible that at least some of the artifacts found in an-Numayra were produced there (Hauptmann 2007, 283).

Only three of seven samples analyzed from Jericho show a composition that might indicate a provenience of the metal from the `Arabah deposits. These are a crescent-shaped axe and two metal prills. It is probable that copper from Faynan was still used in Jericho during the Early Bronze Age IV (Hauptmann 2007, 284).

Hauptmann *et al*.'s study of 21 copper artifacts from Early Bronze II–III layers at Arad, and of three contemporaneous copper objects from the southern Sinai, led them to the conclusion that the source areas could have been Faynan and/or Timna. However, neither the lead isotope signature nor the trace element pattern, nor a combination of the two, allowed them to distinguish unambiguously between metal derived from the two regions (Hauptmann *et al*. 1992). However, they

favour Faynan as the source on the basis of circumstantial evidence: 1) convenience, that is, Faynan is closer to Arad than is Timna; 2) ample evidence from Faynan that copper ores were mined and smelted during Early Bronze II–III while such is not the case for Timna; and 3) ores from the Massive Brown Sandstone (MBS) available at Faynan are a match for four of the artifacts (Hauptmann *et al*. 1999, 14). This is yet another indication of trade in copper from Faynan across Wadi `Arabah in the Early Bronze II–III period (Fig. 2.4).

Crescent-shaped Ingots from Faynan

More than 100 crescent-shaped ingots, *c*. 12–15 cm long with a more or less T-shaped section, have been excavated in a settlement of the Early Bronze Age IV/Middle Bronze Age I in the Southern Levant – that is, the area west, north and southwest of the Dead Sea. All sites in which these ingots have been found are west and northwest of Faynan. Crescent-shaped ingots have not been found in Transjordan (Hauptmann 2007, 285). There is clear evidence that the source of the ingots is the copper district of Faynan.

In order to find out where the source of the crescent-shaped bar ingots in the Southern Levant was, twenty of the ingots from Khirbat Hamrat Ifdan were analyzed for their chemical and lead isotope composition. There is a high statistical probability that those artifacts come from the widely outcropping but isotopically uniform ore mineralizations of the DLS in Faynan.

Archaeological evidence, e.g., the concentration of Early Bronze Age settlements, extensive copper mining and smelting, and copper processing at Khirbat Hamrat Ifdan and Barqa al-Hatiya, points to the Faynan district as the focal point. The bar ingot trade from Faynan supports previous observations of a pronounced 'metallurgical drift' of Faynan copper to the north, northwest and southwest from the Chalcolithic period on (Hauptmann 2007, 285–288).

Archaeometallurgical activities ceased in the area of interest during the Middle Bronze Age. Indeed, there is no proof for metal production in the area during either the Middle or Late Bronze Ages (Hauptmann and Weisgerber 1992, 63).

Early Bronze Age Cemeteries in the Southern Ghors and Northeast `Arabah

The absence of Early Bronze IV-period settlements on the southern Transjordan Plateau and in the Dead Sea Rift Valley immediately to the west in the Southern Ghors and

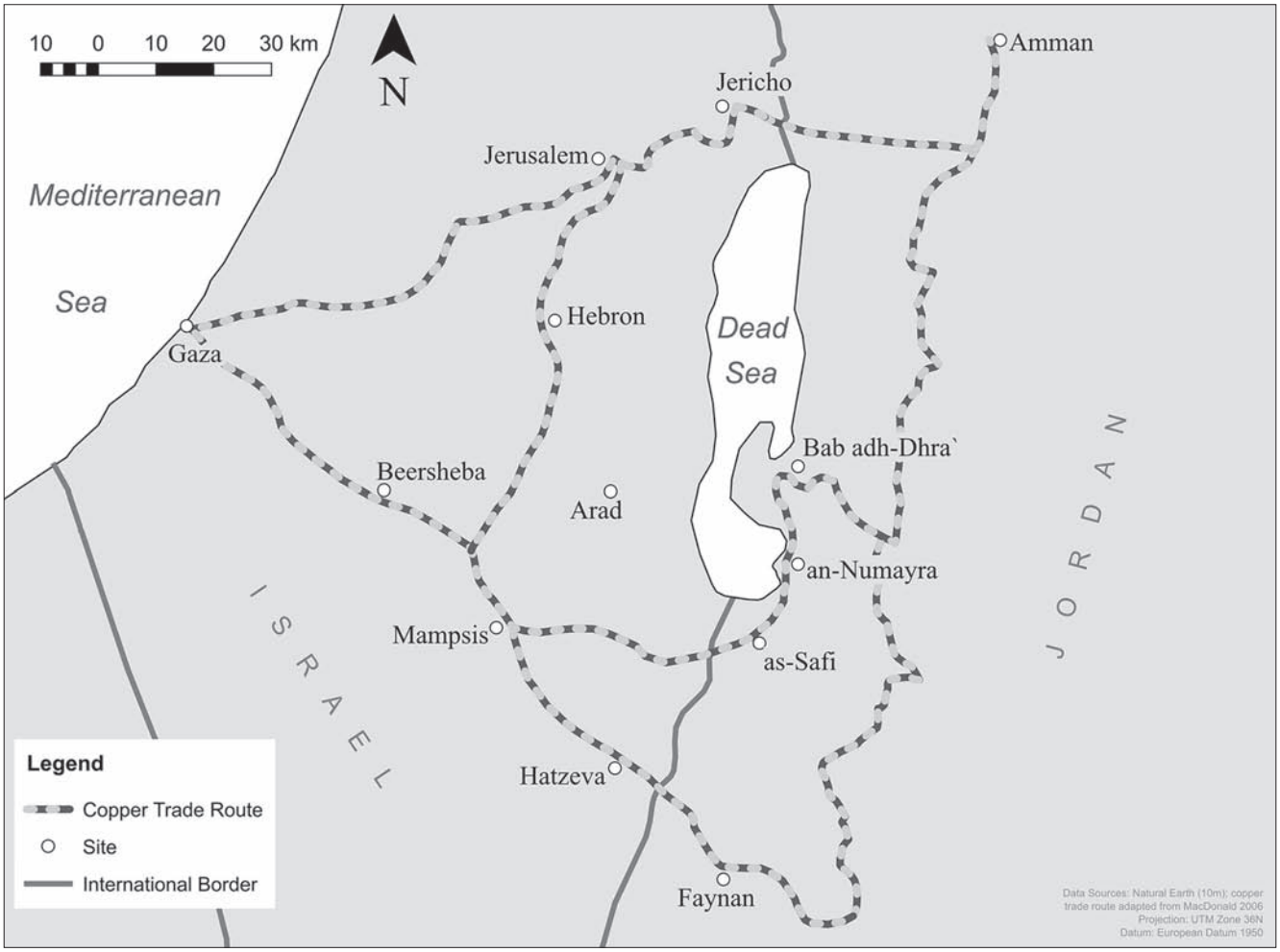

Fig. 2.4: Map of the possible routes for the transport of copper ore products.

Northeast `Arabah, with the exception of the Early Bronze IV settlement at Bab adh-Dhra` (Rast and Schaub 2003), brings up the question: from where did these people come, who were buried in the extensive Early Bronze IV cemeteries in the Southern Ghors?

Relative to the Early Bronze IV-period cemeteries in the Southern Ghors and Northeast `Arabah, it must be concluded that the people buried in them would have come from the Negev and Sinai and/or been involved in the copper industry of Wadis Fidan and Faynan and its transport to the north, northwest, west, and southwest. The basis for this conclusion is that around 1000 Early Bronze IV sites have been surveyed, between 1979 and 1989, in the Negev and Sinai deserts. A few of these sites are large permanent settlements consisting of 100–200 structures. The vast majority of the sites, however, are small, temporary ones with a few poorly built structures. The economy of these small sites was pastoralism and agriculture. In the larger sites, on the other hand, there is evidence related to industry and the trade in copper. Haiman maintains that the emergence of settlements, both large and small, in the area during Early Bronze IV is related to the transport of copper, by means of donkeys, from Faynan to Egypt (1996). In Haiman's opinion, the location of the permanent sites "suggests that a road connected the southern area of the Dead Sea with the eastern Nile Delta, connecting the natural passages with natural water sources" (1996, 14).

As for those buried in the tombs in the Southern Ghors, especially those at as-Safi and Fifa, from which Early Bronze I–III ceramics have been collected, it can perhaps be concluded that the people living there would have come from either the Negev and Sinai for the Early Brzone II period and from the Beersheba Valley in the Early Bronze III period (Haiman 1996, 15–16; Beit-Arieh 1981; 1989).

Related to the above, Goren's petrographic analyses of the pottery assemblages from the above-mentioned Early Bronze IV sites in the Negev and Sinai deserts leads him to conclude that most of the ceramics were produced in Transjordan or Judaea and imported (1996). This, in itself, indicates relations between the Southern Ghors, the Northeast `Arabah, and the Wadis Fidan and Faynan during the period in question.

Conclusions

There is archaeological evidence, in the form of sherd scatters and what may be architectural remains, for Early Bronze Age presence – especially the Early Bronze I–II period – on the southern Transjordan Plateau, in the northern segment of the study territory. This evidence, probably from agricultural communities, is concentrated in the areas of Wadis al-Hasa, `Afra, and La`ban. During the same period, pastoralists would have used the central and eastern segments of the area on a seasonal basis. Only further investigations, however, preferably in the form of excavations, will determine the nature of these sites. Relative to the Petra region, there appears to have been Early Bronze habitation sites. According to Lindner *et al*. these sites were seemingly storage facilities. But here again, further work is required.

One interesting point is that although WHS team members collected Early Bronze IV-period sherds, such was not the case for team members of the TBAS, SAAS, and ARNAS projects. Members of these projects did not identify any Early Bronze IV sherds during six years (1999–2001 and 2005–2007) of in-field work. Moreover, other explorers have not reported Early Bronze IV presence on the plateau.

It appears that human presence on the southern Tranjsordan Plateau was minimal or almost non-existent in the Middle through Late Bronze periods. In the absence of archaeological evidence, the best that can be said, on the basis of the Egyptian texts, is that pastoralists were in the area during at least some of the Middle and Late Bronze periods, a time-span of around 800 years. Moreover, on the basis of present evidence, it can be concluded that there was a decrease in population in the area from the Early Bronze Age until the beginning of the Iron I period.

The archaeological evidence for Early Bronze Age presence in the Dead Sea Rift Valley morphological unit is very different from that on the plateau. During the Early Bronze Age, there were large Early Bronze I–III cemeteries in the area, specifically at as-Safi and Fifa, as well as Early Bronze IV cemeteries in the Wadi Khuneizir and Wadi al-Nukhbar region at the limits of the Southern Ghors and the beginning of the Northeast `Arabah.

There is evidence of both metal-working and agricultural activity in the Wadis Fidan and Faynan regions during the period. Metallurgical activities continued through the Early Bronze Age in these regions, carried out at Wadi Fidan 4, Wadi Faynan 100, Khirbat Hamrat Ifdan, and Khirbat Faynan. At this time, unlike during the Chalcolithic period, copper ore was both mined and processed in the area. Moreover, there is ample evidence, especially from analyses of metal objects, that the processed materials found their way to the north, northwest, west, and probably to Egypt in the southwest.

Analyses of copper-ore artifacts from Bab adh-Dhra`, an-Numayra, Jericho, and Arad have been undertaken. The results indicate that the materials constituting these tools could have come from the Faynan region. Moreover, there is clear evidence that the crescent-shaped ingots excavated in a settlement of the Early Bronze Age IV/Middle Bronze Age I in the Southern Levant have their source in the copper district of Faynan. Conversely, crescent-shaped ingots have not been found in Transjordan.

Around 1000 Early Bronze IV sites have been surveyed in the Negev and Sinai deserts. A few of these sites are large, permanent settlements consisting of 100–200 structures. The vast majority of the sites, however, are small, temporary ones with a few poorly built structures. The economy of these small sites was pastoralism and agriculture. In the larger sites, on the other hand, there is evidence related to industry and the trade in copper. The emergence of these settlements, both large and small, in the area during the period is related to the transport of copper, by means of donkeys, from Faynan to Egypt.

The question must be raised relative to the role that both Bab adh-Dhra` and an-Numayra played in the metallurgical

activity to the south. There is certainly evidence of contacts between these two sites and Egypt during the period in question (Sowada 2009, 93–99, 202). In addition, products, other than metal artifacts, such as bitumen and salt could have been exported from the Dead Sea region to Egypt.

The people who were buried in the Early Bronze Age cemeteries of the Southern Ghors and Northeast `Arabah most likely did not come from the plateau to the east. They would most likely have been people engaged in the copper industry, its export, and the service industries needed to support these activities.

There was a major difference between what was happening on the southern Transjordan Plateau and in the region of the Dead Sea Rift Valley immediately to the west during the Early Bronze Age. This difference had to do, to a large extent, with the resources – or lack of such – in both morphological units.

The direction of trade is not from the Dead Sea Rift Valley towards the east and the southern Transjordan Plateau; it is towards the north, northwest, west, and southwest.

3

IRON I AND II PERIODS (1200–539 BC)

Introduction

The introduction of iron into the Levant began in the twelfth century BC. However, its employment for all categories of objects and, finally, its replacement of bronze as the leading metal for practical purposes, took place only gradually in the tenth century BC.

Some researchers suggest that in the transition from the Late Bronze Age to the Early Iron Age, cultural differences are explained by foreign invasion, that is, the introduction of new ethnicity into the Levant. More recent evidence indicates, however, that the large culture changes were not the result of a foreign invasion; rather, the Iron Age people of the southern Levant were related to their Bronze Age predecessors.

The period, which is the subject of this chapter, is traditionally divided into two main divisions: Iron Age I and Iron Age II. The former is divided into Iron IA and B and the latter into Iron IIA, B, and C. The traditional dates for these divisions are: Iron IA (1200–1150 BC); Iron IB (1150–1000 BC); Iron IIA (1000–920 BC); Iron IIB (920–722 BC); and Iron IIC (722–539 BC).

A 1960s–1980s chronological system saw the Iron I period divided into Iron IA (1200–1150 BC), Iron IB (1150–1000 BC) and Iron IC (1000–918 BC), while Iron II was divided into IIA (918–721 BC), IIB (721–605 BC) and IIC (605–539 BC). Relative to this work, this chronological system was used only during the work of the WHS and SGNAS projects and the analyses of their findings.

Bienkowski maintains that the schemes set forth in the previous paragraphs cannot be applied to southern Jordan/Edom as there is no site with a complete Iron Age sequence. In addition, he posits that the historical framework for Palestine, on which the above chronology is based, bears no relation to the material-cultural framework of Transjordan. He thus opts for a less specific terminology for Edom: Iron I (*c.* 1220–1000 BC); Iron II (*c*. 1000–539 BC); and Persian (*c*. 539–330 BC) (Bienkowski 1995, 43–44).

Herr and Najjar (2001; 2008) also divided the Iron Age period of Jordan in a general way: Iron I (12th–11th centuries BC); Iron IIA (10th century BC); Iron IIB (9th–8th centuries BC); and Iron IIC (7th–6th centuries BC).

As the above indicates, researchers are not fully in agreement relative to the dating of the time-stratigraphic units for Jordan's Iron Age. And relative to this, one of the difficulties that ought to be pointed out is that the traditional dating is based, to a large extent, on matters related to the Hebrew Bible/Old Testament. Such matters often do not reflect the situation east of the Jordan River.

Recent archaeological surveys and excavations on the southern Transjordan Plateau and within Wadis Fidan and Faynan just to the east of Wadi `Arabah – that is, in a segment of the territory which is of particular interest in this work – have added a great deal of information about the Iron Age of Jordan. This information is set forth in this chapter.

As in the previous chapter, after some comments about the palaeoclimate during the Iron Age, I will present the literary and epigraphical evidence, in the form of texts, inscriptions, seals and bullae. I will then set forth the archaeological evidence, beginning with the results of my archaeological survey projects in the area. This will be supplemented by the results of the work on the part of other surveyors and/or excavators within or nearby the study territory.

Climate

According to Stiebing, there is evidence for a series of narrow tree rings, indicating poor growing conditions between *c*. 1300 and 1000 BC. Stiebing also finds indications of a change from Mediterranean to Saharan vegetation at the end of the Late Bronze Age, which suggests a shift from a relatively moist to a much drier climate (1989, 186). This period was succeeded by even lower Dead Sea levels, reaching approximately 395–400 m below sea level between the tenth and seventh centuries BC. As indicated previously, lower Dead Sea levels indicate a decrease in water flowing into the Dead Sea. This is attributable to a large extent to a decrease in precipitation. There are, thus, indications of a slightly drier climate relative to preceding centuries (Frumkin *et al*. 1991, 198).

In Gratten *et al*.'s words, the first millennium BC was characterized by "a grass-dominated steppe … essentially the modern climate and geomorphic regime" (2007, 89). Danin's (1995) study of the Dead Sea sediment levels indicated that this body of water dropped to 400 m below sea level. In addition, Rosen (1995) points to the extinction of oak in Galilee as indicating dryness during the Iron Age period. This trend evidently continued, since studies indicate a slightly drier climate during the tenth and seventh centuries BC relative to preceding ones (see, for example, Goodfriend 1990 and Goldberg 1995). Weninger (2009, 7, fig. 2), however,

shows low Dead Sea levels (similar to today's), indicative of low rainfall, until around 1500 BC. After this date, he sees fluctuations in the levels of the Dead Sea with an increase in its levels, which is indicative of increased rainfall, beginning around 1000 BC.

Goodfriend (1990) holds that 3000 pb marked a period of low rainfall in the Negev. Evidence for this condition includes short-distance transport, associated with an arid period, in the northern Negev and the southern Shephela during the Iron Age (Goldberg 1995, 47).

As we will see below, there was a "filling up" of the southern Transjordan Plateau during the Iron Age, especially during the Iron Age II period. This may be explained not by an improvement in climate, but in Harlan's words: "… the Wadi el Hasa region was marginal for farming from the Pre-pottery Neolithic on. It filled up only when other areas filled up first, and it emptied out whenever more favoured lands were available" (1988, 47).

There does not seem to be a correlation between improved climatic conditions and "filling up" during the Iron II period. The indications are that the period was one during which a dry climate prevailed. However, as we shall see below, the region "filled up" rather than "emptied out" under these less favourable climatic conditions. Thus, we must look for other factors to explain the situation in the area of interest during the Iron II period, for example, the metallurgical industry in Wadi `Arabah and the route of the incense trade on the plateau and across Wadi `Arabah to Gaza on the Mediterranean.

Literary and Epigraphical Evidence

Literary evidence for the Iron Age comes from Egyptian, Assyrian, Babylonian and biblical texts, especially the Hebrew Scriptures/Old Testament. It is supplemented by epigraphical evidence in the form of a stela along with ostraca, seals and bullae.

Egyptian

At the beginning of the Iron Age period, Ramesses III (1186–1155 BC) claims: "I destroyed the people of Seir among the Bedouin tribes. I razed their tents: their people, their property, and their cattle as well, without number, pinioned and carried away in captivity, as the tribute to Egypt. I gave them to the Ennead of the gods, as slaves for their houses" (Pritchard 1969, 262).

Here again, as with the earlier Egyptian literary evidence for the end of the Late Bronze Age (see above), there is evidence for an inhabited Seir – at least by pastoralists – and at least intermittent relations with Egypt at the beginning of the period (Kitchen 2003, 474). But the question must again be asked as to where the geographical area was that the Egyptians had in mind when they used the terms "Seir" and "Edom". The answer to this question is relevant since the area generally referred to as "*Idumaea*" of New Testament times (Mark 3.8) is not generally identified with the traditional homeland of the "Edomites".

Assyrian

Assyrian texts refer frequently to Edom. It is evident from these texts that the Assyrians knew of the land of Edom and its kings and had entered into a relationship with them – that of master to servant. The Assyrians claim to have subdued the land of Edom, imposed tax, and received tribute from its rulers. Specific Edomite kings, who brought sumptuous presents to, and kissed the feet of, their overlords, are named in the texts.

Adad-Nirari III (811–783 BC) claims, relative to an expedition to Palestine, to have subdued the land of Edom, along with other lands, and imposed tax and tribute upon it (Pritchard 1969, 281; Hallo and Younger 2000, 276). Edom paid tribute to the Assyrian king Adad-Nirari III at the end of the ninth or the beginning of the eighth century BC (Pritchard 1969, 281). In conjunction with this situation, it was probably during the ninth/eighth century BC and the following two centuries that Edom reached the peak of its power (Bienkowski 1992).

In a text likely composed in or shortly after his seventieth regnal year, Tiglath-Pileser III (745–727 BC) claims, relative to campaigns against Syria and Palestine, to have received the tribute of Qaušmalaka, the Edomite (Pritchard 1969, 282; Hallo and Younger 2000, 289). Edom thus became Assyria's vassal, with the obligations of regular tribute and, probably, military assistance when required (Bartlett 1992, 291). It was likely at this time that the main north-south route from Damascus to al-`Aqaba became known as "the Kings Highway" (Numbers 20.17). This subjection to Assyria may not have been a disadvantage to Edom since it was during this time that Busayra was at the height of its power (see below). Due to this state of affairs, Edom was probably reluctant to join rebellions against Assyria when Ashdod solicited its support in 713 BC (Pritchard 1969, 287).

Sargon II (722–705 BC) makes a claim similar to that of Tiglath-Pileser III regarding the reception of tribute. However, in this incidence the ruler of Edom is not named (Pritchard 1969, 287). A letter discovered at Nimrud in 1952 names the Edomites at the end of a list of those who paid tribute after Sargon's retaliatory campaign against Ashdod in 712 BC (Bartlett 1992, 291).

A cuneiform text summarizes the campaign of Sennacherib's siege of Jerusalem in 701 BC. In it, Sennacherib (705–681 BC) claims that Ayarammu of Edom brought him sumptuous presents as his abundant audience-gift … and kissed his feet (Pritchard 1969, 287; Hallo and Younger 2000, 302–303). This indicates that the ruler of Edom visited the Assyrian ruler.

The importance of Edom to the Assyrians in the seventh century BC is revealed in the records of both Esarhaddon (681–669 BC) and Ashurbanipal (669–627 BC). Specifically, relative to his Syro-Palestinian campaign, Esarhaddon claims that he called up a number of kings, among them Qausgabri, king of Edom (Pritchard 1969, 291). The same Edomite king is also found in a list of kings from the time of Ashurbanipal (Pritchard 1969, 294). (The king's name also appears on a bulla found in the excavations of Umm al-Biyara, within Petra [Hallo and Younger 2000, 201]; see below.)

Ashurbanipal later conscripted Edomite forces for his campaigns. According to the Rassam Cylinder, he took 22 kings…Qausgabri of Edom was involved with Manasseh of Judah… and other contemporaries. Ashurbanipal marched against Uat', king of Arabia (Pritchard 1969, 298). Uat` was a member of the Qedarite tribe that was in the Syrian Desert east-southeast of Damascus, travelling and raiding as far as the borders of Moab and Edom and even into the Tayma region (Bartlett 1989, 59–62).

In a campaign against the Arabs, Ashurbanipal states that he inflicted countless routs on, among other towns, those of Edom (Pritchard 1969, 297–298). Finally, from the reign of Sennacherib or his successor there is the note, "Two minas of gold ….; [… mi]nas of silver from the inhabitants of [Edom] (^{mat} [*U-du-ma*]-*a-a*)…" (Pritchard 1969, 301).

As indicated above, Qausmalak, Ayarammu and Qausgabri are mentioned as tributary kings of Edom in the texts of Tiglath-Pileser III and his successors. The Assyrian rulers' recognition of the kings of Edom gave them prestige. Assyrian records indicate that royal officials from Edom brought the annual tribute to Nimrud and Nineveh. These visits to the Assyrian royal court gave the Edomite officials opportunities to admire and emulate the wealth and power of their overlords (Bienkowski 2002, 481).

These Assyrian references outline a period of Edom's history on which the Hebrew Scriptures/Old Testament is silent. As mentioned above, three Edomite kings are named: in 732 BC; in 701 BC; and in the reign of Esarhaddon and Ashurbanipal, contemporary with Manasseh of Judah. As mentioned previously, Qausgabri's name is confirmed by a seal found at Umm al-Biyara.

A sign of Edom's self-confidence in the Assyrian period is that the Edomites were beginning to settle in southern Judah. There are biblical passages that indicate that territory south of Judah and west of Wadi `Arabah was Edomite territory. There is, moreover, epigraphical as well as archaeological evidence for the presence of Edomites in the region between Beersheba and the south end of the Dead Sea in the seventh century BC (Bartlett 1992, 292).

Babylonian

Edom probably became a vassal of Babylon when Nebuchadnezzar (605–562 BC), after his defeat of the Assyrians, took control of the west. Jeremiah 40.11 notes that Edom, along with Moab and Ammon, gave refuge to those from Judah who were fleeing the Babylonian forces at the time of the destruction of Jerusalem and its temple in 586 BC.

Edom did not oppose Babylon at this time. Moreover, there is no suggestion that the Babylonians subjected the Edomites, as they did the Ammonites and the Moabites (Josephus, *Antiquities* 10.9.7§181).

The end of the Edomite kingdom may have been a result of the campaign of Nabonidus (556–539 BC), the last Babylonian king, who laid siege to the "town of Edom" (Pritchard 1969, 305); this likely refers to Busayra, the Edomite capital. He probably captured it in the third year of his reign. In the same vein, a Babylonian stela – located high in the cliffs as one begins the climb to the top of as-Sila` (see below), an Edomite place of refuge to the northwest of Busayra – probably alludes to the same event. The person depicted on the relief appears to be Nabonidus, who, as indicated above, is believed to have besieged Busayra and annexed Edom on his way to Tayma in Arabia (Dalley and Goguel 1997; Zayadine 1999).

The Bible

The biblical writers are aware of inhabitants in the land of Edom during the Iron Age. They trace the ancestry of these people, that is, the Edomites, to Esau, the son of Isaac and the elder-twin brother of Jacob. They have them settled, at an early date, in the hill country of Mount Seir (Genesis 36.9; Deuteronomy 2.4, 5, 8, 12), which is identified with the country of Edom (Genesis 32.3; Judges 5.4).

The Edomites are said to have caused problems for the Israelites on their way from the land of Egypt to the land of Canaan (Numbers 20.18–21) – traditionally dated to the end of the Late Bronze/beginning of the Iron Age period. From then on, the biblical writers generally depict the people of the land of Edom as the enemies of the Israelites (see, for example, 2 Samuel 8.11–12; 1 Kings 11.15; 2 Kings 8.20–22; 14.7). Thus, throughout at least part of the period of the Old Testament, the land of Edom appears to have been populated by enough people to have caused a threat to Israel.

The list of Edomite kings in Genesis 36.31–39 is an Israelite, not an Edomite, document. It looks back from a comparatively late period to "the kings who reigned in the land of Edom, before any king reigned over the Israelites" (Genesis 36.31). As a result, it does not have historical value for the purposes of this work.

According to 1 Samuel 14.47, Saul (1025–1005 BC) successfully fought against Edom. (The chronology followed here for the rulers of Judah is from *The New Oxford Annotated Bible: New Revised Standard Version with the Apocrypha*. Fourth edition. New York/Oxford: Oxford University 2010, 2259.) Moreover, Doeg the Edomite is said to have been present at Saul's court (1 Samuel 22.9, 18). David (1005–965 BC) is alleged to have conquered Edom in the early tenth century BC and all the Edomites are said to have become his servants (2 Samuel 8.13–14; 1 Kings 11.15–16). This assertion may be taken as hyperbole. Did Hadad, the Edomite, return from Egypt and cause trouble for Solomon (Masoretic Text 1 Kings 11.25)? Bartlett (1992, 290) thinks that Hadad could not have oppressed Solomon since Edom was garrisoned and lacking in population and manpower. On the domestic front, Solomon (968–928 BC) is said to have married Edomite women (1 Kings 11.1). The biblical text posits that in Jehoshaphat's reign (870–846 BC) there was no king in Edom (1 Kings 22.47) and that it was not until the reign of Jehoram/Joram (851–843 BC) that Edom was strong enough to establish a monarchy (2 Kings 8.20). However, this seems to be contradicted by 2 Kings 3. It is likely, however, that Edom played no part in the campaign against Moab. Bartlett is of the opinion that 2 Kings 3

provides no solid evidence for the existence of an Edomite king before the reign of Jehoram of Judah.

Amaziah (798–769 BC), king of Judah, attempted to reconquer Edom. According to 2 Kings 14.7, he "killed ten thousand Edomites in the Valley of Salt and took Sela by storm". It is at this point in history that the Edomites are said to have paid tribute to Assyria, ruled by Adad-Nirari III (see above).

On the basis of the biblical texts, we know virtually nothing of the Edomites in the first half of the eighth century. Amos 1.6 condemns Gaza "because they carried into exile entire communities, to hand them over to Edom". Did Gaza and Edom have links on the slave-trading route between Arabia and the Mediterranean?

By the time of Ahaz (743/735–727/715 BC; the biblical data are inconsistent for the dates of his reign), Edom was ready to take the offensive again. The Edomites are said to have come to Elath, "where they live to this day" (2 Kings 16.6). By this act, Edom, and not Judah, could derive the benefit of trade passing between Arabia and Syria via the Gulf of al-`Aqaba, and could control the southern part of Wadi `Arabah. This made it easier for the Edomites to settle in the south region of Judah, as they did over the next two centuries (Bartlett 1992, 291).

1 Esdras 4.45 asserts that the Edomites burned the temple in Jerusalem when the Babylonians laid Judea waste. However, the Edomites are not mentioned in 1 Esdras 1.55 as having burned the temple. 2 Kings 25.9 attributes this action to the Babylonians. It appears, according to Jeremiah 40.11, that Edom gave refuge to Judeans fleeing the Babylonian forces.

Ezekiel wrote his prophecies in the sixth century BC in Babylon, during the exile of the Judeans from their homeland after the devastating events of 586 BC. The book contains information important for the history of the Edomites.

Ezekiel 25.1–32.32 consists of oracles/sayings against seven nations, one of whom is Edom. These oracles are messages of doom for Israel's antagonists and messages of hope for Israel itself. The nations that will be punished are listed and then Israel will be restored.

Because Edom, according to the book's author, acted revengefully against the house of Judah and has offended grievously it will be made desolate. Edom's destruction will be complete and God will use Israel to carry this out (25.12–14).

In the prophet's dirge over Tyre (Ezekiel 27.1–36), a Phoenician seaport on the Mediterranean, the city's commercial empire is described. In the description, if one of the nations that trades with Tyre is indeed Edom (rather than Aram) (Greenberg 1997, 555–556) then it is said to have done "business with you because of your abundant goods; they exchanged for your wares turquoise, purple, embroidered work, fine linen, coral, and rubies" (verse 16). According to the NRSV translation, Edom imported goods from Tyre and exported or were the middlemen for the products indicated in the verse. Some of the listed products would not have been native to Edom.

Obadiah 19 and 1 Esdras 4.50 reveal the post-exilic, that is, after 539 BC, Jewish grievance that the Edomites continued to hold the Negev. By the late fourth and third centuries BC, the land south of Bethzur is known by the Greek name as *Idumaia*.

Epigraphical Evidence

Epigraphical evidence from the territory of interest comes from Busayra, Umm al-Biyara, and Ghurayra. It is in the form of a seal, a seal impression, ostraca (writing on pieces of pottery), and a stamped jar handle. Some of this evidence is referred to above.

A seal of brown stone found at Busayra, scaraboid in form, is dated to the late Iron II period. It contains the three letters *l t w*, meaning, "belonging to Tw". The name may be of Arabian origin (Millard 2002, 429–430; van der Veen 2009, 32–33).

A seal impression on brown clay was also found at Busayra. It consists of four registers with the inscription *lmlklb` `bd hmlk*, meaning, "belonging to Mlklb`, servant/official of the king". The script is generally recognized as Edomite and the seal impression is dated to the late Iron II period (van der Veen 2009, 29–31).

In addition, four ostraca come from Busayra. One bears the traces of the ends of two lines of writing in black paint. A second, on creamy-white ware, bears the end of one line of writing in black paint. The third ostracon contains two letters in black paint, the beginning of a line. Finally, a sherd from a storage jar bears two lines of writing in black ink. No sense has emerged from the ostracon. According to Millard, "the pattern of the other documents might suggest a note of consignment in the first line and a quantity in the second" (2002, 432).

A seal impression from Umm al-Biyara is generally recognized as coming from a royal seal. It bears the impression *lqwsgb[r] mlk ydm*, meaning, "belonging to Qos-Gabr(i), king of Edom" (van der Veen 2011, 79–81). Qos is the name of an Edomite deity. The Edomite king may be the one referred to above in the discussion of the Assyrian and biblical evidence.

Hart (1988) found a stamped jar handle at the Edomite site of Ghurayra. It contains the inscription "Nurat (daughter of) Nur'il" (van der Veen 2009, 26–27).

Archaeological Evidence

Here, as in the previous chapter, the presentation of the archaeological evidence will be from north to south, beginning on the plateau and then to the Dead Sea Rift Valley, specifically to the areas of the Southern Ghors, the Northeast `Arabah, and Wadis Fidan and Faynan. The emphasis will be on the results of archaeological surveys and sites that have been excavated.

Wadi al-Hasa Archaeological Survey Territory

WHS survey team members collected Iron IA-period sherds at nine sites; Iron I-period sherds, without further specification, at 24 sites; Iron I–II-period sherds at five sites;

Iron I–IIA sherds at four sites; Iron IC–IIA sherds at four sites; Iron II sherds, without further specification at 35 sites; and Iron Age sherds, without greater precision, at 16 sites (MacDonald *et al*. 1988, 171–189).

In comparison to the previous Bronze Age, there is a large increase in the number of sites. Moreover, over time in the Iron Age, the number of sites increases and the areas in which these sites are located includes most of the WHS territory. An increased population would necessitate the use of more marginal regions. However, it must be noted that the majority of sites continue to be located in the western and west-central segments of the survey territory, for example, the areas of Wadis al-Hasa, `Afra, and La`ban. Nevertheless, a cluster of Iron Age sites is located in Wadi al-`Ali in the eastern segment of the territory (MacDonald *et al*. 1988, 172, fig. 48).

WHS team members did not locate any Iron Age sites in the southeastern plateau region of the territory. This was probably an area in which there was little water and possibly little vegetation, even for flocks of sheep and goats, during most of the period.

One disadvantage from an archaeological point-of-view is that no Iron Age site has been excavated in the WHS territory (Fig. 3.1).

Tafila-Busayra Archaeological Survey Territory

Relative to the transecting of the random squares of the TBAS territory, survey team members collected: Iron I-period pottery at one square in Zone 2; Iron I–II sherds at one square in Zone Busayra; Iron II sherds at three squares in Zone 1, at 19 in Zone 2, and at 15 in Zone Busayra; and Iron Age sherds, without further specification, at one random square in Zone 1, at two in Zone 2, and at eight in Zone Busayra (MacDonald *et al*. 2004, 57, table 18). In summary, 42.34% of 111 accessed random squares in the survey territory yielded some form of Iron Age ceramics.

Relative to Iron Age-period sites, TBAS team members collected: Iron I sherds at eight sites; Iron I/II at one; Iron II at 65; and Iron Age at 20. Thus, team members collected some form of Iron Age pottery at 28.92% of the 290 sites of the survey.

The above indicates a major resettlement of the area following the apparent lack of such during the Middle and Late Bronze periods. This resettlement is especially noticeable in the Iron II period and in the western segment of the survey territory (MacDonald 2004, 58).

Busayra is the main excavated Iron Age site within the territory. In addition, there are two other sites, namely, Tall Busayra and as-Sila` that are worth considering here.

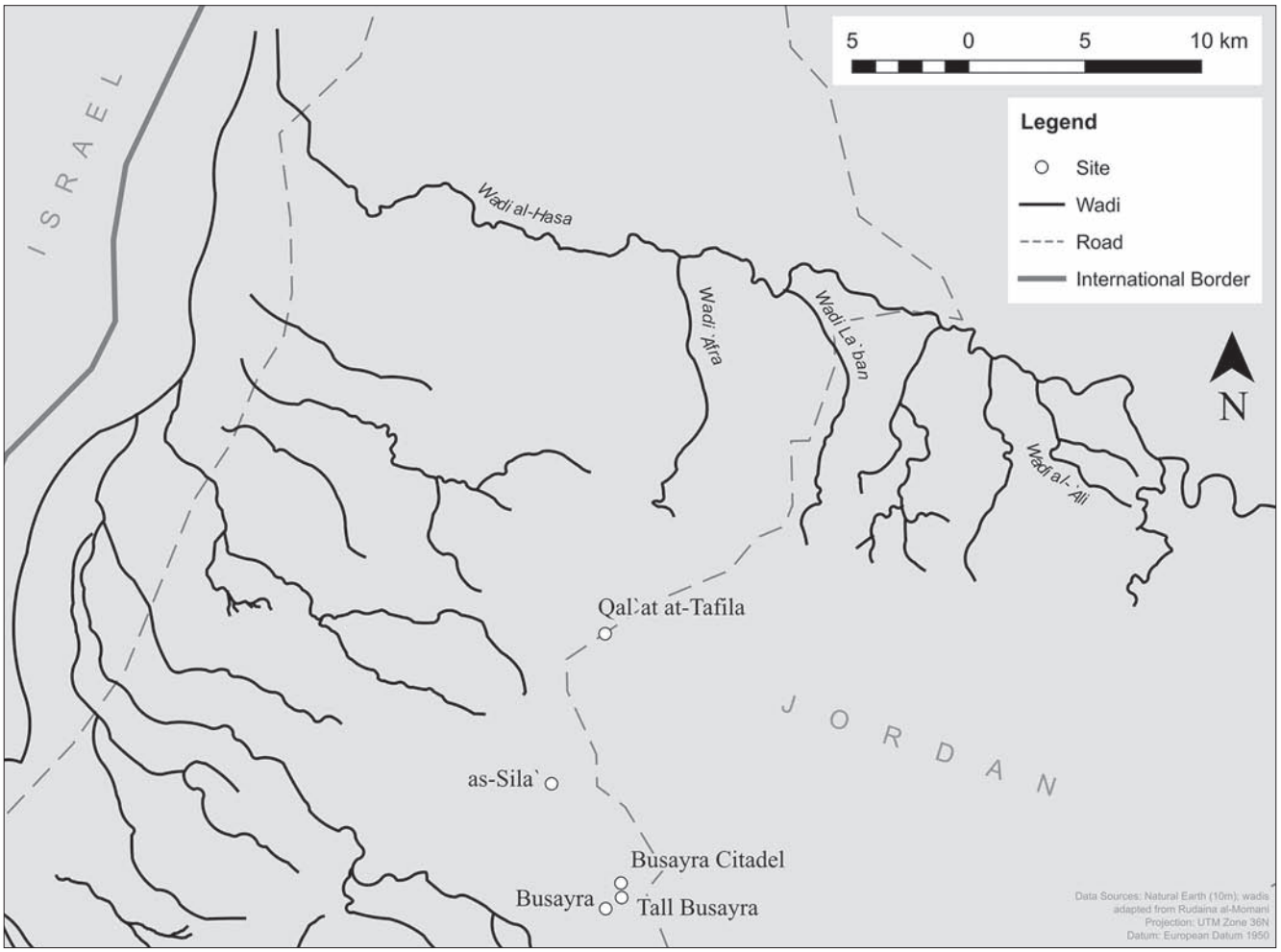

Fig. 3.1: Map of Iron Age sites and places mentioned in this chapter located within and nearby the WHS and TBAS territories.

Busayra

Between 1971 and 1980, Bennett excavated Busayra, a large and prominent site of *c*. 8.14 ha (Bienkowski 2002). Bienkowski, who published the final report on the site, proposes two fixed points for its dating: 1) late eighth century BC, the earliest possible date for the local pottery; and 2) the Attic and Hellenistic pottery, which date the end of Iron II/Persian occupation at the site to *c*. 300/200 BC (2002, 477). The site of Busayra is generally acknowledged to be identified with Bozrah, mentioned in the Hebrew Scriptures/Old Testament. Moreover, it is generally recognized as the capital of the Edomites (Genesis 37.33; Isaiah 34.6; *et passim*) (MacDonald 2000, 189).

Bozrah means a fortified place and thus refers to the defensive character or feature of the site. Its location, on a projecting spur that has deep ravines on the north, west and east, is only accessed easily from the south and, thus, fits the toponym's meaning. It is also located just west of the so-called "King's Highway" (see above), the main north-south route through Transjordan during the Iron Age (Numbers 20.17; 21.22). In addition, there are a number of east-west routes (see below) that would have connected it to the copper mining area to the west and then onwards toward Gaza on the Mediterranean Sea (MacDonald 2006, 86–87). It is thought that one reason for the site's location was the copper mining and smelting sites located below and to the southwest in Wadis Fidan, Faynan, Dana, Khalid, and Ratiye/Qalb Ratiye. Moreover, its location along the King's Highway would serve it well relative to its involvement in the Assyrian-controlled spice trade as well as the trade passing between Arabia and Syria via the Gulf of al-`Aqaba (see below).

Relative to major features of the site, a building located at its central and highest point is tentatively identified as a temple (Bienkowski 2002, 95) (Plate 9). Also, a complex raised on a stone platform at the south side of the site suggests a palace or residency (Bienkowski 2002, 95, 195).

Bienkowski concludes that "Busayra was clearly some sort of administrative and religious centre, but the evidence indicates that Edom was a 'tribal kingdom' rather than a centralized nation state" (2002, 480). Moreover, he concludes that "the source of its political power and influence, were control of copper production, control of the Arabian trade to the Negev and Gaza, and control of contacts with the Mesopotamian powers" (2002, 480).

During the peak of Busayra's power in eighth–sixth centuries BC, the main, securely-dated sites in the Wadi Faynan copper-ore region are the fortresses of Ras al-Miyah and its associated mines and small structures (see below). Late Edomite pottery at the Ras al-Miyah supports connections at this time with the highlands (Levy *et al*. 2014, 516–517).

TBAS team members collected Iron II and Iron Age sherds at the Busayra Citadel (TBAS Site 135) (MacDonald *et al*. 2004, 278–279).

Tall Busayra

Tall Busayra (TBAS Site 132) is located down the slope, a distance of *c*. 900 m, from the Busayra Citadel. Its major visible feature is a wall, which is *c*. 6.25 m high and is exposed for a distance of *c*. 4.25 m between two recently-constructed buildings. The wall serves a retaining function for them. However, it appears to continue to the south for *c*. 24 m. The site may be a significant one from the Iron Age since it could be related to the Busayra Citadel. Among the material recovered from the site, TBAS team members collected Early Iron II and Iron II sherds (MacDonald *et al*. 2004, 272–274).

As-Sila`

As-Sila` (TBAS Site 134) is located just south of Qal`at at-Tafila (TBAS Site 151) and northwest of the Busayra Citadel. It is an often-visited site (Glueck 1935, 100; 1939, 25–32; Hart 1986c; Lindner 1989; 1992). It is usually approached by a stairway, over 175 m in length, up to an artificially widened gorge and the rock-cut remains of a gate. This gives access to the top of an isolated rock on which there are cisterns and/or caves – some still with plaster in them – rock-cut houses, a possible cultic place, water channels and stone walls. As-Sila`, like Umm al-Biyara, Ba`ja III, Jabal al-Qseir, and as-Sadah (see below), is frequently seen as a place of refuge and associated with both Edomites and Nabataeans. It is often identified with the Sela of the Bible which is said to be the place where the people of Judah threw down 10,000 men of Seir – that is, Edom – to their death (2 Chronicles 25.12) (MacDonald 2000, 192). It is also the location of an impressive Babylonian stela (Dalley and Goguel 1997; Zayadine 1999), which is inscribed high on a cliff face as one begins the climb to the top of the site (see above) (Plate 10). TBAS team members collected Iron II, Iron Age, and Roman (Nabataean) pottery at the site (MacDonald *et al*. 2004, 276–277).

Shammakh to Ayl Archaeological Survey Territory

Relative to the Iron Age, the SAAS segment of the territory of interest is the one that has received the most attention from both surveyors and excavators. To a large extent, this could be due to its closeness to Petra. Among those explorations/surveys and/or excavations that have relevance for the present chapter is the following work: Musil (1907; 1908) travelled extensively throughout the SAAS territory in the late 1800s and early 1900s; Glueck, in his "Explorations in Eastern Palestine", visited the area in both 1934 (1935) and 1937 (1939); Bennett excavated the site of Tawilan from 1968–1970 and in 1982 (Bennett and Bienkowski 1995; Bienkowski 1997); Hart, as part of his "The Edom Survey Project", carried out work in the vast area from at-Tafila in the north to Ras an-Naqab in the south in 1984 and 1985 (Hart and Falkner 1985; Hart 1986a–b); Killick both excavated at the site of Udhruh and carried out survey work in its environs from 1980–1985 (1982; 1983a–b; 1986; 1989); `Amr *et al*. (1998; see also `Amr and al-Moumani 2001), as part of "The Wadi Musa Water Supply and Wastewater Project", surveyed a number of sites and excavated one of them, namely, Khirbat

an-Nawafla/Wadi Musa (`Amr *et al*. 2000); Tolbecq directed "The Jabal ash-Sharah Survey" between 1995 and 1998 (2001; 2013) and concentrated on the Wadi Musa watershed region; Whiting surveyed and excavated in the area between 2004 and 2006 (Whiting 2005; 2007; Whiting *et al*. 2008; 2009); and Smith carried out both survey and excavations in the area in 2006 and 2007 (Smith 2009; Levy *et al*. 2014, 247–249) as part of the "Lowlands to Highlands of Edom Project" (L2HE) (see below).

In addition to the above, a number of other researchers did work in the area relative to specific interests, for example, the Roman road (*Via Nova Traiana*) and fortresses. These will be mentioned later, especially in the chapter on the Romans (and Nabataeans).

Relative to the 108 accessed random squares of the SAAS project, team members collected the following Iron Age ceramics: Iron I in one square; Iron I/II in one; Iron II in 33 (or 30.55%); and Iron Age, without further specification, in nine (or 8.33%). As for ceramic sherds from the 366 sites documented, team members collected: Iron I at eight sites; Iron I/II at five; Early Iron II at one; Iron II at 97 (or 26.50%); and Iron Age, without further specification, at 19 (or 5%). It is clear, from the above, that the Iron Age is well represented in the territory.

Several sites within the SAAS territory have been excavated. They are considered below. However, in addition, SAAS sites 81 and 187 warrant further study and are considered first (Fig. 3.2).

SAAS Site 81

SAAS Site 81 is a traditional-style farming site, possibly an extended-family one, in an area measuring *c*. 32 (N-S) × 27 (E-W) m. It is located in the hills to the southeast of the town of Wadi Musa. The site is now badly damaged, mostly due to bulldozing. As a result, at the time of our visit to the site, there was a great deal of broken pottery in piles from illicit digging and/or bulldozing. From these piles, survey team members collected: Iron I; Iron II; Iron II (Negevite ware); Nabataean; Roman; Byzantine; Byzantine (?); and Late Islamic sherds. Of particular note is a stamp seal impression on a fragment of an Iron I (twelfth–eleventh century BC) pithos jar rim. The site could, therefore, be of significance for early Iron Age presence in the area.

SAAS Site 187

As indicated above, the SAAS project also documented other Iron Age sites within its territory. Among the Iron Age sites in the area that require further investigation on the part of researchers is Site 187 (MacDonald *et al*. 2011, 368). This site measures *c*. 65 (N-S) × 45 (E-W) m. It is located at an elevation of 1605 m on a hilltop in Jabal ash-Sharah, overlooking wheat fields in a valley. The site consists of numerous structures, made from roughly-hewn limestone. However, there is a great deal of tumble within them and it is difficult to determine the structures' orientations. SAAS team members noted two caves and "robber" trenches at the site. They collected Iron I/II, Iron II, Nabataean, Roman and Late Islamic body sherds at the site, which is probably another agricultural village.

Edom Survey Project

Hart, as mentioned previously, carried out survey work in the area between at-Tafila and Ras an-Naqab in the 1980s (Hart and Falkner 1985; Hart 1986a–c; 1987b). In conjunction with this work, he conducted five soundings in the area (Hart 1987a). One of these was at Khirbat Ishra, a site located just to the north of the SAAS territory.

Khirbat Ishra

Khirbat Ishra is a small fortress (*c*. 25 square metres) located on a hill. It guards `Ayn Shammakh (SAAS Site 299) and an access route to Wadi `Arabah to the west. From his work at the site, Hart concludes that the visible remains are mostly Nabataean but the foundation is Edomite. He thinks that the Iron Age fortress was abandoned in the sixth or fifth century BC. His termination date for the fortress is based on his belief that "Edomite pottery cannot be said to date after the fifth century BC" (Hart 1987a, 45).

Lowlands to Highlands of Edom Project (L2HE)

While excavating the copper mining site of Khirbat an-Nahas in Wadi Fidan (see below), archaeologists from the University of California at San Diego and the Department of Antiquities of Jordan wished to compare the dating sequence of this lowland site, obtained with high precision radiocarbon dating methods, with sites on the plateau to the east. Thus, after the 2002 excavation season they established the "Lowlands to Highlands of Edom Project" (L2HE) to fulfill this objective. The purpose was to carry out survey work between Dana and ash-Shawbak and to excavate sites on the plateau.

The L2HE project carried out a purposive reconnaissance survey of the area in 2006. The intent of the survey was to relocate sites that had been identified during previous surveys – in this particular case by Glueck (1934; 1935), Hart (1987b; 1989; Hart and Falkner 1985) and Findlater (2000) – and re-survey them in order to determine their specific dates. The intention was also to select significant sites, from among those surveyed, for excavation.

L2HE identified 48 sites. Seventeen of them contained Iron Age ceramics as a dominant or as a component part of the overall collection. Nine of these 17 sites yielded high concentrations of Iron Age pottery with little representation from other periods (Levy *et al*. 2014, 253–255).

The L2HE project chose three highland sites for excavation in 2007 (Levy *et al*. 2014, 248–249). These sites were Khirbat al-Malayqtah, Khirbat al-Kur and Khirbat al-Iraq Shamliya. In addition, the project chose Tawilan, a significant and previously-excavated site to the south of their survey territory, for re-excavation. However, the sites which the L2HE project chose to excavate are not located between Dana

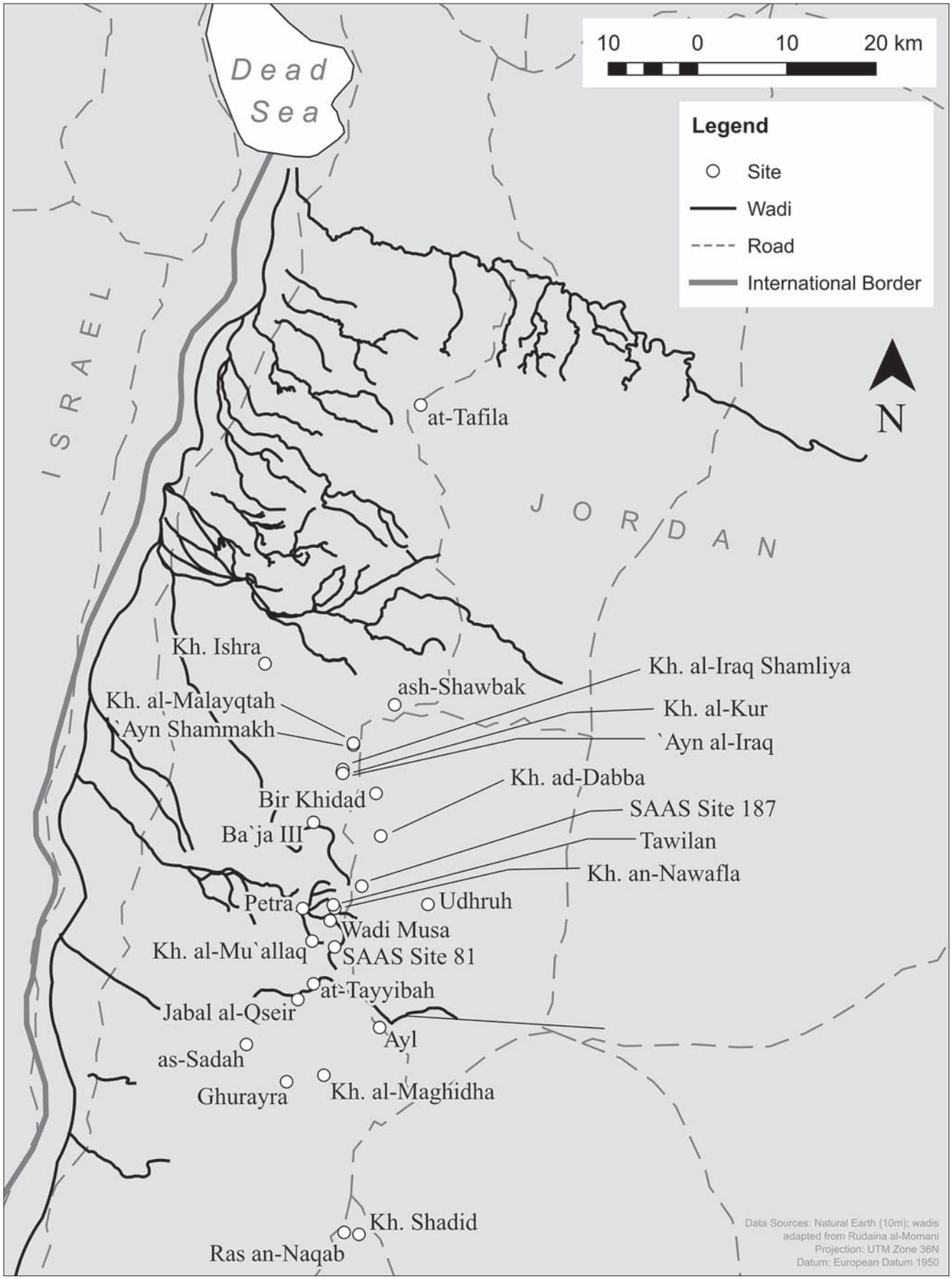

Fig. 3.2: Map of Iron Age sites and places mentioned in this chapter located within and nearby the SAAS and ARNAS territories and the Petra region.

and ash-Shawbak. All are located south of ash-Shawbak. In addition, Tawilan, which the project chose to re-excavate, is also located south of ash-Shawbak. All these sites, with the exception of Khirbat al-Malayqtah, are located within the SAAS territory. However, the L2HE project was interested mainly in the Iron Age-period sites while the SAAS project had an interest in all sites within its territory.

According to Levy *et al*. (2014, 290), these new excavations provide important data for helping to test social evolutionary models concerning the formation of what the Biblical sources refer to as the Iron Age kingdom of Edom.

The four above-mentioned sites are considered here:

Tawilan

Glueck (1935, 74, 83) surveyed Tawilan (SAAS Site 359) in 1933; Bennett (Bennett and Bienkowski 1995; Bienkowski 1997) excavated it from 1968–1970 and in 1982; `Amr and al-Moumani (2001, 264) re-surveyed it in 1998; Smith re-excavated it in 2007 (Smith 2009, 307–313; Levy *et al*. 2014, 277–284); and SAAS team members re-surveyed it as Site 359 in 2011 (MacDonald *et al*. 2011, 371).

Glueck determined that Tawilan was a very important Edomite site. He dated it to the Iron I–II period and, on the basis of Amos 1.2, identified the site with biblical Teman; the latter turned out to be incorrect (1935, 83). Bennett's excavation, and Bienkowski's publication of her work, determined that Tawilan "was a permanently occupied unfortified agropastoral settlement in the late Iron II/Persian period, almost exclusively concerned with food production and domestic activities" (Bennett and Bienkowski 1995, 105). Their work dated the site "within the period extending from the earlier 7th century BC, possibly as late as the 4th century BC" (Bennett and Bienkowski 1995, 103).

Levy *et al*. (2014, 284) confirmed, to a large extent, what Bennett and Bienkowski had concluded relative to the site, a village of 0.9 ha. One exception, however, is the dating that they propose for the site.

Levy *et al*. submitted two radiocarbon samples from Tawilan for Accelerator Mass Spectrometry (AMS) radiocarbon dating. One sample, collected from Area K, failed to yield significant results. The other sample was taken from Area J, from below a crudely plastered floor. At 95.40% probability, it shows that the basal occupation floor at Tawilan dates to 890–785 BC and spans the ninth to early eighth century BC. However, Levy *et al*. express caution relative to this date:

> This is the only example on the plateau where the possibility of a late ninth-century BCE occupation can be entertained. Taking into consideration that this is only one sample and that the calibration curves are not as precise after the ninth-century BCE … additional radiocarbon dates are needed from Tawilan and the highland sites to better clarify the absolute Iron Age setting of the highlands in Edom (2014, 285).

`Amr *et al*., in their work at Khirbat an-Nawafla (SAAS Site 358), which merges with Tawilan to the north, posit that the earliest remains at Tawilan date to the Iron II (Edomite) period. These remains consist of pits as well as terrace and division walls (`Amr *et al*. 2000, 231–233).

SAAS team members collected Iron II and Late Islamic sherds at Tawilan (SAAS Site 359). Among the sherds was one so-called "Edomite-painted ware"/"Busayra-painted ware" (MacDonald *et al*. 2004, 58). However, Smith and Levy's recent ware and morphological analysis of Iron Age ceramics for the region of Edom has provided evidence that this pottery was locally produced in both the highlands and lowlands of Edom rather than imported from Busayra. Thus, the new data and analysis show that these painted wares were produced throughout Edom and represent a shared cultural tradition (Levy *et al*. 2014, 451).

Khirbat al-Kur/Khirbat al-Iraq Junubiya

Khirbat al-Kur, which both Findlater (2000) and Hart and Falkner (1985, 270) surveyed, is situated on a small hill on a spur of the steppe zone. It has an excellent nearby water source, `Ayn al-Iraq (SAAS Site 217). The name Khirbat al-Iraq Junubiya, which the excavators used initially, was changed, after excavations and after discussion with the local villagers, to Khirbat al-Kur. The villagers suggested this was the more common name.

Smith *et al*. investigated a "Pithos Storage Room" (with a nearby plastered pit), a "Storage Room", and a "Main Room" of the site. On the basis of a radiocarbon-dated lentil seed, taken from the floor of what is interpreted as a storage room, the excavators date Khirbat al-Kur to 799–545 BC at 95.40% probability. Thus, the calibrated AMS date indicates that Khirbat al-Kur belongs to the Late Iron Age II sequence (*c*. eighth–sixth centuries BC). Due to the fluctuations in the calibration curve, a more precise dating cannot be achieved (Levy *et al*. 2014, 268; Smith 2009).

Iron I/II and Iron II were among the ceramics that SAAS team members collected at Khirbat al-Kur/Khirbat al-Iraq Junubiya, SAAS Site 274 (MacDonald *et al*. 2011, 369).

Khirbat al-Iraq Shamliya

Khirbat al-Iraq Shamliya (Glueck 1935, 88; Hart and Falkner 1985, 270; Findlater 2000; Smith 2009, 302–307; Levy *et al*. 2014, 268) is *c*. 1410 m above sea level. It was clearly connected with the nearby site of Khirbat al-Kur (*c*. 0.50 km to the southwest). It is located within a kilometer of the modern village of Hawwali. The site is north of a large limestone outcrop and occupies the highest area of an extensive modern agricultural field. The well-preserved surface architectural features at this site were still there due to the difficulty of bulldozing them. A small building belonging to the local villagers from Hawwali was built using the Iron Age building materials to the south of the area that was sounded for this project. It is clear that the foundation stones for this building come from the Iron Age occupation of the site.

Levy *et al*. (2014, 269) targeted the excavation of three rooms at Khirbat al-Iraq Shamliya: Eastern Room (1); Middle/Central Room (2); and Western Room (3). The rooms were identified by wall lines on the site's surface.

Of the four sites that the "Lowlands to Highlands of Edom Project" excavated, this site proved to be the best preserved; each room contained plaster floors accompanied with numerous complete vessels, including large reconstructable kraters, cooking pots, and storage jars.

A seed from a cache of lentil seeds found on the floor of Room 2 at Khirbat al-Iraq Shamliya was submitted for AMS dating at the Oxford Radiocarbon Accelerator Lab. Unfortunately, due to the small size of the lentil and possible contamination, the radiocarbon yield was too low and the AMS dating failed. However, Khirbat al-Iraq Shamliya's ceramic assemblage is near identical to the other sites in the steppe and highlands that yielded successful radiocarbon dates. Therefore, there is no evidence to suggest that Khirbat al-Iraq Shamliya should be dated differently than the other steppe sites. The site should thus be considered as belonging to the Late Iron Age II sequence (Levy *et al*. 2014, 274).

SAAS team members collected Iron II and Late Islamic sherds from Khirbat al-Iraq Shamliya, SAAS Site 275.

Khirbat al-Malayqtah

Khirbat al-Malayqtah (Levy *et al*. 2014, 257–262) is located on a spur at *c*. 1150 m asl. It is 200 m north of `Ayn Shammakh (Hart and Falkner 1985, 270; MacDonald *et al*. 2011, 370). As part of the ash-Sharah mountain system, the soils support an Irano-Turanian vegetation and are ideal for terraced farming. A modern dirt road splits through the middle of the site.

The excavators opened two probes at the site. The first, Area A, is located on the western side of the road, directly on the edge of the spur. The second, Area B, was located on the top of a small hill to the east of the road. It was opened to investigate the function and purpose of the upper hill, which appeared to also date to the Iron Age and preserved a large perimeter wall running along the uppermost contour.

Two radiocarbon samples were taken from a collection of olive pits found on the floor of Area A. Both results were found highly consistent. They reveal that this floor can be dated to the Late Iron Age II sequence, that is, from 810–578 BC and 820–612 BC. The dates are, thus, centred in the eighth to sixth centuries BC. A third radiocarbon sample was collected from a cache of olive pits at Area B. The dates are from 776–511 BC and are also situated in the eighth through the sixth centuries BC. Taken together, there is little doubt that the site was occupied during the eighth–sixth centuries BC. Based on the study of the ceramics, Khirbat al-Malayqtah should be viewed as a small village settlement, contemporary with the period of occupation at the other sites, for example, Tawilan and Busayra (Levy *et al*. 2014, 263).

As mentioned previously, in addition to their excavations of the above-discussed four sites, the L2HE project carried out a purposive reconnaissance survey in the ash-Shawbak and Dana region. Levy *et al*. summarize their findings:

> The Iron Age settlement pattern data for Shawbak and Dana reflects small pockets of villages and hamlets primarily located along traversable routes and near natural springs near the edge of the highland plateau…. The absence of any town or large village of significant size with satellite sites suggests that the inhabitants continued to live in fairly autonomous settings… (2014, 256).

The South Jordan Iron Age II Survey and Excavation Project (SJIAP)

Whiting *et al*. (2008; 2009) carried out "The South Jordan Iron Age II Survey and Excavation Project" (SJIAP) between 2004 and 2006 around the Iron Age site of Khirbat ad-Dabba. The SJIAP covered an area of 400 square kilometres located between ash-Shawbak and Wadi Musa, focusing on the area between Bir Khidad and Udhruh. Although the focus of the project was on the Iron Age, the survey recorded the remains of all periods encountered. The project, thus, had a twofold emphasis: 1) the excavation of Khirbat ad-Dabba; and 2) the surface survey of the area surrounding the site (Whiting *et al*. 2009, 275).

The excavations at Khirbat ad-Dabba (Whiting 2005; Whiting *et al*. 2008) revealed that the site consists of a series of occupation phases dated to the Iron Age. Whiting *et al*., on ceramic evidence, date the site to the seventh and sixth centuries BC (2008, 276). This is a little later than the eighth to sixth centuries BC dating that Levy *et al*. (2014) obtained, using radiocarbon dating technology, for Khirbat al-Malayqtah and Khirbat al-Kur (see above).

Whiting *et al*. summarize the findings from the surface survey: "A number of large Iron Age sites were found, in addition to various well-preserved classical and mediaeval sites, substantial pottery scatters dating to the Chalcolithic/Early Bronze Age, and lithic scatters dated to the Palaeolithic and Neolithic periods" (2009, 293).

More specifically, on the Iron Age sites of the SJIAP, Whiting *et al*. (2009, 280) report that they found several sites from the period off the edge of the plateau, many of which were located on the top of small spurs with steep slopes on their south, west, and north sides. These sites consisted of clusters of rectilinear structures, sometimes associated with threshing floors and wall lines. SJIAP team members also located Iron Age sites in the desert zone of the survey area as well as on the plateau. The latter of these ranged widely in layout, hinting at a wide variety of functions.

The SAAS project documented Khirbat ad-Dabba as SAAS Site 209 (MacDonald *et al*. 2011, 368). Team members describe the site as covering an area of *c*. 150 (N-S) × 200 (E-W) m and consisting of the remnants of multiple rectilinear structures, many of which are now filled with tumble. The structures are made from roughly-hewn limestone and chert. There are many depressions within them. Some of the structures' exterior walls still stand *c*. 1 m high. Whiting's excavations at the site are especially clear on the site's northwest side where there is backfill and a dense scatter of sherds. A large courtyard (?) on the west side of the site appears to have been the location of a cistern. To its north, there is evidence of what appears to have been an area to pen animals. This site is another agricultural village. SAAS team members collected Iron II sherds at the site.

The Petra Region

The region of Petra is to the west, just outside the SAAS territory. Nevertheless, it is within the scope of this publication. Since a number of sites of significance have been excavated and/or surveyed in the region, attention must now be turned to them.

Umm al-Biyara

Bennett excavated Umm al-Biyara ("Mother of Cisterns") in 1960, 1963 and 1965 (Plate 11). The site, which is a multi-period one (see below), is located on a high mountain, at an elevation of 1158 m, overlooking the centre of Petra from the west. The Iron Age settlement, which is located near the central part of the summit, is a one-phase site with only limited rebuilding in a later phase (Bienkowski 2011, 138). Its excavation revealed a complex made up of long corridor-like rooms interspersed with small square rooms. These rooms lie on a roughly north-south axis (Plate 12). They could have been used as storage areas for grain. In addition, the presence of quern stones, spindle whorls and loom weights indicate domestic activity at the site.

Umm al-Biyara is a natural stronghold, difficult to access, unsuitable for agriculture and with no source of water at its summit. The land surrounding the mountain, however, is suitable for agriculture, grazing, viticulture and horticulture.

The broad date of occupation at the site is based on several factors: 1) the inscribed bulla of Qos-Gabr, dated to the first three-quarters of the seventh century BC (Plate 13); 2) the style and symbolism of the Neo-Babylonian bulla, a provincial imitation of a sixth century BC Neo-Babylonian seal; 3) the palaeography of the ostracon, which dates to the seventh century BC; and 4) the pottery, which has parallels from Transjordan and Palestine dating to the late Iron II, the seventh and sixth centuries BC. There is nothing at Umm al-Biyara to indicate a later date for the site into the Persian and Hellenistic periods. Thus, the site is dated to the seventh and sixth centuries BC (Bienkowski 2011, 139).

Relative to the site, Bienkowski concludes:

> … it is likely that Umm al-Biyara was inhabited by a discrete kin group or tribe which engaged in a mixed economy largely involving pastoralism, small-scale horticulture (e.g. olives) and exchange, perhaps some trade. The animal remains point to a meat diet of goat, sheep, horse, cattle, birds (and possibly fish); other animal-based products would have been milk and hides (2011, 140).

Naturhistorische Gesselschaft Nürnberg (NHG)

A "Natural History Museum of Nürnberg" (NHG) team, under the directorship of Lindner, surveyed and excavated in the Petra area for decades. The team reported a large number of Iron Age II sites, many of which Lindner *et al*. describe as Edomite fortresses. The sites are: Ba`ja III; as-Sadah/Umm al-`Ala; and Jabal al-Qseir. Another site that the team documented and excavated is Khirbat al-Mu`allaq. It is within the SAAS territory. However, due to the fact that the NHG team excavated it, it will be considered here.

The NHG team describe Khirbat al-Mu`allaq as another Edomite fortress. Such may be a fitting characterization of the sites. However, it is not a place of refuge in the same way as the other three, previously-mentioned sites are. It will be considered first. Then the other sites will be treated.

Khirbat al-Mu`allaq/Kh. al-Müallaq/Kh. `Ashaish

Musil (II: 1, 1907, 283), Glueck (1935, 79), `Amr *et al*. (1998, 532–533), and the SAAS project surveyed Khirbat al-Mu`allaq/Kh. al-Müallaq/Kh. `Ashaish (MacDonald *et al*. 2010, 337). The site, located south of Wadi Musa, to the north of the Panorama Hotel, and to the west of the main road between Wadi Musa and at-Tayyibah, is a very large agricultural village. It consists of many structures, the walls of some of which still stand to a height of over 1 m. A hotel was being built adjacent to the site at the time of our visit in 2010. As a result, a great deal of the site was being destroyed by bulldozing. A NHG team excavated segments of it from 1991 to 1995 and described the site, as indicated above, as an Iron II Edomite fortress and a Late Islamic village (Lindner *et al*. 1996a). Iron II sherds were among those that SAAS team members collected at it.

Ba`ja III

The NHG team documented the site, Ba`ja III, on Jabal Ba`ja and explored it in the 1980s. They describe the site as "an ancient mountain stronghold which could not have existed for a short duration only" (Lindner and Farajat 1987, 175). The site is located on an ancient route between Petra and Wadi Faynan. It is almost inaccessible and consists of the remnants of walls which may have been houses, reservoirs, and/or animal pens. The NHG team also noted several cisterns, some with plaster, at the site. One of them was chosen for investigation. The team dates the Edomite pottery at the site to the Iron Age, eighth and seventh centuries BC. In conclusion, the explorers state: "With the 'gardens' NE of the summit going down half of the height of the mountain, and with the newly found cisterns, it surely was possible to stay in Ba`ja III for longer periods or to have the mountain stronghold as a kind of 'acropolis' with the settlement proper down in the plains" (Lindner and Farajat 1987, 185). Bienert *et al*. (2000, 122–133) carried out further investigation of Ba`ja III in the late 1990s. They concluded that it is probably a single period of occupation and date it most probably to the Late Iron Age. On the basis of the collected ceramics they think that the most important activities carried out within the "mountain stronghold" had to do with storage, food preparation and the handling of liquids (Bienert *et al*. 2000, 133).

As-Sadah/Umm al-`Ala

Another site which the NHG team describe as an Iron II (Edomite) stronghold is as-Sadah (Lindner *et al*. 1990, 204; see also Lindner *et al*. 1988). The site, which is located *c*. 15 km south-southwest of Petra, is multi-period. However, the interest here is in its Iron Age remains. The Iron Age remains are located on the Umm al-`Ala Plateau and there is evidence that walls, now collapsed, served as defence structures at all its accesses. In addition, rock shelters, as well as a "tower", overlooked these accesses (Lindner *et al*. 1990, 204). The Iron Age pottery collected at the site is similar to that excavated at Umm al-Biyara, Tawilan and Busayra (Lindner *et al*. 1990, 208).

Jabal al-Qseir

This site is located on the Edomite Plateau, 2.5 km southwest of at-Tayyibah. It was discovered in 1992 and, after arduous climbs to the top of the mountain, the NHG team surveyed and sounded it in 1993. Lindner *et al*. (1996b) describe the site as a "fortified Iron II (Edomite) mountain stronghold" and refer to it as the Edomites' "eagle nest" (see the biblical Book of Obadiah v. 4: "Though you soar aloft like the eagle, though your nest is set among the stars, from there I will bring you down, says the LORD" [*New Revised Standard Version Bible*, © 1989]. The team thinks that the site was planned and executed as a stronghold from the beginning (Lindner *et al*. 1996b, 152).

Edomite Strongholds – Places of Refuge

Lindner *et al*. regard the above-described Edomite mountain strongholds as refuges dating to the very end of the Edomite history, when hostile Arab tribes flooded the plateau and dispossessed its former inhabitants. They contrast them with the man-made (and Assyrian influenced) fortresses like Busayra and Ghurayra (see below) on the plateau. They regard these natural fortresses as testimony:

> in all their inconveniences, to that proud strive for independence which is characteristic of tribalism, in this case opposed to the new (and Assyrian induced) Edomite state. It is by no means impossible that each settlement formed the 'citadel' of an individual clan or tribe who constantly fought all its immediate and some of its more distant neighbours, if not prevented from doing so by some 'colonial occupation force'… (Lindner *et al*. 1996b, 162).

Or, in the words of Knauf:

> The peculiar installations discovered by Manfred Lindner and his team of NHG find their explanation in the dichotomy of state and tribes, in the dichotomy of farmers and herders, in the opposition of fertility and security (operative not only on the Edomite plateau) and finally, in the demands of the world economy on the marginal country of Edom which both fed and integrated the various dichotomies identified on the local level (Lindner *et al*. 1996b, 163).

The Ayl to Ras an-Naqab Archaeological Survey Territory

ARNAS team members transected all or parts of 140 random squares. They collected Iron II sherds from: three squares in topographical Zone 1; nine squares in Zone 2; and five squares in Zone 3. This means that team members collected Iron II-period sherds from 12.14% of the random squares. In addition, they collected Iron Age sherds, without further specification, from six random squares in Zone 3 (MacDonald *et al*. 2012, 419–420).

Of the 389 ARNAS sites documented, survey team members collected: Iron I sherds from seven sites; Iron II sherds from 111 sites (or 28.53% of them); Iron I/II sherds from two sites; and Iron Age sherds, without further specification, from nine sites. Thus, survey team members collected sherds from sometime within the Iron Age at one third of the sites documented (MacDonald *et al*. 2012, 421).

The majority of the Iron Age II sites are located in Zone 2, that is, the best agricultural land in the ARNAS territory. Moreover, the seven Iron Age I sites, the two Iron Age I/II sites, and seven of the nine Iron Age sites are also located in Zone 2. In addition, it should be noted that many of the sites from the Iron Age II period that are found in Zones 1 and 3 are found in close proximity to Zone 2 (MacDonald 2012, 421).

Hart, as mentioned previously, carried out the "Edom Survey Project" in the area between at-Tafila and Ras an-Naqab in the 1980s. In conjunction with this work, he conducted five soundings in the area. I have previously treated Khirbat Ishra, one of his excavated sites. Here I will treat two more of these sites, namely, Khirbat al-Maghidha/Khirbat al-Megheitah and Ghurayra. Both are predominantly Iron Age II sites and are within the ARNAS territory.

Khirbat al-Maghidha/Khirbat al-Megheitah

Hart excavated Khirbat al-Maghidha/Khirbat al-Megheitah (ARNAS Site 19) in 1985 (1987a, 38–42). The site is located in a wheat-growing area to the south of the village of Ayl. It is severely disturbed, probably because of plowing and terracing. Hart posits that it may have been a "farming hamlet" (1987a, 41). Both surface and subsurface walls are visible, especially at the site's northern edge. Hart states, "all excavated material was standard Edomite Iron Age and, despite a thin scattering of Nabataean surface material, it seems probably that the only major period of use was in the 7th–5th centuries BC" (1987b, 289).

Iron II-period sherds were among those that ARNAS team members collected at the site (MacDonald *et al*. 2012, 46).

Ghurayra

Hart also excavated Ghurayra (ARNAS Site 307) in 1985. He describes the site as probably military in character. He bases his position on the fact that the site "is situated at the head of an important access route to the Wadi `Arabah on top of an easily defended hill. Strong defensive walls (probably)

surrounded it and it has a defended gateway" (1987a, 38). He posits that his position on the nature of the site is supported by the storage jars and other pottery that he excavated in the central building of the site. Hart dates the site to the late Iron Age, seventh–sixth centuries BC. ARNAS team members collected Iron II, Roman, Byzantine, and Late Islamic sherds at the site (MacDonald *et al*. 2012, 284–285).

The large number of Iron II-period sites within and close by the ARNAS territory is probably due to the metallurgy industry in the lowlands to the west and the spice trade, which passed on routes north–south and east–west through it. Many of these sites would have provided provisions for both enterprises.

The Southern Ghors and Northeast `Arabah Archaeological Survey Territory

Iron Age presence is found in the Dead Sea Rift Valley in the Southern Ghors, the Northeast `Arabah, and Wadis Fidan and Faynan. As will be pointed out below, this could be due to a large extent to the metallurgy industry in the area.

SGNAS team members collected sherds from the Iron Age as follows: Iron IA from ten sites; Iron IC from two sites; Iron I–II from three sites; Iron II, without further specification, from 26 sites; Iron IIA from two sites; Iron IIB from one site; Iron IIC from one site; and Iron Age sherds, without further specification, from 26 sites (MacDonald *et al*. 1992, 73–81). Many of these sites have Iron Age pottery from several divisions within the period.

Those sites that have been excavated will be emphasized. The presentation of sites will be geographical, that is, I will begin with those located in the Southern Ghors and then the ones in Wadi Fidan. After this, I will deal with Iron Age presence in Wadi Faynan and southward (Fig. 3.3).

Rujm Umm Jufna

SGNAS Sites 69 and 73 (Rujm Umm Jufna) have not been excavated (MacDonald *et al*. 1992, 256). However, they ought to be considered as tower/monitoring sites in the Southern Ghors. Both are associated with Wadi Umm Jufna which is located to the north of Wadi Fifa. As indicated, both are also tower-like structures overlooking the Southern Ghors from its eastern slopes. They are clearly visible from Sites 75 (Fifa) and 108 (Rujm Khuneizir). Iron Age pottery, especially from the Iron II period, is dominant at Sites 69 and 73.

Fifa

SGNAS Site 75, the western segment of ancient Fifa, has been treated previously in relation to the Early Bronze presence in the SGNAS territory. Of interest here is the fact that SGNAS team members, as well as Rast and Schaub (1974, 11–12), collected Iron Age sherds at the site (MacDonald *et al*. 1992, 256). Rast and Schaub carried out limited excavations "on the tell during 1989–90" (2003, 4). In the opinion of SGNAS team members, the site could very well be an Iron Age II tower.

Rujm Khuneizir

Rujm Khuneizir (SGNAS Site 108), to the south of Wadi Fifa, has been treated in a previous chapter as the location of an Early Bronze IV cemetery. It is situated on a high hill overlooking the Southern Ghors and is clearly visible from Site 75. Survey team members collected Iron IA, Iron II, and Iron Age sherds from it (MacDonald *et al*. 1992, 260). A tower-like structure, which could very well be dated to the Iron Age, dominates the site.

All of the four, above-described sites could have served a monitoring function. Not only do they overlook the Southern Ghors but they are also positioned along wadis that provided access to the highlands to the east as well as the territory, by routes south of the Dead Sea, to the west (MacDonald 2006, 84–85). All warrant further investigation.

Tuleilat Qasr Musa Hamid

In 1991, Politis documented the Iron Age II site of Tuleilat Qasr Musa Hamid, a low-lying archaeological mound. The site is located in the Southern Ghors, *c*. 2 km due west of as-Safi, (MacDonald *et al*. 1992, 249). Politis posits, on the basis of the artefacts at the site, that it was occupied by an agricultural community. He thinks that it could have possibly been the Hebrew Scripture/Old Testament site of Zoar, one of the cities of the Plain (Genesis 13–19) (Politis 1999).

Wadis Fidan and Faynan Region and Metallurgical Activity

SGNAS team members documented a number of Iron Age sites in Wadi Fidan (MacDonald *et al*. 1992, 73–81). Recently, a great deal of archaeological work has been carried on these and other Iron Age sites in it and the neighbouring Wadi Faynan region. This has to do, to a large extent, with the copper mining and smelting in the area.

German Mining Museum

A team from the German Mining Museum at Bochum, under the directorship of Hauptmann (2000; 2007), carried out field research on the remains of early copper metallurgy in the area of Wadis Fidan and Faynan between 1983 and 1993. In cooperation with the Department of Antiquities of Jordan, the team excavated an Early Bronze Age smelting site along with Tall Wadi Faynan in 1988. In 1990 the team carried out excavations at the Early Bronze Age settlement area of Barqa al-Hatiya (see chapter on the "The Bronze Age") and at Khirbat an-Nahas in Wadi Fidan. Over the years, the team's work encompassed almost all the mining and smelting sites of both Wadis Fidan and Faynan (Hauptmann 2007, 86, fig. 5.1) as well as in Wadis al-Abiad, Khalid, and Dana (Hauptmann 2007, 91). One of the outcomes of the work was the discovery of over 50 sites and areas directly related to mining and metal production. As a result of the work, Hautpmann and his colleagues concluded that "the ^{14}C-dates of charcoal coming from the slag heaps, waste dumps and actual settlement layers, as well as the general archaeological

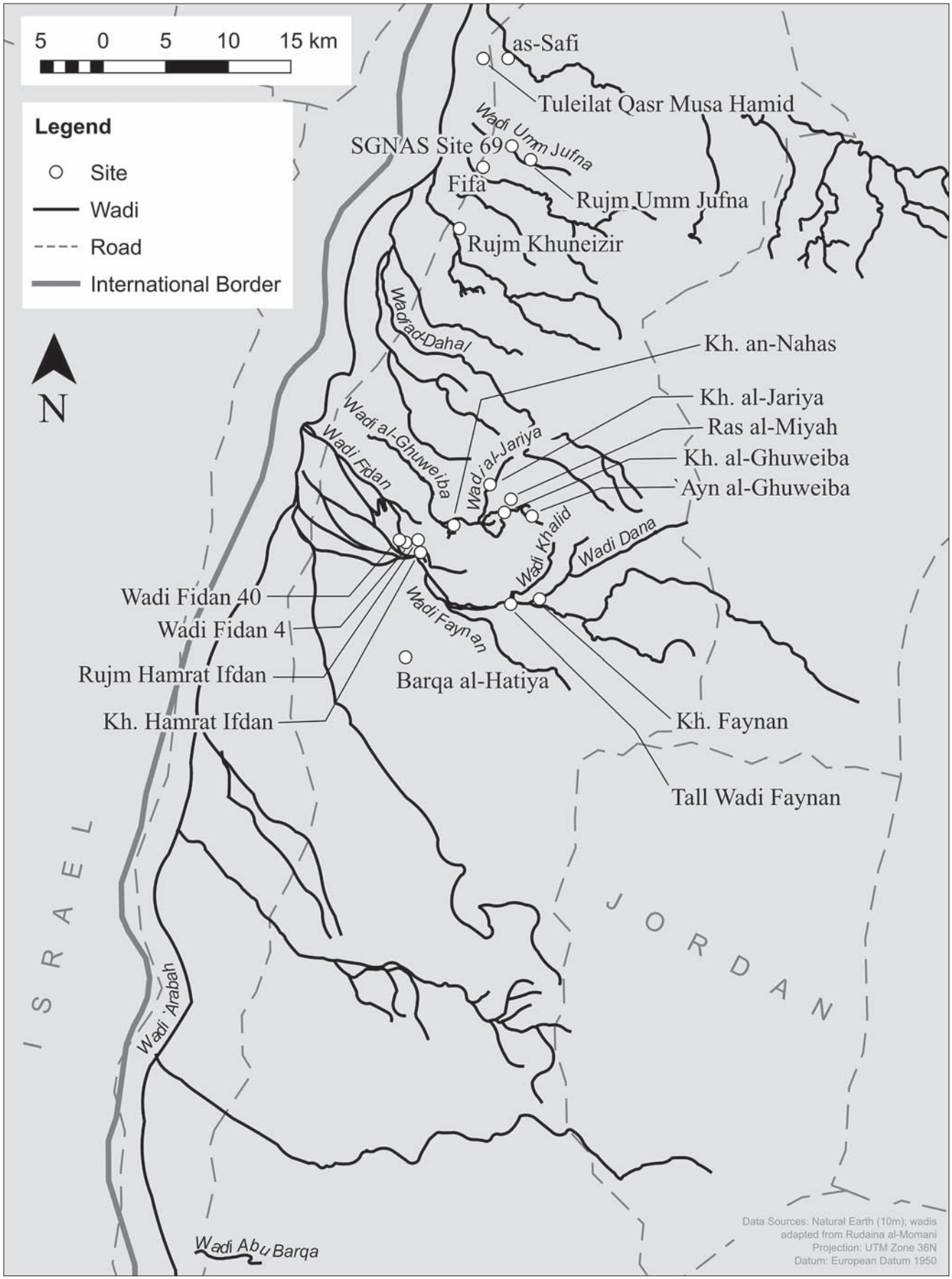

Fig. 3.3: Map of Iron Age sites and places mentioned in this chapter located within the SGNAS territory and the Faynan region.

analysis, demonstrate that the deposits have been exploited for some 9,000 years" (Hauptmann 2007, 145).

As just mentioned, among the areas that Hauptmann and his colleagues investigated was Wadi Faynan and vicinity. The central point of the area is Khirbat Faynan, which represents the remnants of Early Bronze III (see previous chapter) and Byzantine presence (see Ch. 6 – "The Byzantine Period"). Numerous slag heaps are spread over the fields and countryside to the west of the site. In Hauptmann's opinion, "around the region of Khirbat Faynan is the most substantial collection of smelting sites in the entire `Arabah…" (2007, 94).

The Edom Lowlands Regional Archaeology Project (ELRAP)

The work of the "Lowlands to Highlands of Edom" (L2HE) project has been detailed above relative to Iron Age presence on the Transjordan/Edomite Plateau. Now, attention must be turned to a related and chronologically-earlier project, that is, the Edom Lowlands Regional Archaeology Project (ELRAP) which began its work in 1997 under the directorship of Levy and Najjar, from the University of California, San Diego and the Department of Antiquities of Jordan respectively (Levy *et al*. 2014, 1). In 1999 and 2000, Levy and Najjar, following up on the work of the German Mining Museum, excavated the copper-working settlement of Khirbat Hamrat Ifdan (see previous chapter), located in Wadi Fidan, where the largest metal workshop of the Near East was discovered. Subsequently, ELRAP surveyed and excavated throughout the region with emphasis on the Iron Age remains (Levy *et al*. 2014). One of the most important sites they excavated, from 2002–2012, was Khirbat an-Nahas, also located in Wadi Fidan. It is only possible here to give the abstract of the work at the site and its results (for a full list of sites surveyed and/or excavated, with bibliography, see Levy *et al*. 2014, 1–87).

Khirbat an-Nahas

Khirbat an-Nahas (KEN) is *c*. 10 ha in area and contains over 100 buildings, the remnants of which are visible on the surface (Plate 14). It is the largest Iron Age copper smelting site in the southern Levant. Levy *et al*. state:

> the excavations were carried out in the four-chamber gatehouse linked to the fortress compound,… a building located inside the fortress devoted to re-smelting and casting of copper metal,… two large-scale buildings that may reflect elite residences at the site,… a building devoted to the storage of ground stone processing equipment,… deep soundings through one of the site's many industrial slag mounds (Area M) and a residential/storage complex (Levy *et al*. 2014, 89).

As a result of the work, and based on 108 radiocarbon dates, Levy *et al*. concluded that "with the exception of metal production layers located at the base of the deep sounding in Area M above virgin soil that dates to the thirteenth to eleventh centuries BCE, the majority of the excavation areas at KEN date to the 10th and 9th c. BCE." (2014, 89). The dates confirm earlier ones that Hauptmann gave for the site (2007, 128–129).

Khirbat an-Nahas is SGNAS Site 159 (MacDonald *et al*. 1992, 266). SGNAS team members collected Iron IA; Iron IC; Iron I–II; Iron IIA, B, and C; Iron II; Iron Age; and Negevite ware at the site (MacDonald *et al*. 1992, 266).

The copper mines supplying the smelting site of Khirbat an-Nahas were in the immediate vicinity. Specifically, they were located in valleys southwest and southeast of it (Hauptmann 2007, 128).

Khirbat Hamrat Ifdan

Khirbat Hamrat Ifdan is a predominantly Early Bronze II–IV site (see previous chapter). Levy *et al*. (2014) excavated a slag mound at the eastern part of the site in 2007 and dated it to the twelfth–eleventh centuries BC and, thus, probably contemporaneous with the main production period at Khirbat an-Nahas (Levy *et al*. 2014, 850–856).

Khirbat Hamrat Ifdan is SGNAS Site 30 (MacDonald *et al*. 1992, 252). SGNAS team members collected sherds from multiple periods at the site. Among these were sherds from the Iron II period.

Rujm Hamrat Ifdan

Rujm Hamrat Ifdan, Glueck's Khirbat Hamrat Ifdan (1935; 1940), is located at the confluence of Wadi Fidan with a secondary drainage known as Umm adh-Dhuhur. ELRAP excavated two 5 × 5 m soundings: 1) where Glueck identified the foundation of a small watchtower; and 2) in an area adjacent to a large wall enclosure at the base of the site. The radiocarbon dates are important because it is the only site in both the lowlands and the highlands where evidence of both Iron Age I (tenth century BC) and Iron Age II (seventh–sixth centuries BC) occupation has been documented. There was a rich ceramic assemblage at the site representing these two periods (Levy *et al*. 2014, 723–739).

Among the ceramics that SGNAS team members collected at Rujm Hamrat Ifdan, SGNAS Site 29, were Iron IIA, Iron II, and "Negevite ware" (MacDonald *et al*. 1992, 252).

Wadi Fidan 40

Wadi Fidan 40, SGNAS Site 14 (MacDonald *et al*. 1992, 250–251), is a large Iron Age cemetery site overlooking Wadi Fidan from the north, where it enters Wadi `Arabah. The site extends over an area of 3450 square metres. ELRAP excavated the site extensively. The project team excavated a total of 287 tombs and graves at the site. The typical tomb consists primarily of subsurface cists lined with sandstone or cobble slabs accompanied by a circular stone-lined installation at the surface. Radiocarbon dating indicates that most of the tombs date to the tenth century BC. Toxic metal studies of the human remains in the graves suggest that the buried had participated in smelting activities during the Iron Age. The cemetery's remains are the best data available linking a local population to the mining and metallurgy

activities carried out in Faynan during the Iron Age (Levy *et al*. 2014, 677–710).

Wadi Fidan 4

Wadi Fidan 4, SGNAS Sites 10 and 20 (MacDonald *et al*. 1992, 251), is an Early Bronze Age village and metal-working site, located on the south bank of Wadi Fidan across from Wadi Fidan 40. As such, it was treated in the chapter on the Early–Late Bronze Age. However, it is also the location of Iron Age tombs. In one tomb, the remains of a total of eight individuals were found with Egyptian amulets and other objects. Levy *et al*. (2014, 673–676) suggest that it is possible that Wadi Fidan 4 was used during a phase of the Iron Age when the main cemetery located at Wadi Fidan 40 was abandoned.

Khirbat al-Jariya

Khirbat al-Jariya is an extensive smelting site on both sides of Wadi al-Jariya. The site has remains of *c*. 15,000–20,000 tons of slag (Hauptmann 2007, 131). ELRAP excavated the site as part of its 2006 field season. Radiocarbon dates indicate that the site was occupied from the late twelfth to the tenth century BC (Levy *et al*. 2014, 798–816).

Khirbat al-Ghuweiba

Khirbat al-Ghuweiba, SGNAS Site 161 (MacDonald *et al*. 1992, 266), consists of an extensive scatter of small fragments of slag on both sides of Wadi al-Ghuweiba and around `Ayn al-Ghuweiba. ELRAP excavated a building and adjacent slag layers at the site, dating the building to the Roman-Nabataean period and the copper-production debris to the Iron Age I–IIA (Levy *et al*. 2014, 840–850).

Ras al-Miyah Complex

The Ras al-Miyah Complex is a dense concentration of Iron Age sites in the upper Wadi Ghuweiba and in the vicinity of the oasis of `Ayn al-Ghuweiba. The complex consists of two Iron Age fortresses, a large smelting site, mine complexes, a cultic site, and other architectural features (Hauptmann 2007, 132). ERLAP excavated the eastern fortress in 2006. The entire area was surveyed. On the basis of ceramics, ERLAP dated the fortresses and mining complexes to the late Iron Age, seventh–sixth centuries BC (Levy *et al*. 2014, 837).

Road Survey between the Faynan District and Busayra

Members of the ELRAP carried out an archaeological road survey in 2007 between the copper ore district of Faynan and the Iron Age administrative centre of Busayra. They recorded three ancient major routes through/along Wadi al-Ghuweiba, Wadi al-Jariya and Wadi ad-Dahal, the main road from Busayra to the `Arabah. TBAS team members surveyed the latter route. The ELRAP team determined that ancient travellers using the above-mentioned routes took advantage of local geological setting to overcome an elevation difference of more than 1000 m between Wadi `Arabah and the plateau. In addition, ELRAP team members learned of Iron Age road construction and found many previously-unknown sites between the Faynan region and the plateau (Levy *et al*. 2014, 493–576).

During the Iron IIB–C period (eighth–sixth centuries BC) of Busayra, the main securely dated sites in Faynan are the fortresses of Ras al-Miyah and the associated mines and small structures. Late Edomite pottery at the Ras al-Miyah support connections with the highlands (Levy *et al*. 2014, 835).

Feeding the Workers at Khirbat an-Nahas

The faunal remains that ELRAP excavators recovered at Khirbat an-Nahas provide insights about the provisioners and consumers of meat products that played an important role in the Iron Age food supply at the site. Sheep/goat was the dominant meat source; in addition, some cattle contributed to the diet. These meat products, along with fish, would have been brought to the site. This diet was supplemented by hunted animals such as gazelle and hare. Thus, it can be concluded that there was an effort to ensure an adequate food supply for both the administrators and the workers throughout the Iron Age. Such would contribute to the maximum level of copper production (Levy *et al*. 2014, 627–663).

Wadi Faynan Landscape Survey

The Wadi Faynan Landscape Survey (WFLS) evidence suggests an extensive exploitation of the farming potential of the region during the Iron Age. For example, as a result of work around Khirbat Faynan, the WFLS team has identified what appears to be a substantial Iron Age settlement and smelting site, dated to before the seventh century BC (Mattingly *et al*. 2007b, 278–279). Moreover, WFLS team members found Iron Age sherds at mine-workings in Wadis Khalid and al-Abiad and at some of the elevated mining sites in the Dana Valley. The mines in the lower courses of Wadis Dana and Khalid did not have associated settlements and seem to have been worked from the main centre at Khirbat Faynan. However, a small Iron Age smelting camp was located in Wadi Dana. Relative to land exploitation, the WFLS found evidence of Iron Age sherds from a number of mining-related and settlement sites, as well as cemeteries, in the Faynan landscape. The project's overall impression was that the Iron Age inhabitants of Wadi Faynan were the first to master fully the art of run-off farming.

The Southeast `Araba Archaeological Survey Territory

"The Southeast `Araba Archaeological Survey" team, under the direction of Smith II, report that the Iron Age is sparsely represented in the territory. Their Site 247, on the alluvial fan northwest of Wadi Abu Barqa, consisting of two rectilinear areas cleared of stone, three circular clearings, and a lithic and sherd scatter, could be a significant Iron II-period site (Parker and Smith II 2014).

Glueck and the Iron Age Occupation of the Southern Transjordan/Edomite Plateau

Glueck carried out work in the territory of Edom, limited mainly to the area between Wadi al-Hasa in the north, Ras an-Naqab in the south, the desert in the east and throughout the length of Wadi `Arabah in the west. As a result of this work, he concluded that "there was a highly developed Edomite civilization, which flourished especially between the thirteenth and eighth centuries BC. From the eighth century on there was a rapid disintegration of the power of Edom" (1935, 138). In keeping with this position, Glueck formed a theory of a system of fortresses which bounded the Edomite territory (1935, 105–106, 112; 1936, 143–145; 1939, 24, 53). He dated these fortresses to the beginning of the thirteenth century BC, when a new agricultural civilization appeared in Edom (1940, 125), or to between the thirteenth and eighth centuries BC (1940, 128, 145–147). This system, according to Glueck, was set up by the thirteenth century BC since it relates to the Exodus of the Israelites through Transjordan (1940, 146).

Glueck later changed his position on the dating of the above-described Edomite fortress system. He stated, "It remains to be demonstrated through excavations how early in the Iron Age they came into existence" (1970, 161). Nevertheless, he held firm on the date of the beginning of the new agricultural civilization belonging to the Edomites, etc. as being "sometime before the end of the Late Bronze Age, well before the beginning of the thirteenth century BC" (1970, 157).

It is evident that Glueck was guided, in his dating of both the beginning of the agricultural civilization in Edom and its border-fortress system, by the traditional biblical dating of his time which placed the Exodus of the Israelites from Egypt in the thirteenth century BC. It appears clear from the most recent archaeological work in southern Jordan, which has been detailed previously in this chapter, that few archaeologists would now agree with Glueck's assessment of settlement in the area. Furthermore, modern biblical scholarship has shown that the Bible is not a history book and, as such, that it cannot be relied upon for historical accuracy.

Despite the above assessment of Glueck's position, a protective/defensive system consisting of both fortresses and watchtowers would have constituted some of the Iron Age-period sites on the plateau, as well as in the Southern Ghors and the Northeast `Arabah. One of these, according to Hart, could have been the previously-described, excavated site of Ghurayra. Another one, also located on the plateau but not as yet excavated, would have been the much more impressive site of Khirbat Shadid/Shdayd (ARNAS Site 131), a massive fort overlooking a large portion of the Hismeh Valley to the south from the Ras an-Naqab escarpment (MacDonald *et al*. 2012, 147–148).

Iron Age and Nabataean Occupation of Southern Jordan – A Question of Continuity

As a follow-up to his "Edom Survey Project" in 1984–1985 (Hart and Falkner 1985; Hart 1986b), Hart carried out, as mentioned previously, soundings at five sites in the region (Hart 1987a). One of his interests in carrying out the work was to attempt to determine if there was continuity between the Iron Age and Nabataean occupations at the sites. As a result of his soundings at two of the sites, Khirbat Ishra and Khirbat al-Maghidha (see above), he concluded that there was no direct evidence of continuity between Iron Age and Nabataean occupation at them (Hart 1987a, 47; Hart 1987b, 290). Likewise, as a result of his excavation of a third site, namely, Ghurayra, in 1986, he came to the same conclusion (Hart 1988).

Relative to the three sites which Bennett excavated in southern Jordan and Bienkowski published, the latter concludes that there is no continuity of settlement in the Iron Age and Nabataean period. Specifically, at Umm al-Biyara, there is no indication that Iron Age pottery continues beyond the sixth century BC into the Persian period. In conjunction, there is no evidence that the Iron II settlement was re-used into the Nabataean times (Bienkowski 2013, 31). The situation at Busayra and Tawilan is the same, that is, "there is a distinct chronological and stratigraphic gap between the Iron Age and the Nabataean periods" (Bienkowski 2013, 32).

Likewise, Levy *et al*.'s excavations at Khirbat al-Malayqtah, Khirbat al-Kur and Khirbat al-Iraq Shamliya (and Tawilan) (see above) turned up no evidence of continuity between Iron II and Nabataean occupation at them (Levy *et al.* 2014, 257–285).

Relative to this matter Bienkowski concludes: "Current evidence does not demonstrate continuity of settlement between Iron Age and Nabataean, but it does allow us to conclude that there was contemporaneity of settlement and occupation, and almost certainly intermixing of populations and traditions" (2013, 32).

Conclusions

Relative to the early Iron Age, there is archaeological evidence, based on ceramic evidence, for human presence in the northwest extremity of the WHS territory (MacDonald *et al*. 1988, 171–178). Farther south on the Transjordan Plateau, Iron I sherds have been identified in the northwest segment of the TBAS territory. However, no Iron Age I sites have been excavated on the plateau. Likewise, in the Southern Ghors and Northeast `Arabah, there is evidence for Iron I presence. Specifically, Iron I-period presence is associated with mining and smelting activities in the Wadis Fidan and Faynan region, especially at Khirbat an-Nahas and Rujm Hamrat Ifdan.

There was an increase in population in all of the territory of interest during the Iron II period (1000–539 BC). In fact, this period is in third place, in the five survey projects that the writer carried out, relative to the number of sites from which team members collected sherds from a particular period. Moreover, the majority of Iron Age sites that have been excavated on the plateau all date to the Iron II period, specifically the eighth–sixth centuries BC – for example, Ghurayra, Khirbat al-Maghidha/Khirbat al-Megheitah, Khirbat Ishra, Tawilan, Busayra, Khirbat ad-Dabba, Khirbat al-Malayqtah, Khirbat al-Kur and Khirbat al-Iraq Shamliya.

In addition, the extensive survey work that Lindner carried out in the southern part of Jordan over the past 25 years identified a number of mountain-top and other types of "Edomite" sites, for example, Ba`ja III, Jabal al-Qseir, Khirbat al-Mu`allaq, as-Sila`, Umm al-Ala, and Umm al-Biyara. In addition, the ELRAP excavated a tenth–ninth century BC cemetery in Wadi Fidan.

The excavations and surveys carried out in the area indicate the large number of agricultural villages, hamlets, and farms in the area of the southern Transjordan/Edomite Plateau during the Iron II period. The precise dating of these sites within the period needs to be made specific by means of excavations.

There were a number of fortresses and/or watchtowers in the area during Iron II and there are indications of increased mining and smelting activity in Wadis Fidan and Faynan and neighbouring area at this time. Recent excavations on the Transjordan Plateau and in the lowlands to the west, especially in the areas of Wadis Fidan and Faynan, have brought out the fact that there was much more activity, mostly to do with the copper industry, at an earlier date in the latter than in the former area. And it appears that what was produced, mined, smelted, and made into a finished product was clearly destined for the west and the north rather than for the east. There is a gap of about 200 years between what was happening in the Wadi Faynan region and what was taking place on the plateau/highlands to the east.

Based on the petrography and ware analysis of ceramics from sites excavated in both the lowlands and highlands of Edom, it is suggested that a social boundary existed between the communities of these two areas. Relative to the lowland sites or the earlier period ones, the evidence suggests that they participated to a greater extent in the interaction sphere of their western and northern neighbours.

The University of California at San Diego and the Department of Antiquities' excavations at Khirbat an-Nahas have established a new chronological scheme for the Iron Age archaeology of southern Jordan. They have done this by extending the Late Bronze – Iron Age chronology by more than 500 years. Moreover, they have demonstrated industrial scale copper production in the Faynan region from the early tenth to the ninth centuries BC.

The present evidence favours a change from mainly pastoralism to a combination of pastoral/agricultural activity as one goes from the early Iron Age into the Iron II period. Of course, the Iron II-period sedentary way of life would have been supported by the Assyrian control, beginning with Adad-Nirari III's "Expedition to Palestine" where Edom is mentioned as one of the areas conquered.

The Iron II period in southern Jordan, as noted above, appears to be a time of "filling up". And the best explanation for this phenomenon would be the movement of people into the area. With increases of population in areas to the north and west, this peripheral region would become one where a surplus population would have settled. Knauf sees this increase as the result of the migration of Canaanite agriculturalists who fled their homeland after the collapse of the Late Bronze Age Canaanite city-state system (1992). He equates these newcomers with the Horite tribes of Genesis 36. These newcomers would have intermingled/intermarried with those – probably pastoralists – already in the area. In Bartlett's (1989, 64, 65) and LaBianca and Younker's view (1995, 402, 406), however, the increase in population on the highland plateau of Transjordan is to be sought in the pre-existing population. I do not think that the increase in population can be explained by an exceptionally high birth rate during the time period from Iron I to Iron II.

The Edomites were undoubtedly involved in the mining and smelting of copper since it was one of the most important metal resources of the Ancient World. Control of this mineral resource was important and it would have fallen within the economic and political control of both the Edomites and, at times, their overlords the Assyrians during the Iron II period.

Furthermore, the Edomites were also involved in the spice trade, the caravans of which would have passed through their land on their way to both Damascus in Syria and to Gaza on the Mediterranean (Singer-Avitz 1999; Bienkowski and van der Steen 2001, 24). The domestication of the camel would have been important for this activity on the part of the Edomites.

Control of the port of al-`Aqaba on the Red Sea was important to the Edomites. This would give them control over imports and exports through the port and in Wadi `Arabah.

Miners, metallurgists, and traders require services; those so involved would have looked to the population of the country in which they worked, and/or passed through for water, food, security, and so forth. Thus, entrepreneurs would have been attracted to the area to provide these needs. The providing of these services would have also required greater agricultural production and thus more people would have been employed in this service industry and this too would have led to an increase in population. Involved in this would have been new technological advances such as the development of agricultural terraces (Hill 2006, 46) and the expansion of plow agriculture (LaBianca and Younker 1995, 399). Moreover, the Assyrians brought peace to the area and a stable political situation would have resulted in an increase in population since such a situation attracts people to an area.

Thus, a number of factors appear to have been responsible for the increase in population in Edom during the Iron Age. These factors include mining and smelting, the caravan trade, technological advances such as agricultural terraces and plow agriculture, a stable political situation, and the need for a service industry. It appears that the Iron II period was the first one in prehistory and history in which the Edomite plateau would have been "filled up".

4

PERSIAN (539–332 BC) AND HELLENISTIC (AND NABATAEAN) PERIODS (332–63 BC)

Introduction

Relative to the previous period, especially Iron II, both the Persian and Hellenistic periods are poorly represented in the territory of interest. Nevertheless, there is literary, epigraphical and archaeological evidence for settlement of the area in both periods.

Climate

Frumkin *et al.*'s (1991; see also Frumkin 1997) comprehensive climate record for the Holocene, derived from the salt caves of Mount Sedom near the southwestern boundary of the Dead Sea, indicates that an arid climate characterized the third century BC, as the average Dead Sea level stood at *c*. 400 m below sea level. In their opinion, a change towards increased humidity began at the beginning of the second century BC. It appears, therefore, that the climate was quite dry at the time when the Nabataeans first appeared in southern Jordan. A change towards increasing humidity began *c*. 190 BC. Thus, as we will see in the next chapter, the Roman period coincided with a relatively wet phase in the southern Levant (Frumkin *et al*. 1991, fig. 12; Frumkin 1997).

Persian Period (539–332 BC)

Literary and Epigrapahical Evidence

The literary and epigraphical evidence on human settlement in the southern part of Jordan comes from the biblical text and a cuneiform tablet. First to the former!

Biblical Texts

As indicated in the previous chapter, the biblical writers were certainly aware of the Edomites. Relative to the Persian period, such awareness is also clear from the Books of Obadiah and Malachi.

Obadiah

The contents of the *Book of Obadiah* are also generally linked to events in the sixth century BC, specifically to the time after the Babylonians attacked and destroyed Jerusalem in 586 BC. Alternatively, the situation described in the book may be related to the fifth century BC on the assumption that the pressures of the Nabataeans represent the experienced or future disaster of Edom (Ackroyd 1992, 4). If so, then the book relates to the Persian period.

The prophet Obadiah ("servant" or "worshipper" of Yahweh), who may be a pious invention rather than an actual person, announces God's punishment on Edom because of the way it had allegedly mistreated Judah. What appears to upset the prophet is the accusation that Edom did not come to Judah's help when strangers, in this case, the Babylonians, attacked and destroyed Jerusalem. Obadiah even accuses Edom of taking a part in the attack.

Obadiah claims that Edom's crimes were especially grave because of the brotherhood between Edom and Judah: a brother should not do the things that Edom did to Judah. (The tradition that Edom and Judah descended from the brothers Esau and Jacob respectively is familiar to readers of Genesis 25.19–26, 36.1 and Malachi 1.2–5). Although several biblical writers criticize Edom, only Obadiah uses the example of how brothers ought to treat one another.

Malachi 1.2–5

The Book of Malachi (the prophet's name means "my messenger" or "my angel") may, like the *Book of Obadiah*, refer to conditions in fifth century BC Judah (Hill 1992, 480–481). Alternatively, the destruction referred to in Malachi 1.3 may be related to Nabonidus' campaign against Edom in 552 BC (see previous chapter and below).

It is the opinion of a majority of scholars that Malachi belongs in the period between 470 and 450 BC, before Nehemiah's arrival in Judah from Babylon. This coincides with the reigns of both Xerxes (485–465 BC) and Artaxerxes I (465–425 BC).

A date shortly before Nehemiah's arrival suits Malachi with regard to the content of his message. To further narrow these limits is precarious because Malachi offers no reference points for concrete dating. Nevertheless, the poor economic circumstances to which both Malachi and Nehemiah attest appear to have become prevalent during the reign of Artaxerxes I. As a result, it is likely that Malachi was active sometime after 460 BC (Glazier-McDonald 1987, 16–17).

According to the book, God demonstrated love for Israel by hating Esau (1.2). If Edom rebuilt, God would tear down

(1.4). Enmity towards Esau/Edom runs deep in the Bible. Still, Israel's God was remembered as having given Edom its land (see Deuteronomy 2.4–5).

Cuneiform Tablet from Tawilan

Epigraphical evidence for Persian-period presence south of Wadi al-Hasa comes from the first cuneiform tablet ever found in Jordan (Plate 15). The tablet, found at Tawilan, is dated to the accession year of one of the Achaemenid kings named Darius (Darius I [521 BC], Darius II [423 BC], or Darius III [335 BC]). It contains the name and patronymic of the man who writes about the disputed sale of two rams. These names are compounded with the name of the Edomite god, Qos (Bienkowski 1997, 157). The tablet, which is a legal document from Harran in Syria, indicates some activity and, thus, inhabitants, in Tawilan – where the tablet was found – during the Persian period (Bienkowski 1997, 158; 2001, 360; 2008, 346).

Archaeological Evidence

The archaeological evidence will be presented in a geographical order, from north to south, on the southern Transjordan/Edomite Plateau. This is followed by the evidence from the Dead Sea Rift Valley to the west.

Wadi al-Hasa Archaeological Survey Territory

Team members of the WHS reported no Persian-period sherds.

Tafila-Busayra Archaeological Survey Territory

TBAS team members reported Persian/Hellenistic ceramics from one random square in Zone 1. In addition, they collected Late Persian/Hellenistic sherds from one random square in Zone Busayra (MacDonald *et al*. 2004, 58). Moreover, excavators at Busayra, which is located within the TBAS territory, uncovered evidence for Persian-period presence at the site (Fig. 4.1).

Busayra

As noted in the previous chapter, Bennett excavated the site of Busayra between 1971 and 1980 (Bienkowski 2002). Bienkowski, who published the final report on the site, proposes two fixed points for its dating: 1) late eighth century BC, the earliest possible date for the local pottery; and 2) the Attic and Hellenistic pottery, which dates the end of Iron II/Persian occupation to *c*. 300/200 BC (2002, 477). We have treated the first point in our consideration of Iron Age presence at the site. The second point indicates human occupation of Busayra into both the Persian and Hellenistic periods (Bienkowski 2013, 29–30).

Shammakh to Ayl Archaeological Survey Territory

SAAS team members did not label any of the ceramics that they collected, from either the random squares transected or the sites documented, as dating to the Persian period. However, Tawilan is within SAAS territory and its excavators uncovered evidence for Persian-period presence there.

Tawilan

Again, as indicated in the previous chapter, Bennett's excavation and Bienkowski's publication of her work at Tawilan, indicate that the site "was a permanently occupied unfortified agropastoral settlement in the late Iron II/Persian period, almost exclusively concerned with food production and domestic activities" (Bennett and Bienkowski 1995, 105). Bennett and Bienkowski date the site "within the period extending from the earlier 7th century BC, possibly as late as the 4th century BC" (1995, 103; see also Bienkowski 2013, 30). Here again, as with Busayra, there is evidence for the occupation of the site into the Persian period.

Ayl to Ras an-Naqab and the Southern Ghors and Northeast `Arabah Archaeological Survey Territories

ARNAS and SGNAS team members did not identify any sherds that they collected as belonging to the Persian period. However, caution about this is warranted since pottery, indistinguishable from Iron II pottery, has been excavated in contexts associated with imported Greek pottery of the fifth and fourth centuries BC at a number of sites in Jordan. On this basis, Bienkowski thinks that there is continuity in Jordan from the Iron II into the Persian period (2001, 352; 2008, 340; 2013). Similarly, Herr and Najjar state, "In Jordan, the material culture of Iron IIC seems to continue into the early Persian period, perhaps as late as the late fifth century BC" (2001, 335; 2008, 323). Thus, it would appear that much of the Iron II, especially Iron IIC, pottery repertoire was still being used in the Persian period. It would follow, therefore, that some of the sherds that survey team members labelled "Iron II" were, in fact, in use during the Persian period. So, despite the pottery "readings", there is Persian-period presence within the southern part of Jordan.

In any case, there appears to have been a decrease in population on the southern Transjordan/Edomite Plateau and in the Southern Ghors and the Northeast `Arabah beginning in the late sixth–early fifth century BC. Was this period of "emptying out" due to a deteriorating climate? Or, could it have been due to the fact that, following the destruction of Jerusalem and the Babylonians' deportation of Judeans from their homeland, better land resources became available to the northwest and, thus, a migration on the part of the population of southern Jordan there? In support of this last position, there is ample evidence for Edomite-speaking people in the Negev beginning in the seventh century BC (MacDonald 2005, 234).

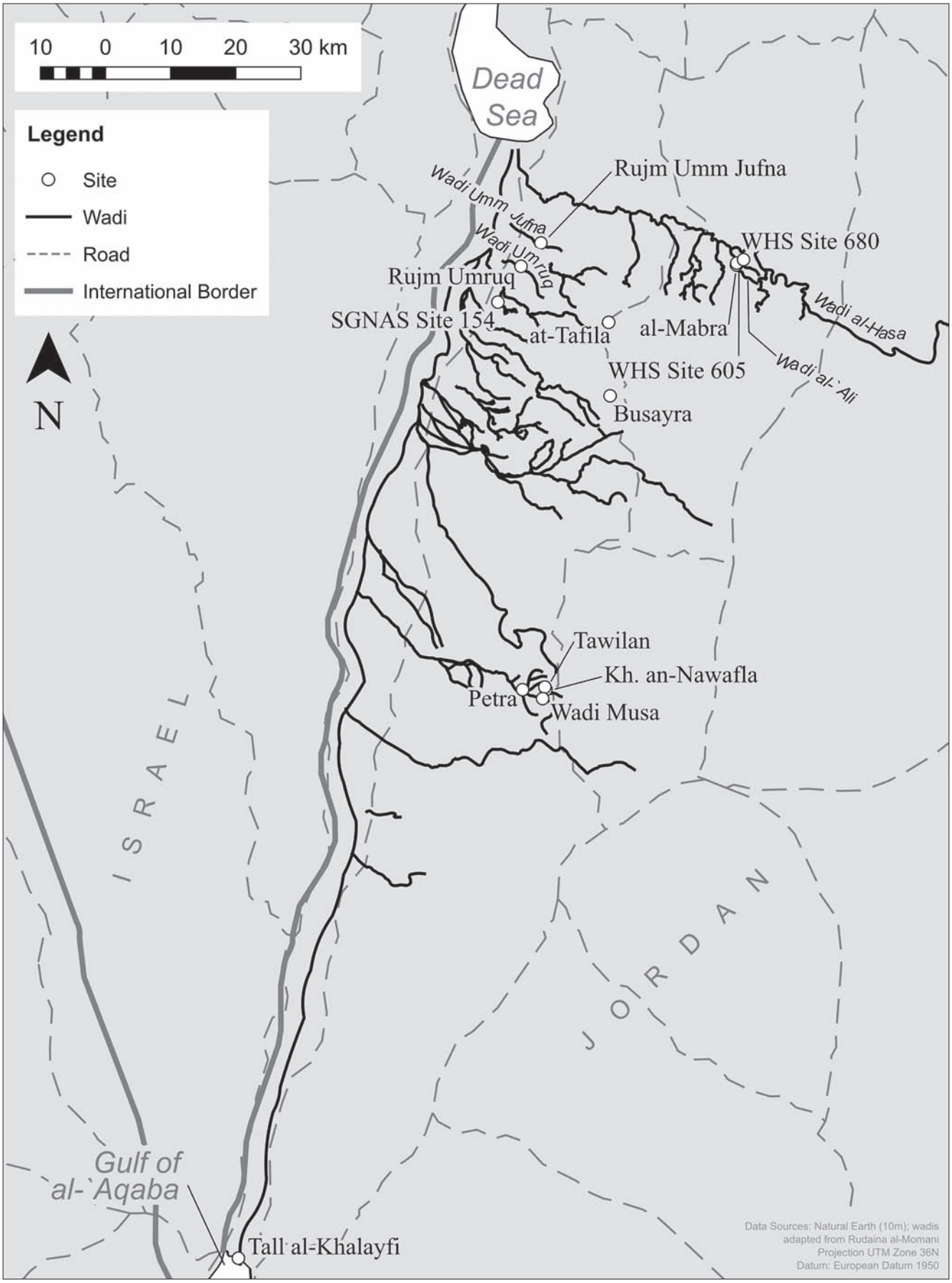

Fig. 4.1: Map of Persian and Hellenistic sites and places mentioned in this chapter.

Hellenistic (and Nabataean) Period (332–63 BC)

Literary and Epigraphical Evidence

There is literary evidence on the Nabataeans during the Hellenistic period, which comes from Zenon, Diodorus of Sicily, Hieronymus of Cardia, the Old Testament, and Josephus. I will treat these sources chronologically. In addition, there is a Nabataean inscription from the period.

Zenon

A memorandum, dated to 259 BC, is attributed to Zenon, a business agent for Apollonius, the financial minster of Ptolemy II Philadelphos (285–246 BC). It contains the earliest documented reference to the Nabataeans and locates them in the region of the Hauran in southern Syria (Graf 1990). Thus, their residence at this time was in northern Transjordan and outside the boundaries of the territory of interest here.

The Zenon archive also notes that a Ptolemaic officer in Gaza was in charge of the control of incense and of sending it to Pelusium, an important city in the eastern extremes of Egypt's Nile Delta. The trading itself was in the hands of the Nabataeans (Wenning 2013, 17).

Diodorus of Sicily

The main literary sources on the Nabataeans are Diodorus of Sicily and Strabo. The former, a first century B.C. Greek scholar who drew on the writings of earlier historians, provides, in his *The Library of History*, information on the Nabataeans from the Hellenistic period. The writings of Strabo are later and will be dealt with in the chapter on the Roman (and Nabataean) period.

Diodorus refers to the Nabataeans on several occasions. For this, he draws on the writings of the Greek historian, Hieronymus of Cardia (*c*. 364–260 BC). He provides an account of several expeditions conducted against the Arab kingdom of Petra in 311 BC by the generals of Antigonus Monophthalmus – the "One-Eyed" – a veteran of Alexander the Great's great campaign to the East (XIX.94–100).

In his description of Arabia, which he locates between Syria and Egypt, Diodorus notes that Arabia's eastern parts were inhabited by Arabs who bore the name of Nabataeans. He writes that the Nabataeans ranged over a country that was partly desert and partly waterless. He characterizes them as brigands, plunderers and being difficult to overcome in war. He notes that the Nabataeans dug wells that were hidden to people of other nations; in this way, when in danger, they could retreat into the area and have drinking water in abundance. Those who pursued them and did not know where the water was stored either perished or returned to their land, only with difficulty because of their lack of water. As a result, the Nabataeans were difficult to overcome in war and, thus, remained always unenslaved. Furthermore, they never accepted a man of another country as their overlord and continued to maintain their liberty unimpaired (II. 48. 1–5; XIX. 94). On account of their life-style, "neither the Assyrians of old, nor the kings of the Medes and Persians, nor yet those of the Macedonians have been able to enslave them, and although they led many great forces against them, they never brought their attempts to a successful conclusion" (II. 48. 5).

The Nabataeans were – also according to Diodorus – tent dwellers, who were completely nomadic, without permanent homes, abstaining from sowing and planting or the drinking of wine, preferring instead milk and raw meat for their diet (cf. II.48). Diodorus posits that they were involved in the raising of camels and sheep. Moreover, he writes that they were participants in the spice trade, procuring such spices as frankincense and myrrh from Arabia the Fortunate (*Arabia Felix*) (II.49), located in the southwestern part of the peninsula. In addition, Diodorus states that the Nabataeans were said to be accomplished in hydrological skills (XIX.94.6–9) and the ability to write in "Syrian letters" (XIX.96.1) – most assuredly Aramaic, the *lingua franca* of the imperialistic Near Eastern powers (Wenning 2007, 27). Unfortunately, there are no other contemporary sources to corroborate Diodorus' account.

As indicated above and as I shall point out later, other inscriptional evidence, as well as the evidence from archaeology, contradicts some of what Diodorus has to say about the Nabataeans. This is especially true relative to his comments on the Nabataeans and the drinking of wine. On this matter, see also the comments of Strabo, below. Moreover, despite Diodorus' comments about the Nabataeans' independence, Hieronymus of Cardia asserts (also recorded in Diodorus's *The Library of History*), that the Nabataeans were: involved in the bitumen trade of the Dead Sea, selling it to the Egyptians for the mummification of the dead (II.48; cf. XIX.98–100); served as Mediterranean middlemen in the Arabian incense trade (XIX.94.5); were accomplished in hydrology (XIX.94.6–9); and were able to write in "Syrian letters" (XIX.96.1). These activities on the part of the Nabataeans indicate that they had far-flung international contacts and were a developed and sophisticated society.

The Nabataeans, the Caravan Trade and Petra

The burning of incense became, in the first millennium BC, part of the daily life in the Mediterranean basin. Consumer demand for frankincense, used in ritual and medical practice, grew rapidly and prices soared to exceeding heights. The aromatic gum resin was obtained from trees of the genus *Boswellia carterii*, which grow in southern Arabia (Dhofar and Hadhramaut) and Somalia. From there it was transported by ship to the harbor of Qana and then by camel caravans northward to the Mediterranean coast and beyond. The Nabataeans became involved in this trade *c*. 380/370 BC (Wenning 2013, 11). Eventually, their centre and holy precinct of Petra served as a place of reloading, with one route crossing the Negev to the port of Gaza and another leading through Damascus to Mesopotamia in the east and Phoenicia in the west. Gaza developed into a prosperous

city, and already in the third century BC, when the Egyptian official Zenon (see above) visited the city, he encountered an office in charge of the incense trade (Rosenthal-Heginbottom 2003, 7).

Hieronymus of Cardia also asserts, in Diodorus's account (see above), that Petra was not yet the seat of the tribe and certainly not the religious centre of the Nabataeans (Wenning 2007, 27–28; see also Diodorus II.48–29; XIX.19, 94–100). Therefore, one should not misinterpret the site during this period. It was likely a camp site with a few people in charge of the frankincense stores and herds of dromedaries in the surrounding area (Wenning 2007, 27–28).

Wenning thinks that the account of Hieronymous of Cardia on the Nabataeans' way of life is probably idealistic and that it should be used with caution. He asserts, however, that there is no reason to deny their nomadic nature.

The Second Book of Maccabees (5.7–10)

The Second Book of Maccabees deals primarily with Judean history from King Antiochus IV Epiphanes' ascent to the Seleucid throne in 175 BC to Judas Maccabeus's victory over the Seleucid general, Nicanor, in 161 BC. In an ongoing dispute between the then High Priest, Onias III, and Simon the Benjamite, Jason offered to pay Antiochus IV in order to be confirmed as the new High Priest in Jerusalem. Antiochus IV accepted the offer and, further, allowed Jason to build a gymnasium in Jerusalem and create a Greek-style polis, Antioch, named after the king. With the creation of Antioch, Jason abandoned the ordinances given under Antiochus III, which defined the polity of the Judeans according to the Torah. Jason's time as High Priest was brought to an abrupt end in 172 BC. He was forced to flee Jerusalem and found refuge in the land of the Ammonites, that is, in Transjordan. In 168 BC, thinking that Antiochus IV was dead, Jason (with the help of the Egyptians) made a failed attempt to recover the high priesthood and to regain control of Jerusalem. He was again forced to flee to Ammon. He then continued to Egypt, and finally to Sparta, where he died and was buried.

Relative to the above, 2 Maccabees 5.8 mentions "Aretas the ruler of the Arabs". This Aretas (ante 169 BC–post 169 BC) is the earliest Nabataean ruler of which we have knowledge. He held Jason captive for a time when Antiochus IV Epiphanes was engaged in a campaign against Egypt. Aretas' title, "ruler of the Arabs", gives indication that Nabataea was already an independent principality in the second century BC.

Aslah Inscription

The Aslah Triclinium Complex is believed to be the oldest dated Nabataean monument in Petra. It is dated, by the Aslah inscription, to about 96/95 BC (Wenning and Gorgerat 2012, 127; Gorgerat and Wenning 2013, 223–225). It is the inscription of Aslah, son of Aslah, who dedicated it to Dushara, the god of Manbatu, in the year 1 of Obodas, king of the Nabataeans, son of Aretas, king of the Nabataeans (Gorgerat and Wenning 2013, 223–225).

The complex is situated in a prominent position on a rocky plateau, directly opposite the entrance into the Siq. It belongs to the Bab as-Siq necropolis (Wenning and Gorgerat 2012, 127). This site, like other Nabataean tombs, is multifunctional. It was not only the burial place of the clan, but also a place of assembly. All social activities required by the clan members took place there (Wenning and Gorgerat 2012, 138).

Josephus on the city of Petra

Josephus, the first century AD Jewish historian, refers to the city of Petra and its ruler, Aretas, in two passages; one from the *Antiquities of the Jews* and the other from the *Wars of the Jews*. Here, I present two translations from both:

1) "Once Antipatros had received this confirmation, he returned to Jerusalem to Hyrkanos and left the city together with him shortly afterwards at night. After a long journey he brought him to the city called Petra, where the residence of Aretas was" (*AJ* 14, 16 [14,1,4]; translation by Schmid *et al*. 2012a, 73).

   ["…A while afterward he {Antipater} took Hyrcanus, and stole out of the city by night, and went a great journey and came and brought him to the city called Petra, where the palace of Aretas was" (AJ 14.1.4; translated by Whiston 1960, 290)].

2) "After he had prepared both of them (Hyrkanos and Aretas], he fled the city at night taking with him Hyrkanos and, hurrying at great speed, safely arrived in the city called Petra; this was the royal city [capital] of Arabia" (BJ 1, 125 [1,6, 2], translation by Schmid *et al*. 2012a, 73).

   ["… he took Hyrcanus by night, and ran away from the city; and, continuing his flight with great swiftness, he escaped to the place called Petra, which is the royal seat of the king of Arabia, where he put Hyrcanus into Aretas's hand;…." (BJ I.VI.2; translated by Whiston 1960, 434–435)].

These passages have to do with the conflict between the two Maccabean brothers, namely, Johannes Hyrkanos II and Aristoboulos II. According to the texts, the Nabataean king, Aretas III (87–62 BC), somehow became involved in the dispute in the year 65 BC. For the present purposes, what is important is that the texts indicate that Petra was considered a city in the mid-first century BC; more precisely, it was the royal city and, therefore, the capital of the Nabataeans, where their king resided (Schmid *et al*. 2012a, 73).

Archaeological Evidence

The presentation of the archaeological evidence will be from north to south in the highlands. I will then turn my attention to the Southern Ghors and Northeast `Arabah in the lowlands.

Wadi al-Hasa Archaeological Survey Territory

WHS team members collected a total of 114 Hellenistic-period sherds at 13 sites (MacDonald *et al*. 1988, 191, table 42). However, 66 of these sherds came from Site 604, al-Mabra, while at four of the 13 sites team members collected only one Hellenistic sherd. The majority of the sherds collected at Site 604 and the other 12 sites date to the Late Hellenistic period, that is, to the second century BC.

Al-Mabra

Al-Mabra (WHS Site 604) is located on the west side of Wadi al-`Ali. It consists of 40–60 rooms/structures spread over an area of *c*. 200 × 100 m. It could have been an agricultural village (MacDonald *et al*. 1988, 186, 192, fig. 51). Although we collected a large number of Hellenistic-period sherds at the site, the predominant ones were Iron Age. WHS Site 605 is located immediately to the north of al-Mabra. Survey team members collected two Hellenistic-period sherds at the site, which could have been a cemetery and, thus, associated with al-Mabra (MacDonald *et al*. 1988, 191).

WHS Site 680 is a circular tower/tomb located on a ridge leading down to Wadi al-Hasa to the north and Wadi al-`Ali to the west. Team members collected only Late Hellenistic sherds at it. It could be associated with both WHS Sites 604 and 605 (MacDonald *et al*. 1988, 192, fig. 51, 193).

Relative to settlement patterns, the sites at which team members collected Hellenistic-period sherds are spread throughout the WHS territory (MacDonald 1988, 192, fig. 51).

WHS team members collected Hellinistic/Early Roman period-sherds at two sites (MacDonald *et al*. 1988, 191, table 43). Both sites are located in the central segment of the WHS territory and immediately west of the *Via Nova Traiana* (MacDonald 1988, 192, fig. 51) (see Fig. 5.1 [next chapter]).

Tafila-Busayra Archaeological Survey Territory

TBAS team members collected Hellenistic ceramics from one random square in Zone 2 and Hellenistic/Early Roman sherds from one random square in Zone Busayra (MacDonald *et al*. 2004, 58). Moreover, we collected Hellenistic sherds at four sites. In addition, as indicated previously, there is evidence of Hellenistic occupation at Busayra.

Busayra

Busayra has been treated previously as an Iron II and Persian-period site. However, it also appears to have been occupied during the Hellenistic period. The evidence for occupation at this time comes from pottery sherds that date to the fourth and third centuries BC (Bienkowski 2002, 477).

Shammakh to Ayl Archaeological Survey Territory

SAAS team members collected Hellenistic-period sherds from only one random square. It is located in the western extremity of topographical Zone 3. Moreover, we collected: Hellenistic sherds at five sites; Late Hellenistic sherds at one site; Hellenistic/Nabataean sherds at two sites; and Hellenistic/Roman sherds at one site. In addition, Khirbat an-Nawafla is located within SAAS territory and excavators uncovered evidence of Hellenistic presence there.

Khirbat an-Nawafla

`Amr *et al*. (2000) excavated Khirbat an-Nawafla (SAAS Site 358) (MacDonald *et al*. 2011, 371) between 1997 and 2000. The site, which was occupied from the Nabataean through the Islamic periods, will be treated in subsequent chapters. However, relative to the period under consideration here, `Amr *et al*. state: "In one limited location in the same area, a small Hellenistic period pit and associated surface was also found" (2000, 233).

Jabal ash-Sharah Archaeological Survey

Tholbecq carried out the Jabal ash-Sharah Survey between 1995 and 1998 in the area to the east of Petra, in altitudes between *c*. 1200 and 1700 m above sea level. As a result of his work, he concludes that "evidence of purely Hellenistic remains seems to be totally absent from the mountain, or such evidence escapes an approach based on pottery collection" (2013, 299).

Petra and Area

Recent excavations on the part of the "French Archaeological Expedition" at the Qasr al-Bint, within Petra (see Fig. 5.5 [next chapter]), revealed a dwelling area that predates the cultic complex. Material associated with these levels, the pottery and numismatic finds, as well as the radiocarbon dates, point to an occupation starting at the beginning of the fourth century BC. Levels of a later architectural phase are characterized by well-lined, finely-plastered stone walls and regular floors covered with slabs. These architectural remains show an established, permanent settlement on the left bank of Wadi Musa dating back to the third century BC, their occupation continuing into the second and first centuries BC. The abandonment of the settlement is clearly related to a deliberate and widespread leveling of the whole area for the construction of the cultic complex (Renel *et al*. 2012; Renel and Mouton 2013, 72–75).

Parr's work in Petra's "Civic Centre" in the late 1950s and into the early 1960s (Parr 1990; 2007) was the genesis for the "Hellenistic Petra Project" on the part of Graf *et al*., who excavated to the east of where Parr had dug. Their work supports an early date of at least the fourth century BC for the initial occupation of the area (Graf 2013, 43) and the indication of "a continuous occupation from the late Persian into the early Hellenistic period all along the wadi bed" (Graf 2013, 45).

Excavators have identified three main phases of the so-called "Obodas Chapel", located *c*. 1 km to the south of Petra's theatre (see Fig. 5.5 [next chapter]). Pottery

found in the oldest levels is similar to that identified by the excavators of the Qasr al-Bint area in their phase II, dated to between the third and mid-first century BC. However, the Obodas Chapel excavators choose to date their pottery in accordance with that found in Phase I at az-Zantur, that is, to 150–50 BC. Moreover, the analysis of three samples of carbonized plant remains from Obodas Chapel produced supporting results, with a date between the late second and the mid-first century BC (*c*. 115–50 BC) (Tholbecq and Durand 2013, 220). The excavators are tempted to see the earliest structures at the site as "evidence of an initial meeting place where communal meals were held, the precise nature and religious dimensions of which unfortunately escape us" (Tholbecq and Durand 2013, 220).

In Schmid's opinion, definitive evidence of Nabataean material culture in the south of Jordan does not occur before the end of the second or the beginning of the first century BC (2008, 361–364). Relative to Petra, the earliest evidence of Nabataean material culture comes in the form of coins, pottery, and terracotta. All appear in the early first century BC. The earliest Nabataean coins are modeled on Hellenistic prototypes and contain Greek inscriptions. They were minted in Damascus by Aretas III from 84 BC onwards, but probably quite soon afterward in Petra (after 72 BC?). As for the pottery, none can be dated before the late second or early first century BC. Chronological evidence for this is provided by the fact that, along with the earliest Nabataean pottery, fragments of the so-called Eastern Terra Sigillata A are found. Such pottery was not produced before the end of the second century BC. The first fine-ware Nabataean pottery imitates, according to Schmid, the late Hellenistic pottery of the Near East (2008, 361–364).

As indicted above, the Nabataeans were former nomads who probably lived in tents and/or caves. As a result, at this time, there is hardly any trace of architecture and sculpture (Schmid 2008, 361–364). What does exist is in the form of water channels in the Siq and in the city centre and the first built houses on the hill of az-Zantur in the western quarter of Petra (see Fig. 5.5 [next chapter]) (Kolb and Keller 2001, 317–319). The former are dated to the first half of the first century and the latter to the third quarter of the same century BC (Schmid 2008, 364, 368).

In agreement with Schmid's position, Wenning posits that archaeological evidence demonstrates that the Nabataeans lived predominantly in tents and possibly in rock-cut caves until the Augustan period (time of Octavian, late first century BC), when they started to build houses. He is of the opinion that Petra should be seen as a great tent site for a long time during the earlier periods (2007, 29).

For the Nabataeans, there would have been a process of transition from nomadism to sedentism. As part of this process, Petra was chosen as the seat of the tribe, that is, the residency of the royal family and the nobility. As a result, it became known in the Greek world as the capital of the Nabataeans. This kind of sedentarisation does not mean urbanisation, but representation of the upper class, the majority of whom would have lived in tents (Wenning 2007, 29). This transition might be dated into the second half of the second century BC when there is more archaeological evidence. Specifically, Stucky dates the beginning of a tent settlement at az-Zantur to the end of the second century BC (1996).

According to Wenning, the Nabataean tribe settled at Petra sometime before 96 BC, when Dushara is mentioned in the oldest dated Nabataean inscription at Petra in the Bab as-Siq sanctuary (see above). The well-hewn large triclinium of the Bab as-Siq sanctuary indicates that one could expect such rock-cut living rooms, cultic cellae, triclina and tombs some decades before, though there are no archaeological criteria identifying such early rooms and tomb façades (Wenning 2007, 29–30).

Ayl to Ras an-Naqab Archaeological Survey Territory

ARNAS team members collected Hellenistic-period sherds from three sites. Two of them are located in Zone 2, and the other one in Zone 3, of the territory.

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

SGNAS team members collected Hellenistic-period pottery at seven sites. However, at two of these sites, they collected only one Hellenistic sherd (MacDonald *et al*. 1992, 83, table 45). Nevertheless, three of these seven sites need further elaboration since they could have been significant Hellenistic-period sites.

Rujm Umm Jufna

Rujm Umm Jufna (SGNAS Site 73), located along the south side of Wadi Umm Jufna, has been treated previously as a possible Iron II tower. From it, there is an excellent view of the terrain in the Southern Ghors as well as the territory to the west and south in the Northeast `Arabah. It could very well have been "re-used" during the Hellenistic period (MacDonald *et al*. 1992, 83).

Rujm Umruq

Rujm Umruq (SGNAS Site 94) is a tower/tomb located on an isolated "island" along the south side of Wadi Umruq and near its mouth. The site's highest point is at least 4–5 m above the surrounding surface area. The site could have served as a monitoring point for those entering and/or exiting the wadi. The 1:50,000 scale map of the area (Map Series K737, Sheet 3051 I [Fifa]) indicates a "path" along the wadi leading from the Southern Ghors to just south of at-Tafila. Today, an asphalt road goes along the wadi (MacDonald *et al*. 1992, 83).

SGNAS Site 154

SGNAS Site 154A-H is a series of graves/tombs (?), wall lines, and stone piles in the Northeast `Arabah, immediately west of Wadi al-Nukhbar. It is the location of Early Bronze

IV tombs. Survey team members collected a large number of Hellenistic sherds at two segments of the site. There is evidence of bulldozing activity in the area and, thus, some of the above-mentioned features could be the result of development (MacDonald *et al*. 1992, 83).

The three above-described sites are all located in one area, namely, in the southern and northern segments of the Southern Ghors and Northeast `Arabah respectively. As was pointed out above, there is literary evidence for Nabataean involvement in the bitumen industry of the Dead Sea. Could these sites have something to do with this activity during the Hellenistic (and Nabataean) period?

The Southeast `Araba Archaeological Survey Territory

With the exception of Tall al-Khalayfi, "The Southeast `Araba Archaeological Survey" team members report no Persian or Hellenistic-period sites (Parker and Smith II 2014). This may suggest a gap in sedentary occupation in the area from at least the fifth to the early second centuries BC. However, there is the possibility that some pottery identified as Early Roman/Nabataean actually belongs to the Late Hellenistic period (Parker and Smith II 2014).

Conclusions

The biblical writers of the Persian period certainly knew of the Edomites of the Negev and southern Judah. However, what they report about them is mainly condemnatory for allegedly helping the Babylonians in the destruction of Jerusalem in 586 BC and/or for not coming to Judah's assistance at the time.

Persian-period presence is represented in the archaeological record on the Transjordan/Edomite Plateau at the sites of Busayra and Tawilan. Such is supported at the latter site by a cuneiform tablet. Although there are no reports of Persian-period presence in the Southern Ghors and the Northeast `Arabah, it could be there; such is possible since Iron IIC-period pottery was still being used in that period. In any case, there appears to have been a decrease in population in the study area during the Persian period. It is possible that the former inhabitants of the area to the east of Wadi `Arabah moved into the Negev and southern Judah even before the beginning of the period.

The Nabataeans arrived in southern Jordan, and specifically at Petra, during the Hellenistic period. There is literary support for this assertion from Greek writers, the Old Testament, and the Jewish historian, Josephus. Of these sources, Diodorus and his source(s) provide the most detailed information on the Nabataeans. In addition, the earliest-dated, Nabataean monument in Petra provides evidence for their presence.

Although there is sparse evidence for Hellenistic presence on the plateau, there is, nevertheless, evidence for permanent settlement on the left bank of Wadi Musa, within Petra, that is dated to the third century BC. There may even be archaeological evidence here for settlement from the late Persian and into the Hellenistic period.

According to Diodorus, who relied on Hieronymus of Cardia for his information, the Nabataeans were involved in the Dead Sea bitumen trade. There could be archaeological support for this in the Hellenistic presence in the Southern Ghors and Northeast `Arabah.

The Nabataeans became involved in the spice trade in the fourth century BC. However, the earliest evidence of Nabataean material culture in southern Jordan comes in the form of coins, pottery, and terracotta. This appears in the early first century BC.

The Nabataeans who settled in Petra at the end of the second and at the beginning of the first century BC lived predominantly in tents and, possibly, in rock-cut caves. This was the time of the beginning of their transition from nomadism to sedentism. At the time, Petra was chosen as the seat of the tribe.

With the exception of Tall al-Khalayfi, "The Southeast `Araba Archaeological Survey" team members report no Persian or Hellenistic-period sites. This may suggest a gap in sedentary occupation in the area from at least the fifth to the early second centuries BC.

There is not a sharp contrast, as in the two previous archaeological periods, between what was taking place in both the Persian and Hellenistic periods on the southern Transjordan/Edomite Plateau and that portion of the Dead Sea Rift Valley immediately to the west. However, the area within Petra is somewhat different. This will be developed in the next chapter.

5

ROMAN (AND NABATAEAN) PERIOD (63 BC–AD 324)

Introduction

In the first century BC, the expanding Roman Republic absorbed the whole Eastern Mediterranean, which included much of the Near East. The Roman Empire united the region with most of Europe and North Africa into a single political and economic unit. Though Latin culture spread across the region, the Greek culture and language, first established in the region by the previous Macedonian Empire, continued to dominate throughout the Roman period.

In 63 BC, the Roman general, Pompey, moved south and established Roman supremacy in Phoenica and Syria. In Judea, Pompey intervened in the civil war between the brothers Hyrcanus II and Aristobulus II. The armies of Pompey and Hyrcanus II laid siege to Jerusalem and after three months, the city fell. This marked the beginning of the Roman period in the area of interest.

The determination of the chronology for the Roman period of Jordan is not straightforward. Some researchers start the period in 63 BC when the area first came into contact with Roman politics. However, it came into the full Roman sphere in AD 106 when the Nabataean kings were removed in preference for a full Roman province. This situation continued into the early fourth century AD when the Byzantine period began. This was due to the fact that there were modifications in the existing Roman administration in the late third or early fourth century AD and/or the capital of the Roman Empire was shifted to Constantinople in the 320s. Such resulted in little or no implications for the economic, religious, social and cultural conditions of the region. In keeping with this chronology, while being cognizant that there are others for the Roman (and Nabataean) period of Jordan (Freeman 2001, 427; 2008, 413), Early Roman means 63 BC to AD 135 while Late Roman means AD 135–324. Relative to the AD 135 date, the Roman Emperor Hadrian (AD 117–138) endeavored to establish cultural uniformity and issued several repressive edicts. This sparked the Bar-Kochba Rebellion of AD 132–135, which the Romans crushed. Homès-Fredericq and Hennessy choose AD 106 as the date for the end and beginning of the Early and Late Roman periods respectively (1989, 10). The AD 106 date, the year of the Roman's annexation of Nabataea, will also work for this publication.

After an "emptying out" at the end of the Iron II period, which continued throughout the Persian and Hellenistic (and Nabataean) ones, the Roman (and Nabataean) period was one when the southern segment of the Transjordan/Edomite Plateau and the area of the Dead Sea Rift Valley to the west was again "filling up". A number of factors were responsible for this. Among them would have been improvements in: climate (see below); technologies for the mining and smelting of the available ore; and the field of hydraulic engineering. Along with the above, there was continued interest in, and the promotion of, the spice trade and agriculture. All the above benefited from a stable imperial power.

The Roman Empire affected settlement location and types as well as production demands (Hill 2006, 52). Moreover, the Romans had an interest in maintaining the flow of Arabian trade in eastern commodities that was developed by the Nabataeans (Hill 2006, 53) and the Assyrians before them.

During the Roman period there was an increased emphasis on agriculture, especially irrigation agriculture (Hill 2006, 50). There is evidence for numerous agricultural villages/hamlets and farmsteads dating to the period. All this farming activity would have been necessary to provision the increased populations in the metropolis of Petra, as well as in the mining and smelting areas of Wadis Fidan and Faynan.

The Nabataeans, who became involved in the incense trade *c.* 380/370 BC, lost their monopoly when the trade's direction shifted to Egypt in the first century BC to the early first century AD. They then became agriculturalists. Both Nabataean rulers, Aretas IV (9 BC–AD 40) and Rabbel II (AD 70–106), were enthusiastic supporters of agricultural development and water-supply systems. As noted above, Rome annexed Nabataea in AD 106. Eventually, in the fourth and fifth centuries, the Nabataeans accepted Christianity (Rosenthal-Heginbottom 2003; Fiema 2012, 31–32).

The Roman road/*Via Nova Traiana*, connecting Bostra in southern Syria to al-`Aqaba on the Red Sea, was built in AD 111–114. It was built, primarily, with a military goal in mind, not simply an economic one. It cuts through the southern Transjordan Plateau, the territory of interest here, and some of the major forts and watchtowers associated with it will be treated in this chapter. In addition, there would have been north-south roads in Wadi `Arabah and a number of east-west roads connecting the *Via Nova Traiana* and places of importance along it, for example, Petra, with areas to the west, for example, Gaza on the Mediterranean. As indicated, forts and watchtowers were located along these roads.

WHS, TBAS, SAAS and ARNAS team members gave different site numbers to segments of the *Via Nova Traiana*

as they encountered and documented it on the southern Transjordan Plateau from Wadi al-Hasa in the north to just north of Humayma in the Hismeh (Oleson 2010; Oleson and Schick 2014) (Fig. 5.1).

As compared to previously-treated, cultural-temporal units, there is an increase in literary, epigraphical, and archaeological evidence for the Roman (and Nabataean) period. Support for this statement comes from what follows.

Climate

As indicated in the previous chapter, a change towards increased humidity began at the beginning of the second century BC. This trend continued during the first half of the Roman period. Thus, in the southern Levant, the Early Roman period (63 BC–AD 135) coincided with a relatively wet phase (Frumkin *et al*. 1991, fig. 12; Frumkin 1997, 244) which reached its average peak *c*. AD 90. In the second century AD, the climate began its drier trend (Frumkin *et al*. 1994, fig. 6; Frumkin 1997, figs 22–4).

Literary and Epigraphical Evidence

What Diodorus tells us about the Nabataeans is presented in the previous chapter. Here, additional literary evidence on the Romans (and Nabataeans) is presented. It includes: Book 16 of Strabo's *Geography*; the Hebrew Scriptures/Old Testament and the New Testament; Josephus's accounts of Jewish history down to the late first century AD in his *Jewish Antiquities* and *Jewish Wars*; the fourth century historian Ammianus Marcellinus; and cartographic sources. Among the latter are: Ptolemy's mid-second century *Geography*; the Peutinger Table, also from the mid-second century; the early fourth century *Notitia Dignitatum*; and the sixth century Madaba Mosaic Map. In addition, there are the Latin and Greek inscriptions of the area and the Babatha Archive (Freeman 2001, 435–436; 2008, 417). All this is supplemented by inscriptions in Hismaic, part of a family of dialects and scripts commonly known as Ancient North Arabian (Corbett 2012, 213).

Strabo (63 BC–AD 19)

Strabo is our main literary source for some of our insights into the social and cultural order of the Nabataeans and Petra during the Roman period. He visited Egypt at about the time when Augustus sent an expedition in 24 BC, under the command of the prefect, Aelius Gallus, from Egypt to Arabia and Ethiopia. The aim of the expedition was to participate in the enormous trade profits enjoyed by the Arabs. The expedition failed, the Roman army suffered heavy casualties, and an unknown number perished in the desert of southern Arabia. The Romans held the Nabataeans responsible and accused them of treacherous behavior (16.4.24).

Nevertheless, the above-described event heralded a shift in the incense and spice route towards Egypt. Strabo mentions the old route through Petra, as well as the new route via the west coast of the Red Sea and the Nile:

> Now the loads of aromatics are conveyed from Leucê Comê to Petra, and thence to Rhinocolura, which is in Phoenicia near Egypt, and thence to the other peoples; but at the present time they are for the most part transported by the Nile to Alexandria; and they are landed from Arabia and India at Myus Harbour; and then they are conveyed by camels over to Coptus in Thebaïs, which is situated on a canal of the Nile, and then to Alexandria (16.4.24).

Eventually the rerouting of the trade caused the decline of the Nabataean economic prosperity, resulting in Roman occupation and annexation of the *Provincia Arabia* in the year AD 106. By this time the Greek seafarer, Hippalus, had allegedly understood the system of the monsoon wind cycles and it became possible to sail from Egypt through the Red Sea to southern Arabia and India (Hatcher 2013). This was the Roman opportunity to control the transportation and trade and push the Nabataeans aside (Rosenthal-Heginbottom 2003, 8). Relative to the customs of the Nabataeans, Strabo's report is based on information from his friend, the philosopher Athenodorus of Tarsus. It appears to have been written before 3/2 BC. It is illuminating:

> The Nabataeans are a sensible people…. Since they have but few slaves, they are served by their kinsfolk for the most part, or by one another, or by themselves; so that the custom extends even to their kings. They prepare common meals together in groups of thirteen persons; and they have two girl-singers for each banquet. The king holds many drinking-bouts in magnificent style, but no one drinks more than eleven cupfuls, each time using a different golden cup. The king is so democratic that, in addition to serving himself, he sometimes even serves the rest himself in his turn…. Most of the country is well supplied with fruits except the olive; they use sesame-oil instead. The sheep are white-fleeced and the oxen are large, but the country produces no horses. Camels afford the service they require instead of horses. They go out without tunics, with girdles about their loins, and with slippers on their feet – even the kings, though in their case the colour is purple (7.16.26).

In this context Athenodorus describes the Nabataean king as *demotikos*, acting as the man of the people because he himself serves his guests at communal meals. The text indicates that it was a particular event with clear and possibly formal or ritual regulations (Wenning 2007, 34–35).

Despite what Strabo writes relative to the Nabataeans and horses, from literature concerning battles, as well as from archaeological evidence, it is known that riding horses was common among the Nabataeans. Strabo probably mixed it with his impression of caravans (Wenning 2007, 35). Moreover, Greek and Latin inscriptions attest the presence of Nabataeans in the Roman military. After the annexation of the Nabataean kingdom in AD 106, Trajan drafted six auxiliary units from the Nabataean army and entitled them the *cohortes Ulpiae Petraeorum*. Each consisted of infantry (*pedites*) and cavalry (*equites*) contingents, and at

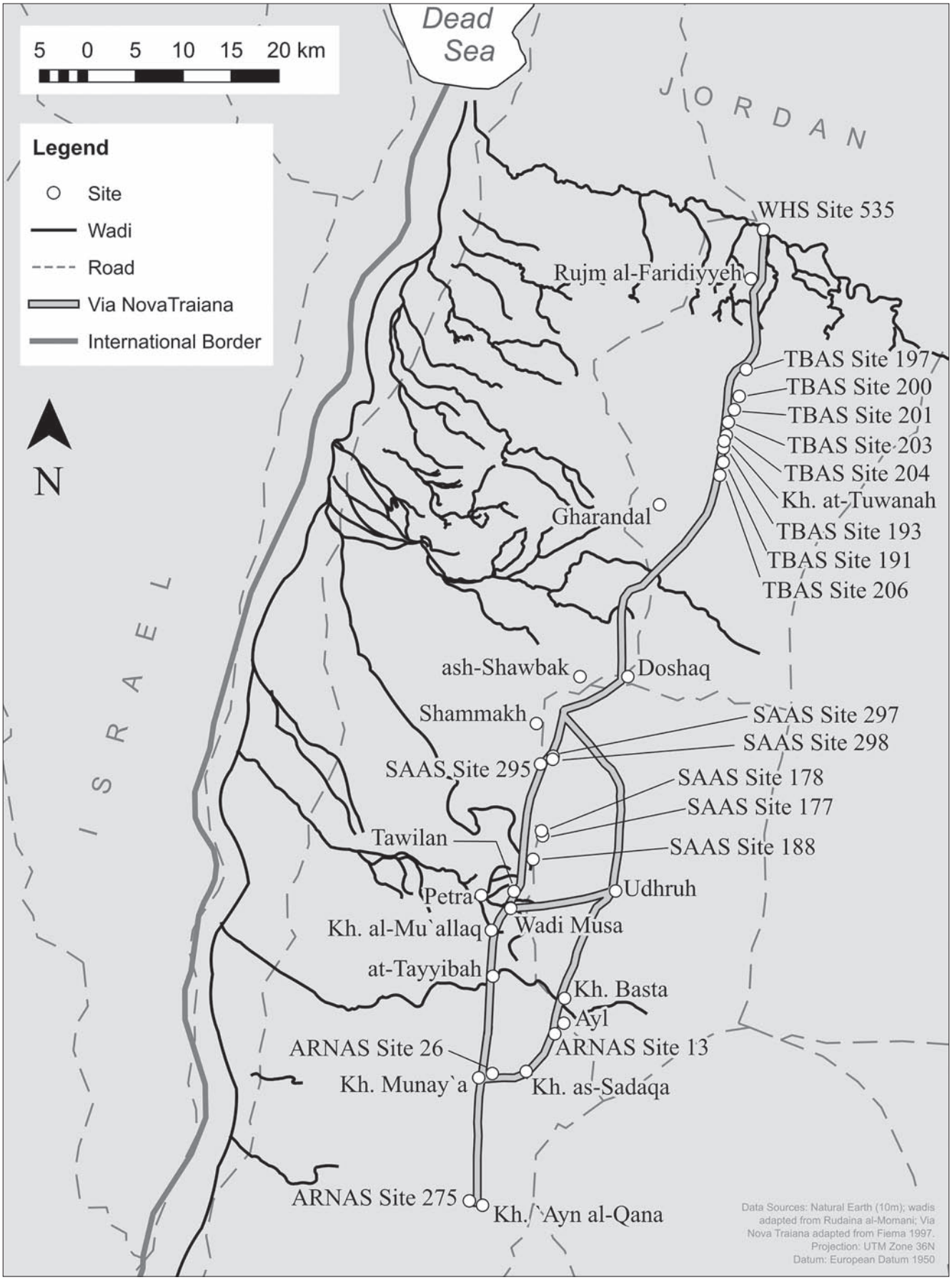

Fig. 5.1: Map of the routes of the Via Nova Traiana *in the territory of interest.*

least three or four of them were of *milliaria* strength. The primary evidence for the units is dedications by or for ten of the equestrian commanders of units, and six military diplomats. This chronology suggests the units were all levied in conjunction with Trajan's preparation for the Parthian campaign of AD 114–116. The later diplomats suggest they were from soldiers drafted as replacements for casualties suffered during conflicts in which some of the regiments served (Graf 2007, 176–177).

Relative to the houses of the Nabataeans, Strabo provides information, again based on what he received from Athenodorus (16.4.21). He states: "Their homes, through the use of stone, are costly; but, on account of peace, the cities are not walled" (16.4.26).

Strabo also reports on goods that the Nabataeans imported and those that are native products:

> …. Some things are imported wholly from other countries, but others not altogether so, especially in the case of those that are native products, as, for example, gold and silver and most of the aromatics, whereas brass and iron, as also purple and garb, styrax, crocus, costaria, embossed works, paintings, and moulded works are not produced in their country…. (16.4.26).

Of particular importance for this work are the comments which Strabo makes about Petra, the Metropolis of the Nabataeans:

> The first people above Syria who dwell in Arabia Felix are the Nabataeans…. They often overran Syria before they became subject to the Romans; but at present both they and the Syrians are subject to the Romans. The metropolis of the Nabataeans is Petra, as it is called; for it lies on a site which is otherwise smooth and level, but it is fortified all round by a rock … and the inside parts having springs in abundance, both for domestic purposes and for watering gardens…. Petra is always ruled by some king from the royal family; and the king has as Administrator one of his companions, who is called 'brother'. It is exceedingly well-governed; at any rate, Athenodorus, a philosopher and companion of mine, who had been in the city of the Petraeans, used to describe their government with admiration, for he said that he found both many Romans and many other foreigners sojourning there…. (16.4.21).

The Apostle Paul, Arabia, Damascus, and Aretas IV

There are two passages in the Apostle Paul's letters which provide some information on Arabia, Damascus and the Nabataean king, Aretas IV. The first refers to Paul's departure for Arabia after he became a follower of Jesus Christ and his return to Damascus. The second has to do with his escape from Damascus and Aretas.

Galatians 1.15–17: Paul, Arabia and Damascus

> [15] But when he who had set me apart before I was born, and had called me through his grace, [16]was pleased to reveal his Son to me, in order that I might preach him among the Gentiles, I did not confer with flesh and blood, [17]nor did I go up to Jerusalem to those who were apostles before me, but I went away into Arabia; and again I returned to Damascus.

In this passage, Paul is providing some background information on his conversion to an unspecified number of "the churches of Galatia" (1.2), a Roman province in central Asia Minor where he had preached. It is believed that Paul wrote the letter between the late 40s and mid 50s AD.

In the days of Paul, the word "Arabia" referred to the Nabataean kingdom, which stretched from Damascus toward the Arabian Peninsula. At the time of Paul's conversion this kingdom was governed by Aretas IV (9 BC–AD 40), a monarch connected by marriage to the Herodian dynasty. Paul did not say where within this territory he went or how long he stayed.

Why did Paul go to Arabia? Some have claimed that he withdrew to Arabia for an extended time of prayer, meditation, and reflection on the tremendous experience he had just gone through. A second reason has been advanced for Paul's visit to Arabia: he went there to continue the preaching he had already begun in Damascus. No doubt Paul would have had ample opportunity to preach the Gospel among many Gentiles in both Arabia and Damascus.

2 Corinthians 11:32–33, Paul, Damascus and Aretas IV

> [32]In Damascus, the governor under King Aretas set a guard on the city of Damascus in order to seize me, [33]but I was let down in a basket through a window in the wall, and escaped from his hands.

We have no record of Christian communities in Arabia that sprang from Paul's activities there. However, there is evidence in 2 Corinthians, a letter that he wrote in the mid-50s to the community of believers in Christ in the Greek city of Corinth, that his word did not go unnoticed by the governing authorities. In this text, Paul referred to the fact of his being lowered in a basket from the city wall of Damascus following a plot against him engineered by King Aretas (cf. Acts of the Apostles 9.23–25). Of course, it is impossible to date this event precisely, but since the Nabataeans took control of Damascus in AD 37, the event took place shortly after that and certainly after his return from Arabia to Damascus (George 1994, 124).

It is possible to regard Paul's visit to Arabia as undertaken mainly for the purpose of missionary activity (without, of course, necessarily precluding all reflection on Paul's part). That he later had to flee Damascus to escape the hands of the governor under King Aretas would suggest that he

had incurred the hostility of that king by preaching to his subjects in Arabia (Fung 1988, 68–69). Whatever the case, the descendants of the people who had once been known as Nabataeans became Christian in the fourth–fifth centuries, that is, during the Byzantine period (Fiema 2012, 31–32). The many churches in and around Petra seem to support this position (see the next chapter).

Babatha Archive

The Babatha Archive consists of 35 papyri: six Nabataean; three Aramaic; 17 Greek; and nine Greek with subscriptions and signatures in Aramaic or Nabataean or both. It is the archive belonging to Babatha, the daughter of Simeon, and her family; it deals with matters of property and with the lawsuits instituted by her or against her. The archive, along with other documents, was found in 1961 during the last of two seasons of excavation; this work was undertaken by Yadin in the caves of Nahal Hever near the Dead Sea, also referred to as the "Caves of Letters". The archive dates from AD 93/94–132 (Lewis *et al*. 1989, 4). Thus, the contents of the archive are from the years just before and after the Roman annexation of Nabataea. The six documents written in Nabataean date to the time of the Nabataean king, Rabbel II (AD 70–106). They are important for Nabataean studies because they provide information on legal practices, agriculture and landownership in the Nabataean realm both before and after the Roman annexation.

There is inscriptional information on the Roman's annexation of Nabataea. In addition, there is the information relative to how this annexation was carried.

Cassius Dio on the Roman Annexation of Nabataea

The only contemporary historian whose account of the annexation has been preserved is Cassius Dio, and even his account has only been preserved in an abridged Byzantine form (Hackl *et al*. 2003, 424, 429). Cassius Dio states: "About this same time, Palma, the governor of Syria, subdued the part of Arabia around Petra and made it subject to the Romans" (68.14.11–14).

Ammianus Marcellinus and the Roman Annexation of Nabataea

Another account of the annexation can be found in the *Res Gestae* of the fourth century historian, Ammianus Marcellinus. It states:

> Adjacent to the region is Arabia, which on one side adjoins the country of the Nabataei […] It was given the name of a province, assigned a governor, and compelled to obey our laws by the emperor Trajan, who, by frequent victories crushed the arrogance of its inhabitants when he was waging glorious war with Media and the Parthians (14.8.13).

Two Safaitic Inscriptions and the Annexation

There are two Safatic Inscriptions that may refer to the Roman annexation of Nabataea. There is disagreement, however, relative to the nature of the event. Macdonald translates the inscriptions as: "the year of the struggle between *Rm* and the Nabataeans" (1993, 331); and "the year of the revolt of the Nabataeans against the 'l Rm" (1993, 331; see also Sartre 1982, 131–132; 1985, 63–72).

According to Macdonald, if *Rm* means "the Romans" or "Roman territory" then,

> Taken as a whole, the content of these texts suggests that some of their authors were aware of events in the world beyond the desert and that a few of them at least spent time among the nomads and the sedentaries. However, the texts give no indication that 'conflict between pastoralists and the peasants and other sedentaries was generally endemic along the frontier' (1993, 335).

However, according to Schmid, these texts suggest that the annexation did not occur without military confrontation (2008, 385).

Hismaic Inscriptions and the Nabataeans

Those responsible for the Hismaic inscriptions, which both the SAAS and ARNAS projects recorded, were contemporaries of the Nabataeans since they have names formed with those of Nabataean kings and queens (Plate 16). However, unlike the Safaitic inscriptions, none of the Hismaic inscriptions mention the Romans. If the writers were contemporaries of the Nabataeans, they must have overlapped with them. On the other hand, we do not know how long before or after the Nabataean kingdom the inscriptions were written (MacDonald *et al.* 2012, 468).

Archaeological Evidence

In what follows, the term "Nabataean" pottery/sherds/ceramics refers more to a cultural assemblage than a chronological one. It implies the typical pottery of Petra. Some "Nabataean" sherds can go as late as Late Roman. For example, the characteristic Nabataean painting on pottery continued, as did the pottery shapes, at least into the fourth century AD (Schmid 2008, 387).

A "Roman" reading, on the other hand, unless otherwise specified, usually means Late Roman, but could also include forms that began in the first century AD.

Wadi al-Hasa Archaeological Survey Territory

WHS team members collected Roman-period sherds at 10 sites (MacDonald *et al*. 1988, 218, fig. 57 and 220, table 47); Late Roman-period pottery at 71 sites (MacDonald *et al*. 1988, 218, fig. 57 and 220, table 48); and Late Roman–Byzantine-period ceramics at 25 sites (MacDonald *et al*. 1988, 218, fig. 57 and 230, table 50). These Roman and

Late Roman–Byzantine-period sites are found throughout the WHS territory. Of course, many of them are multi-period ones and could have sherds from one or more of the categories listed above.

Although agricultural and pastoral sites are probably the most common types surveyed, the most prominent Roman-period feature in the WHS territory is the *Via Nova Traiana* (WHS Site 429) (MacDonald *et al*. 1988, 224–226), and associated milestones. The *Via Nova* descends from the Moabite Plateau to the north of Wadi al-Hasa and crosses it around mid-point of the northern boundary of the survey territory. Remnants of a bridge, WHS Site 535, are associated with the road where it crosses the wadi (MacDonald *et al.* 1988, 224). The road, parts of which are well preserved, can be followed southward through the WHS territory. Survey team members documented nine Roman miles, from Mile 63 to Mile 55 north of Petra. Many of them are marked by several milestones. The inscriptions that Thomsen recorded were, in most cases, faint and/or completely obliterated (Thomsen 1917, 52–53). In addition, a number of structures were surveyed along the road. One of the most important of these is Rujm al-Faridiyyeh (WHS Site 406; at Mile 58 north of Petra), a small fort (MacDonald *et al*. 1988, 226–228, fig. 59).

It is important to note that survey team members collected Nabataean-period sherds at almost every site surveyed along the *Via Nova Traiana*. There is, thus, the possibility that a road and/or track preceded the route of the Roman road in the south of Jordan.

Nabataean-period sherds were collected at 195 of the 1074 sites of the WHS project (MacDonald *et al*. 1988, 193–212). However, at 76 – or 39% – of these sites, survey team members collected only one to five sherds from the period in question. In addition, survey team members collected Nabataean-Roman sherds at 12 sites (MacDonald *et al.* 1988, 212–215) and Nabataean/Roman-period ceramics at 50 sites (MacDonald *et al.* 1988, 215–220). Thus, Nabataean and/or Nabataean/Roman-period sites are more numerous than those from any other ceramic period in the WHS territory.

The Nabataean, Nabataean-Roman, and Nabataean/Roman-period sites are scattered throughout the WHS territory. They are especially dense along Wadi al-Hasa, as well as in Wadis `Afra, La`ban (Roller 1983, 173–182, pls. 24–26), Ja`is, al-`Ali, and Ahmar. Of course, these wadis would have been where water for agricultural pursuits would have been most readily available. It is quite possible that the Nabataeans used the wadis for growing crops without building permanent settlements within them. Some of these farming

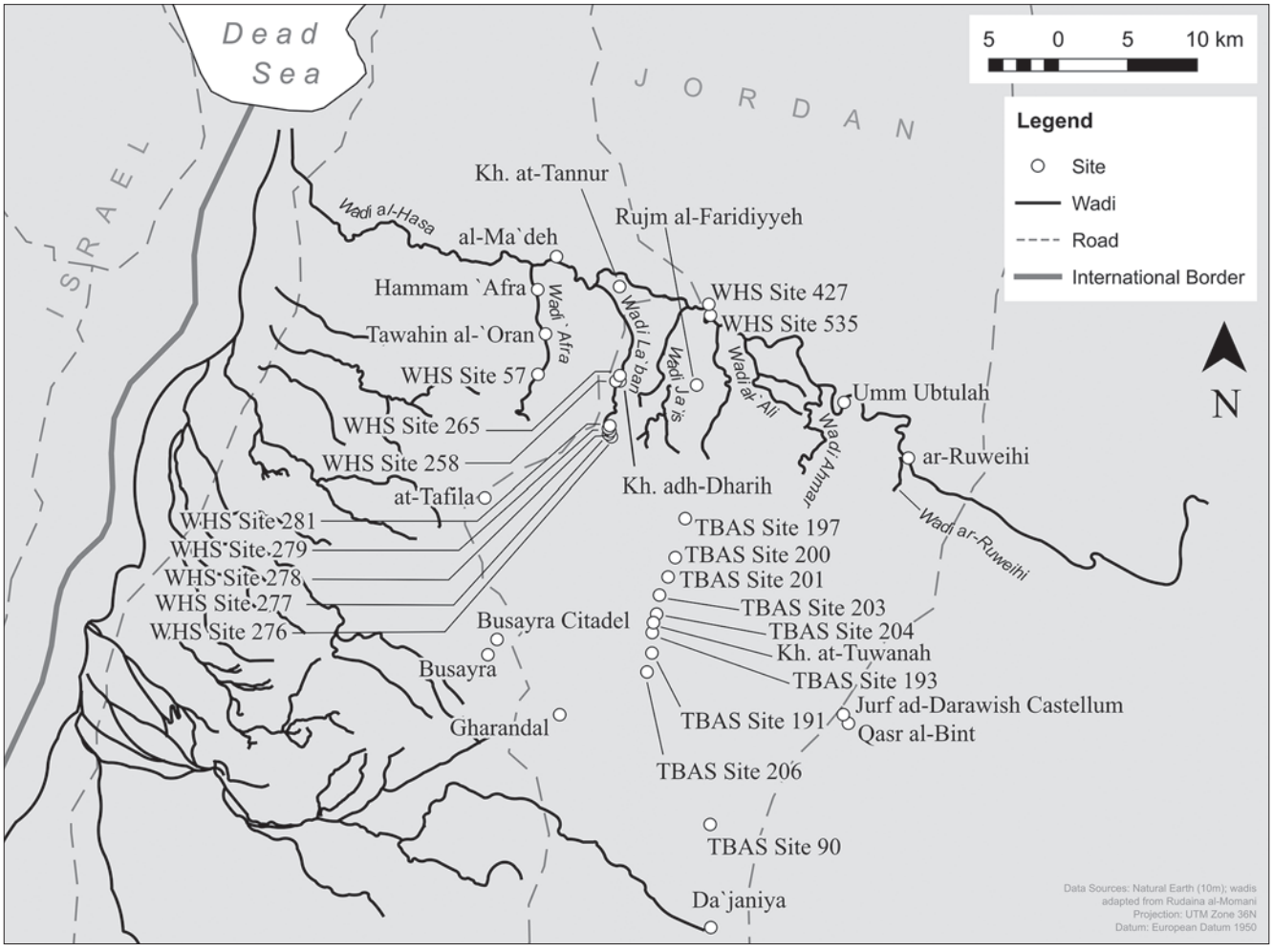

Fig. 5.2: Map of Roman and Nabataean sites and places mentioned in this chapter located within and nearby the WHS and TBAS territories.

sites would have been designed to provision the trade networks that the Nabataeans developed in the area. The Nabataeans would have used the ridges between the wadis to position their signaling stations and/or watchtowers. As well, they would have used areas throughout the region to pasture their flocks of camels, goats, and sheep. Moreover, as indicated above, Nabataean sites are also located along the route of the *Via Nova Traiana* (MacDonald *et al*. 1988, 200, fig. 52; 218, fig. 57).

Prominent Nabataean sites within the WHS territory are: Khirbat adh-Dharih (WHS Site 254) (MacDonald *et al*. 1988, 204); Khirbat at-Tannur (WHS Site 229) (Glueck 1935, 101–02; 1939, 46–48; McKenzie *et al*. 2013; MacDonald *et al*. 1988, 204–205); and ar-Ruweihi (WHS Site 674). Umm Ubtulah, on the north side of Wadi al-Hasa, is probably related to the latter site (Fig. 5.2).

Khirbat adh-Dharih

Khirbat adh-Dharih is located in the central segment of Wadi La`ban (Plate 17). It consists of a village, a temple, and two cemeteries located on the slopes to the east of the village and temple. The complex in general may be dated to the first–fourth centuries AD (Plate 18). It was abandoned at the time of the major AD 363 earthquake and reoccupied during the sixth–eighth centuries AD (al-Muheisen and Villeneuve 2005, 489; Delhopital *et al*. 2009, 805). The village, dating to the second–fourth centuries, consists of peasant houses, oil presses, and a luxurious seigniorial house. The temple, which may be dated to the late first or early second century AD (al-Muheisen and Villeneuve 2005, 495; Schmid 2008, 379), may have also served as a pilgrimage stop on the way to the more important temple on Jabal at-Tannur (see below). The excavated monumental tomb and simple pit-graves, located on slopes to the east of the village and temple, belong to Nabataean times (Delhopital *et al*. 2009). According to the excavators, Khirbat adh-Dharih was, in the Nabataean and Roman periods, the main population centre of the area between at-Tafila and Wadi al-Hasa and between the desert and Wadi `Arabah (al-Muheisen and Villeneuve 2005, 496).

Khirbat at-Tannur

Khirbat at-Tannur, which Glueck excavated in 1937 (Glueck 1965), is located at the summit of an isolated mountain at the confluence of Wadis al-Hasa and al-La`ban. It is 7 km to the north of Khirbat adh-Dharih and clearly visible from it. It consists only of the temple complex, dated to the same time as Khirbat adh-Dharih (Schmid 2008, 379). This indicates that it was solely a religious site, which may have been dedicated to occasional processions (al-Muheisen and Villeneuve 2005, 489). The building complex at the site consists of a paved court or *temenos*, with an open area in front of a walled enclosure (the so-called Inner *Temenos* Enclosure) that surrounds a monumental altar platform. There are rooms along both sides of the court (McKenzie *et al*. 2002a, 44; 2002b, 452; see also McKenzie *et al*. 2013).

Ar-Ruweihi

Ar-Ruweihi is a major Nabataean fort located in the eastern segment of the survey territory and at the confluence of Wadi al-Hasa and Wadi ar-Ruweihi (Brünnow and von Domaszewski 1905, II, 20; Musil 1907, 27; Glueck 1934, 69, 77; 1935, 106; MacDonald *et al*. 1988, 210 and 211, fig. 55). It probably served a monitoring function relative to entrance into/exit from the Wadi al-Hasa region. In addition, it could have been part of a Roman and/or Nabataean monitoring zone along the south side of Wadi al-Hasa (MacDonald 1984a; MacDonald *et al.* 1988, 293, fig. 74). Likewise, Umm Ubtulah (MacDonald and D'Annibale 1983; MacDonald 1984b; MacDonald *et al.* 1988, 294, fig. 75; Kennedy and Bewley 2004, 92–93), a major Roman and/or Nabataean fort site on the north side of Wadi al-Hasa, would have likely constituted part of this zone.

Water Mills within the WHS Territory

It is possible that some of the water mills within the WHS territory belong to the Roman-Nabataean period. These mills, which would have been used primarily for grinding flour, are especially noticeable in Wadis `Afra and La`ban (MacDonald *et al*. 1988, 287, fig. 73). For example, in Wadi `Afra, there are a number of them: Tawahin al-`Oran (WHS Site 52), located in a siq-like gorge on the east side of Wadi `Afra (MacDonald *et al*. 1988, 193, 287, fig. 73); WHS Site 57, on the west side of Wadi `Afra (MacDonald *et al*. 1988, 286 and 287, fig. 73); and the remnants of a possible mill near a Byzantine hermitage at Hammam `Afra (WHS Site 104) (see below) (MacDonald *et al*. 1988, 286 and 287, fig. 73). Moreover, in Wadi La`ban WHS team members documented remnants of water mills at: WHS Sites 258, 265, 276–279 and 281 (MacDonald *et al*. 1988, 287, fig. 73 and 288). In addition, survey team members documented water mills at: the confluence of Wadis al-Hasa and `Afra, WHS Site 169 (MacDonald *et al*. 1988, 286 and 287, fig. 73); WHS Site 167, Al Ma`deh, located where a small tributary enters Wadi al-Hasa from the south (MacDonald *et al*. 1988, 286–288, and fig. 73); and WHS Site 427 in Wadi al-Hasa, central segment (MacDonald *et al.* 1988, 287, fig. 73 and 288). However, an in-depth study of these sites is needed before the period(s) of their use can be determined. We will return to some of these sites in the chapter on the Byzantine period.

(The initial invention of the water mill appears to have occurred in the eastern Mediterranean following the conquests of Alexander the Great and the rise of Hellenistic science and technology. In the subsequent Roman period, the use of water-power was diversified and different types of water mills were introduced. These include all three variants of the vertical water wheel, as well as the horizontal water wheel. Apart from its main use in grinding flour, water-power was also applied to pounding grain, crushing ore, sawing stones and possibly fulling and bellows for iron furnaces).

Tafila-Busayra Archaeological Survey Territory

TBAS team members collected Early Roman pottery at one random square in Zone 1, at two random squares in Zone 2 and at seven random squares in Zone Busayra; Early Roman (Nabataean) sherds from two random squares in Zone 1 and from ten random squares in Zone 2 (MacDonald *et al*. 2004, 59, table 20); Roman-period pottery, without further specification, at two random squares in Zone 1, at 22 random squares in Zone 2, at one random square in Zone 3 and at nine random squares in Zone Busayra.

TBAS team members collected Early Roman pottery at 16 sites and Early Roman (Nabataean) sherds at 27 sites (MacDonald *et al*. 2004, 60, table 21). Thus, Early Roman pottery was identified at 43 – or 14.83% – of the 290 sites of the TBAS project (MacDonald *et al.* 2004, 59). In addition, they collected Late Roman sherds at 19 sites and Roman pottery, without further specification, at 34 sites. This number does not include the *Via Nova Traiana* and the eight sites at which they documented Roman milestones or fragments of them. Thus, 14.83% of the 290 sites documented may be labelled as Roman, without further specification (MacDonald *et al*. 2004, 60, table 21 and 61). In addition, team members collected pottery which they labelled Roman-Byzantine at three random squares in Zone 2 and at 18 sites. Late Roman–Byzantine sherds were collected from one random square in Zone Busayra and at six sites. Finally, team members collected Late Roman/Byzantine at one site and Roman/Byzantine sherds at two sites (MacDonald *et al*. 2004, 61).

Unlike the WHS, wadis of the TBAS territory flow to the west, that is, into Wadi `Arabah. They are precipitous and retain water only in their eastern segments. Moreover, since the territory is farther to the south, it receives less precipitation than the adjacent territory to the north. As a result, there are fewer opportunities for irrigation in the territory.

With respect to site location surfaces, all show an increased density of sites toward the southwest corner of the study area, that is, the area around the Busayra Citadel (TBAS Site 135). Moreover, most show a decreased density in the northwestern corner, where terrain ruggedness prevented complete transecting, and along the eastern edge, that is, in the desert region of the TBAS territory (MacDonald and Rockman 2004).

The areas to the southwest and east of Busayra are barley and wheat-growing regions, presently inhabited, at least seasonally, by Bedouin. They could very well have served the same purpose in the Roman (and Nabataean) period.

Although there are the remnants of former agricultural villages in the region, the farmers of the period of interest could have probably lived, like those of today, in tents (MacDonald 2006). Thus, they would have left little, with the exceptions of sherds, to indicate their former activities. These food-producing areas would have been utilized to provide for the people using the major trade route(s) through the territory, as well as those working in the mining and smelting regions of Wadis Fidan and Faynan in the lowlands to the east (see below). Moreover, after the harvest seasons, these areas would have provided pasturage for flocks and herds, which in time would have provided additional food for people living in, traveling through, or working in or nearby the area.

As in the WHS territory, survey team members followed the *Via Nova Traiana* throughout the TBAS territory (MacDonald *et al*. 2004, 5, fig. 4). Along its route, survey team members documented Roman milestones or fragments of them at eight sites, namely, TBAS Sites 197, 200, 201, 203, 204, 193, 191 and 206 – that is, from 51 to 43 Roman miles north of Petra (Thomsen 1917, 53–54, #s 146–154; MacDonald *et al*. 2004, 61). (There are *c*. 1479 metres in a Roman mile.)

There are a number of significant Roman (and Nabataean) sites within the TBAS territory. They are described below.

Khirbat at-Tuwanah

Khirbat at-Tuwanah (TBAS Site 192) (MacDonald *et al*. 2004, 348–354) is a major site along the *Via Nova Traiana*. It has been visited and/or described by many (Glueck 1934, 80–81; 1935, 97–98; 1939, 49, 53; Hart 1986a; Fiema 1993; 1997; MacDonald *et al*. 2004, 348). TBAS team members collected Early Roman (Nabataean), Byzantine, Early Islamic and Middle/Late Islamic sherds at it. The site has not been excavated but its foundation probably dates from the Early Roman (Nabataean) period. The *Via Nova Traiana* cuts through it.

The site's major structure, which measures 24.30 × 20.50 m, is located on the east side of the *Via Nova Traiana*. It is probably a caravanserai (MacDonald *et al*. 2004, 354, fig. 192). Structures on the west side of the road appear to be dwellings (MacDonald *et al*. 2004, 353, fig. 192) and a watchtower. There is no spring immediately adjacent to the site. However, cisterns were noted throughout it while a modern artesian well was located to its south in the 1990s.

Fiema describes Khirbat at-Tuwanah as having "preformed a function of a service town located on a major highway of commercial and military importance" (1997, 314; see also 1993). It probably flourished during the Nabataean-Late Roman periods (first century BC–late third century AD) (Fiema 1997, 315).

Khirbat at-Tuwanah is generally identified with *Thana*/*Thoana* of Ptolemy's *Geography* and with *Thornia* of the Peutinger Table (Bowersock 1983, 175; Fiema 1997, 313; Kennedy 2000, 158; Freeman 2001, 438; 2008, 419).

Gharandal

Gharandal, located 5 km to the southeast of Busayra and 15 km south-southeast of at-Tafila in al-Jibal, was probably, according to Walmsley (1998, 433), a Nabataean town which replaced Iron Age Busayra as the main political centre of al-Jibal. It is situated in a well-watered valley midway between the King's Highway (Numbers 20.17) and the *Via Nova Traiana*. Among the coins recovered from the site's excavation were Nabataean (especially of Aretas IV) and Roman ones (Walmsley *et al*. 1999, 467). The excavators

uncovered architectural features, including a massive wall, and pottery which they date to Nabataean and Roman times at the site (Walmsley *et al*. 1999, 467, 468).

Jurf ad-Darawish Castellum and Qasr al-Bint

Jurf ad-Darawish Castellum, and Qasr al-Bint, a nearby watchtower, both located in the eastern segment of the TBAS territory, and Da`janiya, a *castellum* (Parker 2006), located to the south of the territory, are also significant sites from the Roman (and Nabataean) period. Only the last of these three sites has been excavated. (A *castellum* is the diminutive form of *castrum*, a military defensive position. It was used for the smaller forts, which were usually, but not always, occupied by the auxiliary units and used as logistic bases for the legions.)

Jurf ad-Darawish Castellum (TBAS Site 141) measures 37 (E-W) × 38 (N-S) m. It appears to have projecting towers and has parallels elsewhere in Jordan (Brünnow and von Domaszewski 1904; 1905, II, 14; Parker 1986, 91; MacDonald *et al.* 2004, 285). Qasr al-Bint (TBAS Site 140) is a mostly-destroyed watchtower on a prominent hill to the southeast and is clearly visible from the former site (Brünnow and von Domaszewski 1904; 1905, II, 14, fig. 569; Parker 1986, 91–93; MacDonald *et al.* 2004, 284). It provides a wonderful view in all directions except to the east, where a mountain ridge is located. These two sites could have served monitoring purposes in Roman-controlled territory in the period of interest.

Da`Janiya

Da`janiya, another *castellum*, is *c*. 1 ha in size and considerably larger than typical Late Roman *castella* (Plate 19). It is located in a broad plain 19 km to the southwest of Jurf ad-Darawish Castellum, 12 km east of the *Via Nova Traiana*, and near the most easterly of the Roman military roads along the frontier. The site was excavated in 1989 as part of the "Legionary Fortress of El-Lejjun project" (Parker 2006). The excavators conclude that "construction and earliest occupation occurred around the transition from the Late Roman to the Early Byzantine periods, that is, in the early fourth century" (Godwin 2006, 285) while "the 551 earthquake ended formal occupation of the fort" (Godwin 2006, 287). Thus, the site is probably Byzantine in date but is treated here due to the date of its construction and earliest occupation. The ancient name of the site and its garrison are unknown.

Quarry (TBAS Site 90)

Of related interest to Da`janiya is TBAS Site 90, a quarry which is located to its north. It too lies outside the TBAS territory. However, it was documented since from it came some of the stone used in the construction of the *castellum* (Moumani 1997; MacDonald *et al*. 2004, 236).

Shammakh to Ayl Archaeological Survey Territory

SAAS project team members collected Roman-period sherds at 46 – or 42.59% – of the 108 random squares accessed in the territory and Nabataean sherds at 61 – or 56.48% – of accessed random squares. In addition, they collected Roman-period sherds, without further specification, at 200 – or 54.64% – of the 366 sites documented and Nabataean ceramics at 221 – or 60.38% – of the sites (MacDonald *et al*. 2010; 2011). (This percentage is close to that of the WMWSWP findings [see below].)

The vast majority of the sites that the SAAS project documented have yet to be excavated. In addition, many of them have pottery from more than one period, e.g., from Iron II, Roman (and Nabataean), and/or Byzantine periods. Thus, only with excavation will the function of these sites be determined more accurately and the period(s) in which they were "inhabited" be ascertained. Nevertheless, the types of sites, determined mainly on the basis of the visible remains, documented for the Roman (and Nabataean) period include: enclosures – circular and rectilinear (probably seasonal pastoralists' camps); farm buildings, farms; hamlets (= small settlements in rural areas); villages; towns (?); dams; aqueducts; winnowing areas; and watchtowers. In addition, survey team members noted many stone piles, indicative of field clearance, and terracing in fields and in wadis, both to retain water in the soil and to prevent erosion. Thus, a large percentage of the sites which SAAS team members surveyed are ones that had to do with agriculture and/or pastoralism. It was probably from sites such as these that some of the provisions, e.g., barley, cheese, citrus fruits, grapes, lentils, meat, milk, wheat, etc., needed to sustain a caravan city such as Petra, came. Thus, the territory in the hinterland of Petra would have, at least to some extent, "provisioned" it during the Nabataean period (MacDonald 2013).

Relative to the production of food, administrators and administrative centres would have been necessary. The need now is to determine which of the recorded sites were used to store the food produced. This can probably be determined only by excavation. Research on the above would be a well-worth activity in an attempt to better understand the central site of Petra and from whence it was "provisioned" (MacDonald *et al*. 2012).

Wadi Musa Water Supply and Wastewater Project (WMWSWP)

The WMWSWP, directed by `Amr of the Department of Antiquities of Jordan, was a development project of the Jordan Ministry of Water and Irrigation aimed at improving the existing infrastructure in the urban areas surrounding Petra. The archaeological component of the project was carried out in 1996 and 2000. The area of the project had a linear length of approximately 60 km, extending from the tip of the escarpment overlooking Wadi `Arabah in the northwest (along the Beidha-Wadi `Arabah road), through the towns of Beidha, Umm Sayhun, Wadi Musa, at-Tayyibah, Ayl and

then on to the area of Jiththa in the desert to the southwest. Additionally, there was a branch connecting Wadi Musa with al-Qa` (now called Dahiyat al-Amir Rashid). Other than the pipelines connecting the sectors of the project, the project involved pipe networks in the towns of Beidha, Umm Sayhun, Wadi Musa and at-Tayyibah, resulting in over 300 km of piping, i.e., 300 km of mechanically excavated trenches cutting through the area (`Amr and al-Moumani 2001, 253; see also `Amr *et al*. 1998) (Fig. 5.3).

The main purpose behind the archaeological work in the WMWSWP was the protection of archaeological sites during the implementation of the engineering project (`Amr and al-Moumani 2001, 253).

By the end of the second phase of the archaeological component of the WMWSWP, the archaeologists had registered 132 archaeological sites. Nabataean pottery was found at 50% of the sites investigated while Late Roman and Byzantine pottery was represented at 24% of the sites. The overall general conclusion of the project was that the landscape was exploited by an agricultural community during the Roman (and Nabataean) period. Thus, the evidence from this project is that the raising of crops and the breeding, shepherding, etc. of animals was a main activity of the people who lived in the area. In addition to survey work, WMWSWP team members excavated at Khirbat an-Nawafla and az-Zurraba.

Khirbat an-Nawafla

`Amr *et al*. excavated the site of Khirbat an-Nawafla (SAAS Site 358) between 1997 and 2000. Although they determined that the site is a predominantly Islamic one, the main occupation at it started in the Nabataean period, during the first century BC (`Amr *et al*. 2000, 233).

The excavators revealed parts of several Nabataean houses and courtyards. In addition, they also uncovered the remains of an olive press dating to the first century AD in the northern part of the site. This, according to `Amr *et al*., is the earliest known Nabataean olive press to date and they state, "this discovery further negates Strabo, who claimed that the Nabataeans did not grow olives and only used sesame oil" (2000, 239). (Two olives presses uncovered in the excavation of Khirbat adh-Dharih (see above) date to the late first/early second century BC [Villeneuve 1990].)

The village of Khirbat an-Nawafla seems to have been reduced in size after the second century AD and perhaps briefly abandoned in the late third century. However, although the Late Roman village was much smaller than the Nabataean one, it was still substantial (`Amr *et al*. 2000, 239). In fact, there is a continuity and development of the Nabataean traditions at the site even as late as the sixth century AD (`Amr *et al*. 2000, 241).

Directly to the southeast of Khirbat an-Nawafla are the foundations of a substantial Nabataean bridge crossing Wadi Khalil/al-Madarr. This is the only known remains of an ancient bridge within the town of Wadi Musa. Relative to the bridge, `Amr *et al*. state:

> The bridge may lead to a temple, as a Nabataean inscription on a marble slab built into a traditional house at the southern edge of the village mentions an ALAHAT, a goddess, and several elaborate cornices that may have belonged to a temple were found scattered around the southeastern sector of the village (2000, 238).

Az-Zurraba

Az-Zurraba is located at the northwestern edge of the modern town of Wadi Musa. Excavations at the site in the 1980s uncovered pottery workshops and five pottery kilns dated to the late first/early second, late third/ early fourth and mid-sixth century AD (`Amr 1991; `Amr and al-Moumani 1999). In the process of land clearance in preparation for building, two additional kilns were brought to light in 1997. They were cleared and recorded in the same year (`Amr and al-Moumani 1999). From the above, this is additional evidence for continuity and development of Nabataean traditions into the sixth century.

Udhruh Excavation and Surveys

In four seasons of work between 1980 and 1985, Killick both excavated the site of Udhruh/*Augustopolis*, 15 km to the east of Petra, and carried out survey work in its environs (A. Killick 1982; 1983a–b; 1986; 1989; M. Killick 1990). He determined that there was a Nabataean settlement at the site.

Relative to Roman presence there and with respect to Killick's work, Kennedy and Falahat posit the building of a Roman fort, essentially a quadrilateral (Killick 1983c, 113, fig. 2; Kennedy and Falahat 2008, 154, fig. 2), at Udhruh shortly after AD 106, in the same location where a previous Nabataean one had been. When the surveyors arrived to establish a base for *VI Ferrata* around the late third–early fourth century AD, the defenses of this earlier Roman fort had been both neglected and extensively robbed. There was, thus, the need to rebuild the ruined fortifications and make significant modifications (Kennedy and Falahat 2008, 163). A building inscription discovered outside its west gate in 2005 dates from the earliest years of the fourth century (overall dimensions of the stone: 165 cm long; 97 cm high; and 42 cm deep; height of the letters: 5.5–6.5 cm maximum). It indicates that the fortress was rebuilt *c*. AD 303–304. Kennedy and Falahat think that it was where *Castra Legionis VI Ferratae* was stationed (2008).

Personnel from the Department of Antiquities have recently excavated at Udhruh (SAAS Site 150) (Abu Danah *et al.* 2010a–b) (Plate 20).

Killick's survey work in the area of Udhruh determined that there was a peak in settlement during the Nabataean period. This peak is indicated in the statistical distribution of the coins found. The oldest coins date to the early first century BC while the majority of the Nabataean coins date to Aretas IV (*c*. 9 BC–AD 40) (Killick 1990, 251). Thus, the Udhruh region saw a parallel development to that of the Petra region (see below and Tholbecq 2013, 299).

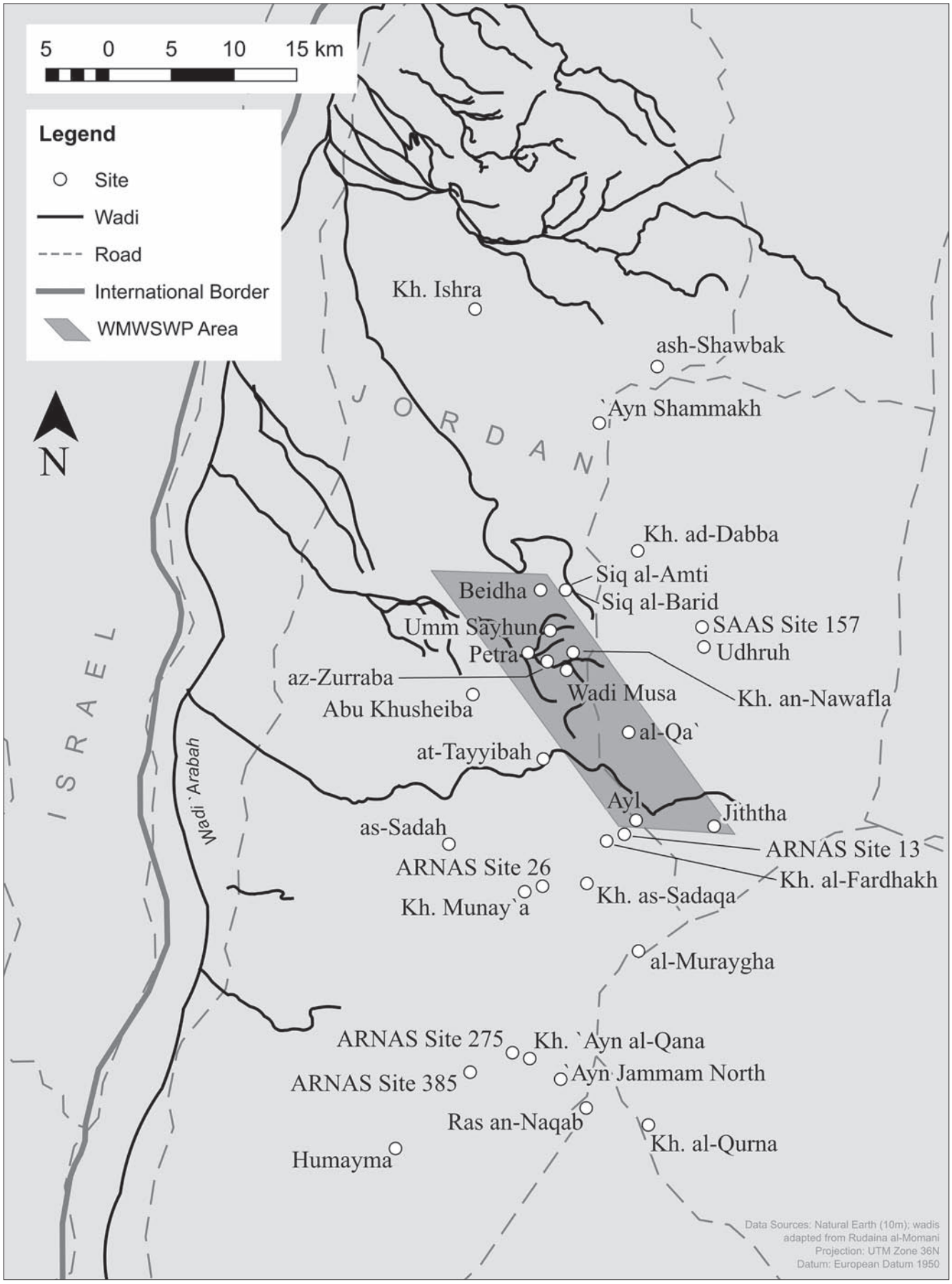

Fig. 5.3: Map of Roman and Nabataean sites and places mentioned in this chapter located within and nearby the SAAS and ARNAS territories and the Petra region. The WMWSWP coverage area is indicated.

Settlement Pattern and Military Arrangement in the Region of Udhruh during the Roman and Byzantine Periods

In the fall of 2003, Abudanh carried out a one-month-long survey as part of his investigation of "the settlement pattern and military arrangement in the region of Udhruh during the Roman and Byzantine periods" (Abudanh 2004, 51; see also Abudahn 2006). This was a follow-up of Killick's excavation of Udhruh and survey of the area.

The South Jordan Iron Age II Project

The South Jordan Iron Age II Project (SJIAP) reports Nabataean settlements as being ubiquitous in the survey area. These settlements are located in all environmental zones and in different topographical locations. Several smaller settlements, comprised of 6–10 rectilinear structures, were located on the hill slopes close to Khirbat ad-Dabba (SAAS Site 209; see chapter on Iron Age Period). More extensive settlements are located in wadi bottoms next to springs. These consist of extensive well-preserved remains, comprising more than 10 rectilinear structures (Whiting *et al*. 2009, 280).

Jabal ash-Sharah Archaeological Survey

As indicated in the previous chapter, Tholbecq carried out the Jabal ash-Sharah Survey between 1995 and 1998 in the area to the east of Petra, in altitudes between *c*. 1200 and 1700 m asl. He surveyed a 5–8 km wide strip, which lies in the transition zone between the ancient town and the eastern steppe (2013, 295). As a result of the work, he concludes that the mountain flourished during the classical Nabataean period and that remains are densely distributed across the whole territory. Of the 160 sites recorded, he dates 50% of them to the first century BC/first century AD (Tholbecq 2013, 299). Specifically, Tholbecq posits: 1) certain structures found on the hilltops most probably belong to a surveillance system; 2) hamlets developed near the communication routes; and 3) cemeteries, as well as isolated burials, occupied the edges of the inner Wadi Musa basin (2013, 299). Tholbecq attributes the demographic increase to the growth of the city of Petra during the course of the first centuries BC/AD (2013, 299).

Relative to the Roman period, Tholbecq concludes that the density of settlement in the Jabal ash-Sharah region diminishes. He assigns 30% of the documented sites to the second/third/fourth centuries AD (2013, 299).

Khirbat Ishra

Khirbat Ishra, a small fortress (*c*. 25 square metres) located on a hill, has been treated above relative to the Iron Age period. However, Hart – its excavator – posits that its visible remains are mostly Nabataean (1987a, 42). He states, "It seems most likely that the Iron Age fortress was abandoned in the sixth or fifth centuries BC and the Nabataeans later re-built on the same site" (1987a, 45). This was for strategic considerations since the site guarded `Ayn Shammakh (SAAS Site 299) and an access route to Wadi `Arabah to the west. The Nabataeans would have used existing walls from the Iron Age structures as foundations wherever convenient (Hart 1987a, 45).

Petra Region

Several sites in the Petra region are significant for the present purposes. Among them are as-Sadah and Abu Khusheiba. In addition, Nabataean wine growing in the area is of importance and needs to be described.

As-Sadah

As-Sadah, located 15 km south-southwest of Petra, has been mentioned in previous chapters as the site of Early Bronze and Iron Age settlements. Lindner *et al*. also identified three Nabataean building complexes, one consisting of about 20 houses, at the site. They did not carry out soundings at any of the Nabataean dwellings, which, on the basis of the surface pottery, they date to continuous land use from the first century BC up to sometime between the end of the first and the third century AD (Lindner *et al*. 1990, 211–216).

Abu Khusheiba

Abu Khusheiba is located *c*. 7.5 km southwest of Petra as the crow flies. Lindner's reconnaissance of the site indicates that it was a Nabataean settlement and caravan station between Wadi `Arabah and Petra. He dates it from the early first century to the third century AD. However, he also indicates that the region shows evidence of agriculture use at different periods and traces of an ancient track with substructures in several sections (Lindner 1992).

Nabataean Wine Presses from Beidha

In 2002, al-Salameen recorded 37 Nabataean wine presses in the Beidha area (2004; 2005) (Fig. 5.4). All are carved in the rock and are of two types: 1) simple ones consisting of two basins; and 2) large ones consisting of three basins. Some of the wine presses were seemingly roofed, a few were paved with white mosaics, and some of the collecting vats were vaulted. Al-Salameen concludes that the wine was produced for local consumption and possibly for sale to the merchants and travelers who passed by Petra (2005, 121).

Beidha Documentation Project

Bikai carried out the "Beidha Documentation Project", 7 km to the north of Petra, beginning in 2003 to document the archaeological remains in an area east of the Siq al-Barid. In the northern canyon, Siq al-Amti, she discovered a large (24 m on a side) unroofed enclosure, approached by an elaborate walkway (Plate 21). To judge from two wine presses, the structure was surrounded by vineyards. The building may have had some function, perhaps a ritual one, related to wine. In a small side canyon of Siq al-Amti, she uncovered a rock-cut triclinium and numerous Nabataean inscriptions. The project also documented other features such

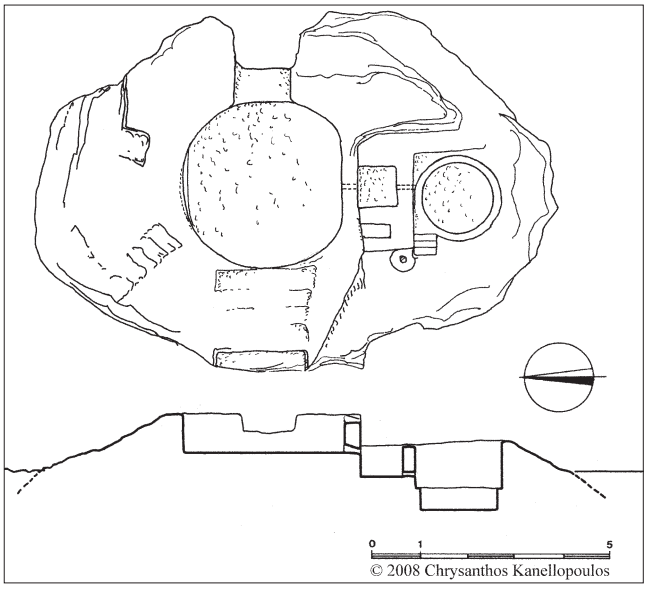

Fig. 5.4: Nabataean Wine Press from the Beidha area (image courtesy of Chrysanthos Kanellopoulos).

as numerous cisterns, water channels, three additional wine presses, and several Nabataean rock-cut monuments (Bikai *et al*. 2005; 2007; 2008a, 466; 2008b; 2009).

In addition to the above, Bikai uncovered, to the west of Siq al-Amti, the remains of an elaborately-decorated, freestanding building, located on a promontory which rises 16 m from the surrounding ground (Plates 22–23). In association were a cistern, a ramp, an entrance room, a bath area, a substructure for a courtyard, and a cryptoporticus (= a porch, gallery, or ambulatory in ancient Roman architecture that was wholly or partly concealed, had few openings, and served for private communication). This material belongs to a structure with a large hall or *oecus* that rose above the flattened bedrock of the promontory (Bikai *et al*. 2007, 371–374; 2008a, 466–467; 2008b).

Bikai *et al*. posit that the *oecus* (= the principal hall or salon in a Roman house) was built after 50 BC but before 20/30 BC and, therefore, within the reign of King Malichos I. It was, in the estimation of the excavators, probably associated with activities such as ritual dining in this wine-growing suburb of Petra. It could have been built by King Malichos I as a retreat from the city of Petra (Bikai *et al*. 2008a, 494; 2008b).

The *oecus* points to the wealthy if not the regal status of its patron. Since it looked over extensive vineyards it is possible that it was here that the Nabataean kings expressed thanks and revered Dionysos, the god of the grape harvest, winemaking and wine, of ritual madness and ecstasy in Greek mythology (Bikai *et al*. 2008a, 496; 2008b) (Plate 24).

The discoveries of both al-Salameen and Bikai *et al*. in the Beidha area appear to contradict the statement of Diodorus (see previous chapter) that the Nabataeans did not use wine.

Petra Area and Wadi Silaysil Survey

Since 2010 the Petra Area and Wadi Silaysil Survey (PAWS) has undertaken a systematic regional survey of some of the immediate environs of Petra, as part of the wider Brown University Petra Archaeological Project (BUPAP). The study region contained several known sites and features. For example, in Wadi Silaysil, project team members investigated the site of a Nabataean sanctuary and settlement (Alcock and Knodell 2012).

Within Petra

The earliest evidence of Nabataean material culture in Petra comes from the early first century BC (see previous chapter) (Plates 25, 26 and 27). Relative to the late first century BC and early first century AD, the most striking feature of Nabataean material culture is the tendency towards monumentalization (Schmid 2008, 367).

Two temples within the city of Petra are dated to the late first century BC: Qasr al-Bint from the end of the century (Plates 28 and 29); and the Temple of the Winged Lions during the early years of Aretas IV. The date of the South or Great Temple/Great Palace/Audience Hall (?) is uncertain (Schmid 2008, 370–371) (Plate 30). The reliefs associated with these temples are also dated to the late first century BC or to the turn of the century (Plates 31–32). The same is true for slabs with cupids and garlands. Both follow international outlines, especially Hellenistic and early imperial styles. All this building would have happened in the time of Obodas III (30–9 BC) and Aretas IV (9 BC–AD 40) (Schmid 2008, 372–374) (Fig. 5.5).

Similarly, it is thought that the Khazna Faraoun/"The Treasury" was built in the second half of the first century BC (Plate 33). In addition, there was construction of buildings along the colonnaded street and impressive pavement within the Siq, including the water channels and the dams. Moreover, the theatre is also dated to the late first century BC/early first century AD (Schmid 2008, 377–378).

Finally, the beginning of Nabataean private houses or "villas" in the az-Zantur region of Petra dates to this period. For example, two rich, Nabataean private houses show distinct Hellenistic and Roman influences. One of these, immediately to the north of the az-Zantur hilltop, is a one-story structure with a surface of *c*. 900 square metres. It was erected during the early first century AD. The second, a palatial mansion on a terrace south of az-Zantur, was built in the early decades of the first century (Kolb 2007, 163–168).

From the above, it is evident that at the turn of the era there was a massive building boom in Petra. Petra was a flourishing city of monumental public buildings and lavishly-decorated residences; huge funerary monuments were constructed or under construction. Thus, a general economic wealth and welfare can be deduced (Schmid 2008, 385). The Nabataeans adopted Hellenistic architectural elements and styles and used craftsmen, after 30 BC, from Ptolemaic Egypt (Schmid 2008, 377).

Johnson (1987; 1990) has argued that the Nabataeans developed a perfume industry, a product derived from processing imported incense, in the late first century BC. It was at this time that Nabataean ceramic *unguentaria*, began appearing in the archaeological record at many sites (*Unguentaria* are small ceramic or glass bottles commonly

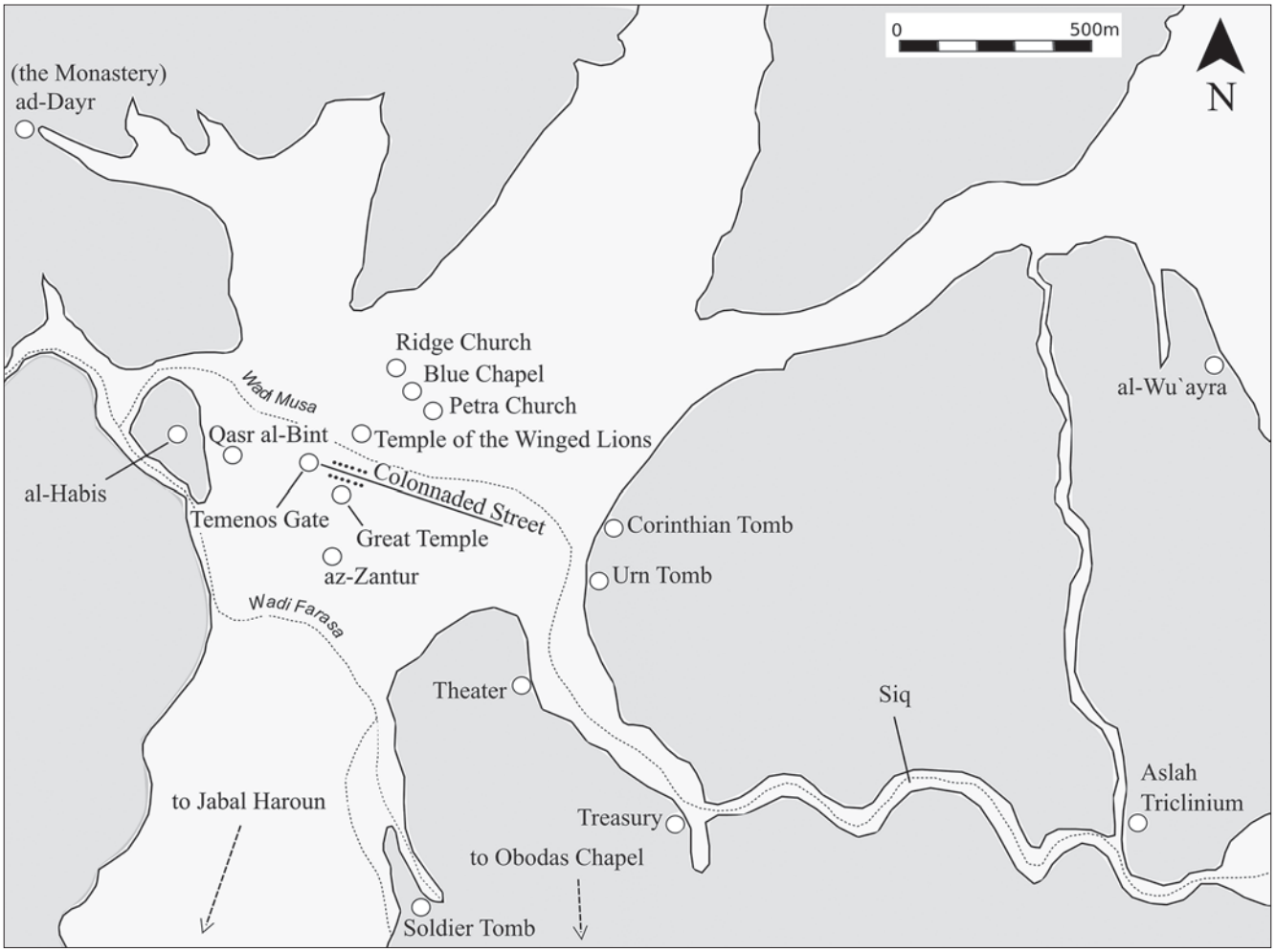

Fig. 5.5: Plan of the city of Petra (adapted from the Petra National Trust [http://petranationaltrust.org/UI/ShowContent.aspx?ContentId=75]).

used as containers for oil, though also suited for storing and dispensing liquid and powdered substances). This is testimony to the widespread trade of this product (Parker and Smith II 2014).

A second building boom took place at Petra, probably, to a large extent, during the time of Rabbel II (AD 70–106). It included, among other construction projects: the Temenos Gate, associated with Qasr al-Bint, sometime after AD 76 (Renel *et al*. 2012, 51); installation, *c*. AD 100, of the paved *cardo* that runs parallel to Wadi Musa; the Corinthian Tomb, dated to the middle or in the third-quarter of the first century AD; ad-Dayr, not earlier than the last quarter of the first century AD; and the Soldier Tomb, situated in a narrow wadi *c*. 1 km southeast of the city centre, in the second or third quarter of the first century AD (Schmid 2008, 380–385; Schmid *et al*. 2012a, 74). All this construction ended with the incorporation of Petra into the Roman Empire in AD 106 and the creation of the province of Arabia. However, the characteristic Nabataean painting on pottery continued at least into the fourth century AD, as did the pottery shapes (Schmid 2008, 387).

According to the available dating evidence, the earliest Nabataean façade tombs in Petra were being carved by 50 BC. They continued to be made up until AD 129, that is, after the Roman annexation (Wadeson 2012, 99; 2013, 167, 171).

Umm al-Biyara

Umm al-Biyara, a prominent mountain to the west of Petra's city centre, has been treated previously as an Iron II site. The Nabataean structures on it occupy the most extreme location on the very edge of the summit overlooking the city. The excavated buildings indicate luxury such as water supply, heated rooms, baths, alabaster and marble slabs, decorative capitals and other architectural ornaments (Plates 34 and 35). Other structures on the summit indicate that a comprehensive view over all the routes into Petra was a concern. The excavators conclude that they "are dealing with royal or elite installations, whose function was both control over the hinterland of Petra and routes into it, and an ostentatious display of wealth and domination" (Schmid and Bienkowski 2011, 118) and "It is entirely reasonable, therefore, to interpret the splendid buildings on Umm al-Biyarah as being part of a residence of the Nabataean kings, perhaps their response to Masada" (Schmid *et al*. 2012a, 85).

The North-Eastern Petra Project (NEPP)

The North-Eastern Petra Project (NEPP) area, located between the Wadi Musa and the Wadi Mattaha, at the west foot of the al-Khubta massif, is one of the most privileged

areas within the entire city of Petra. It is directly served by one of the six fresh-water aqueducts. Further, the highly performing water catchment system of the al-Khubta massif brings in additional water in huge quantities. In regard to water management, the NEPP area is the best served one of Petra, with the most direct access to important cubic meters of spring and collected rain water.

Also in terms of geostrategics, the NEPP area turns out to be outstanding. The site clearly dominates the entire city centre, being located high up the main communication axes. From the top of the area one has an excellent view deep into the outer Siq, all along the Wadi Musa and the colonnaded street, up to the Qasr al-Bint and al-Habis. The argument of the visibility also works in reversed directions: the NEPP area is visible from all over the city centre; it clearly is the most remarkable part of it.

In the opinion of the NEPP team members, the buildings within the area are, most probably, related to the top of the Nabataean hierarchy. The overall situation – namely an entire area of the city centre separated from the rest of the city and characterized by numerous privileges and advantages, e.g., water supply, visibility etc. – strongly recalls the situation of the *basileia*, the royal quarters, in Hellenistic capitals such as Alexandria in Egypt, Antioch on the Orontes, Aï Khanoum in modern Afghanistan and others. Therefore, it seems perfectly realistic that the NEPP area could be identical with the Nabataean royal quarters (Schmid *et al*. 2012b).

Ayl to Ras an-Naqab Archaeological Survey Territory

ARNAS team members collected Roman sherds from seven random squares in Zone 1, from 15 in Zone 2, and from 28 in Zone 3 – or, from 35.71% of the random squares (MacDonald *et al*. 2012, 419, table 5.3). In addition, they collected Nabataean sherds from 15 – or 10.71% – of the random squares in the three topographical zones of the project (MacDonald *et al*. 2012, 419, table 5.2).

ARNAS team members collected Roman sherds, without further specification, from 193 – or 49.61% – of the 389 sites; Early Roman sherds from one site; and Late Roman sherds from three sites. This means that they collected sherds from sometime within the Roman period from 50.39% of the sites documented (MacDonald 2012, 425, table 5.9, 426, fig. 5.6, and 427). Moreover, they collected Roman-Byzantine sherds, that is, sherds that are dated to somewhere from the Roman to Byzantine periods, from seven sites and Late Roman-Byzantine ones from two sites (MacDonald *et al.* 2012, 427). Moreover, they collected Nabataean sherds from 77 – or 19.79% – of the ARNAS sites (MacDonald *et al*. 2012, 425, table 5.8, 424, fig. 5.5).

The majority of Roman (and Nabataean)-period sites are located in Zone 2, that is, the area most suitable for agricultural pursuits. Those sites from the period located in Zones 1 and 3 are in close proximity to Zone 2.

A large percentage of the sites that ARNAS team members documented are ones that have to do with agriculture and/or pastoralism. These sites include villages, hamlets, farms, farm buildings, and seasonal herding/camping sites. It was from such sites that products for the provisioning of Petra came. Related to the production of food, there would have been the need for administrators and administrative centres. The determination of which sites served as the latter will only be determined by excavation.

The ARNAS territory is crossed by many roads, the majority of which are minor and unpaved. These roads were and are, nevertheless, extensively travelled by farmers, pastoralists, and traders. The main road traversing the area in the Roman (and Nabataean) period would have been the *Via Nova Traiana* or one of its branches (see Fig. 5.1).

A painted Roman milestone, believed to be associated with a Roman road, was discovered at Ayl (Glueck 1935, 69–71; Graf 1995, 418 and 419, fig. 1), at the northern boundary of the ARNAS territory. This may indicate that a Roman road came south from Udhruh (see above), passed by Ayl (ARNAS Site 1), then Kh. al-Fardhakh (ARNAS Site 5) (MacDonald *et al*. 2012, 32), continued on to Kh. as-Sadaqa/*Kastron Zadacathon* (ARNAS Site 7) (MacDonald *et al*. 2012, 35–36), and then joined up at Kh. Munay`a (ARNAS Site 31) with the main branch of the *Via Nova Traiana* south of Petra (MacDonald *et al*. 2012, 470, fig. 71). From here, it is possible to follow its track down the escarpment to the west of Ras an-Naqab and presumably on to Humayma (Oleson 2010; Oleson and Schick 2014). In support of this, Brünnow and von Domaszewski (1904, 463; see also Killick 1983c, 127) report milestones north of Udhruh and the SAAS project recorded the fragments of six milestones (Site 157) immediately to the east of the main Udhruh/Ash-Shawbak road. In addition, there are remnants of a paved road at ARNAS Sites 13 and 26, a major Roman fort at Kh. as-Sadaqa (ARNAS Site 7), and a number of watchtowers, e.g., ARNAS Sites 275, 278 (Kh. `Ayn al-Qana) and 385, along the above-described route through the ARNAS territory (MacDonald *et al*. 2012, 469, 470, fig. 71, and 471) (see Fig. 5.1).

Khatt Shabib

The *Khatt Shabib* is a north-south running stone wall, unimpressive relative to its height and width, noted in many places in the steppe region on the southern Transjordan Plateau between Wadi al-Hasa and Ras an-Naqab (Plate 36). In fact, the maps of the area, e.g., "Ras en-Naqab, K737, Scale 1:50,000, Sheet 3050 II", indicate that there may have been several branches of it. The wall is thought to have served the purpose of a boundary, rather than a defensive one, between the desert and the sown. Relative to this, Kirkbride states, "the nature of its structure indicates that it could not be defensive; its general alignment, the presence in its centre of upright stones and the fact that, at one point, it runs over a sheer cliff of some fifteen metres in height are conclusive evidence that it was a boundary line and not a causeway" (1948, 154). Kennedy and Bewley give the "feature as much as 160 km in length" (2004, 139). It is particularly noticeable in several places to the east of the *Via Nova Traiana* in the TBAS,

SAAS and ARNAS territories (MacDonald *et al*. 2004, 343; 2012, 81, 468–469). Specifically, in the ARNAS territory, it is located *c*. 5–6 km to the southeast of Ayl (ARNAS Site 1) (MacDonald *et al*. 2012, 81).

The designation of the structure as *Khatt Shabib* may come from a governor of Jordan by the name of Shabib al-`Uqayli. He is said to have administered the country just before the end of the tenth century AD (Abujaber 1995, 740; MacDonald *et al*. 2004, 343; 2012, 468). However, the date of the *Khatt Shabib* is unknown. Abujaber (1995, 740), who understands the wall as a means of monitoring the "nomads who attempted to encroach upon the settled regions", dates it to the Abbasid period (AD 750–969). Nevertheless, based on the dating of al-Muraygha (ARNAS Site 196), a fort, to the time of the Roman (and Nabataean) period and their aerial photographs of it in relation to the wall, Kennedy and Bewley (2004, 138–139) date it much earlier. Their reasoning is that, as the aerial photographs show, the *Khatt Shabib* disappears on either side of the site. They posit that the reason for this is that the stones of the wall "were removed to construct one of the phases of the fort/settlement. In short, the *Khatt Shabib* must be Nabataean or earlier" (2004, 139).

Khirbat al-Fardhakh and Khirbat as-Sadaqa

The Roman forts/*castelli* at Kh. al-Fardhakh (ARNAS Site 5) (MacDonald *et al*. 2012, 32) and Kh. as-Sadaqa (ARNAS Site 7) (MacDonald *et al*. 2012, 35–36) have been mentioned previously. In addition, two impressive forts from the Roman (and Nabataean) period in the ARNAS territory are Khirbat al-Qurna (ARNAS Site 129) and al-Muraygha (see above). Both are unexcavated. Another site, `Ayn Jammam North (ARNAS 183) has been excavated. All are important and will now be highlighted.

Khirbat al-Qurna

Khirbat al-Qurna consists of two parts. One part consists of the fort and other structures. The fort measures *c*. 50 (N-S) × 40 (E-W) m. Its exterior walls are impressive and measure *c*. 2 m wide while the entire structure still stands *c*. 4 m above the present ground level. What appears to be a central "roadway" runs north–south through the fort. There are several structures located on the fort's northwest side. They measure *c*. 1.50 m high. What appear to be ancient structures as well as corrals are located at the fort's east side. Another part of the site, consisting of several structures, is located *c*. 100 m to the southeast of the first one. Without excavation, it is not possible to determine to which period(s) the above-described features date. However, ARNAS team members collected only Roman-period sherds at the site (MacDonald *et al*. 2012, 144–145).

Parker calls Khirbat al-Qurna a *castellum*. He identifies a single entrance in the structure's north wall. He states, "Four rectangular angle towers (5 × 5 m) project from the corners and a single interval tower (6 × 3 m) projects from the south wall" (1986, 104).

al-Muraygha

Al-Muraygha is an extremely impressive site constructed, for the most part, of basalt. It has been extensively bulldozed with the result that the sherd scatter, mostly Roman (and Nabataean), is dense. Many of the structures comprising the site have walls that still stand *c*. 1–2 m high. Those that have been "cleared" show well-hewn interior walls (Glueck 1935, 64, and 175, pl. 13; Kennedy and Bewley 2004, 138–139; MacDonald *et al*. 2012, 195–200).

`Ayn Jammam North

`Ayn Jammam North is a Roman village (?) site that the Department of Antiquities excavated in 1995. Bisheh *et al*. identify it as a "watchtower" (1993, 121) while Waheeb dates it "to the Late Roman–Early Byzantine period" (1996, 345). ARNAS team members collected Classical (Hellenistic–Byzantine) and Late Islamic body sherds at the site (MacDonald *et al*. 2012, 183; in MacDonald *et al*. 2012, 183, information relative to ARNAS Sites 183 and 184 are inverted).

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

There is ample evidence for occupation/settlement in the Southern Ghors and Northeast `Arabah (SGNAS) during the Roman (and Nabataean) period. Specifically, SGNAS team members collected: Nabataean (=Late Hellenistic)–Early Roman-period sherds at two sites; Nabataean/Early Roman ones at six sites; Nabataean, without further specification, at 22 sites; Roman-period ceramics at 24 sites (however, at nine of these sites, team members collected only one or two sherds from the period); Late Roman-period sherds at two sites; and Late Roman–Byzantine-period pottery at four sites (MacDonald *et al*. 1992, 86–94). Thus the Roman (and Nabataean) period is well represented in the SGNAS territory.

SGNAS team members documented extensive Nabataean presence throughout the Southern Ghors and Northeast `Arabah. This is especially evident in the areas associated with the wadis of the territory (MacDonald *et al*. 1992, 86–95). It was probably here that the Nabataeans engaged in extensive agricultural pursuits. In addition, survey team members also found evidence for agriculture activities in the Wadi Fidan region (MacDonald *et al*. 1992, 89).

There are several significant and major architectural sites from the period in question within the territory (Fig. 5.6). Some of them will be now treated.

Umm at-Tawabin

Umm at-Tawabin (SGNAS Site 6) is a large Nabataean fortress located high above and to the southeast of as-Safi and the Wadi al-Hasa gorge. It is comprised of two main segments, namely, a lower and upper or "citadel" area. The lower segment of the site is enclosed by a stone wall, built, for the most part, on a natural rock ledge. The wall extends for *c*. 2.50 km around the site. On its west and southwest

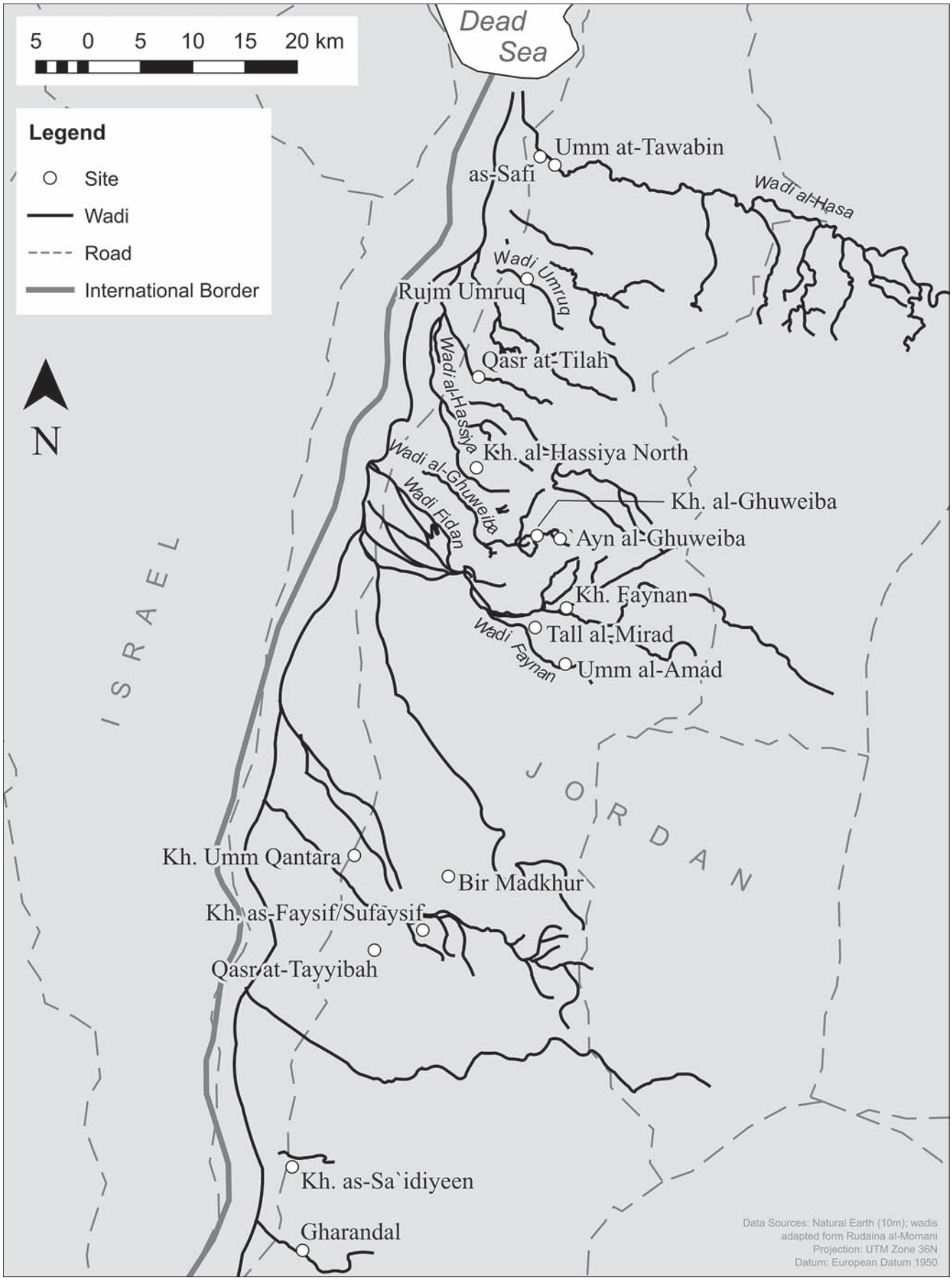

Fig. 5.6: Map of Roman and Nabataean sites and places mentioned in this chapter located within and nearby the SGNAS territory, the Faynan region, and the Northeast `Arabah.

side there are small circular structures both within and outside the wall. They could have been used as shelters and/or placements for tents. The remnants of several larger structures and at least one reservoir (?) are also located within the wall in the site's lower segments. What appears to be a tower is located at a high point at the site's southeast extremity. The upper or "citadel" portion of the site is located at the northern end of a high ridge within the enclosure wall. From this area, one has a sweeping panorama of the entire area to the south and west of the Dead Sea. The site would have provided the Nabataeans with an excellent vantage point from which to monitor movements in the Southern Ghors, the Northeast `Arabah and regions to the west and southwest of the Dead Sea. The best parallels for the pottery which SGNAS team members collected at the site date to the 1st century BC (MacDonald *et al*. 1992, 86, 249–250; see also King *et al*. 1987, 449). However, Meimaris and Kritikakou-Nikolaropoulou (2005, 4) postulate a relation between the site and the Roman garrison, which the *Notitia Dignitatum* (Seeck, 1876, 34.26), dated to the end of the fourth and beginning of the fifth century, locates at Zoar.

Rujm Umruq

Rujm Umruq (SGNAS Site 94), mentioned earlier in relation to the Hellenistic sites of the project, may have also served as a Roman (Nabataean)-period monitoring site. It is located where Wadi Umruq enters the Southern Ghors (MacDonald *et al*. 1992, 89; see also King *et al*. 1987, 450–451).

Qasr at-Tilah

Qasr at-Tilah (SGNAS Site 155), located at the western end of Wadi at-Tilah, is a Nabataean reservoir and fort. The latter measures *c*. 40 square metres and has four corner towers. Extensive agricultural fields are associated with the structures. The complex probably served as a caravanserai. Remnants of the aqueduct, which brought water to the reservoir and the fields, can still be seen at places on the north side of the wadi. The site is generally identified with *Toloha* mentioned in the *Notitia Dignitatum* and *Toloana* of the Beersheba Edict (Seeck 1876; King *et al*. 1989, 199–202; MacDonald *et al*. 1992, 89, 92–93, figs 19–20, and 265; Smith II 2010a, 50–51).

Khirbat al-Hassiya North

Khirbat al-Hassiya North (SGNAS Site 229) is probably a Nabataean caravanserai. It is located on the north side of Wadi al-Hassiya and just north of the "Old Road" between the Southern Ghors and Wadi Fidan. On the basis of the pottery collected, it appears that the site was in existence until the beginning of the second century AD (MacDonald *et al*. 1992, 86, 90, fig. 18, and 273; Smith II 2010a, 46–48).

Khirbat al-Ghuweiba

Khirbat al-Ghuweiba consists of an extensive scatter of small fragments of slag on both sides of Wadi al-Ghuweiba and around `Ayn al-Ghuweiba. The "Edom Lowlands Regional Archaeological Project" (ELRAP) excavated a building and adjacent slag layers. ELRAP dated the building to the Roman-Nabataean period and the copper-production debris to the Iron Age I–IIA (Levy *et al*. 2014, 846–850).

Khirbat al-Ghuweiba is SGNAS Site 161. SGNAS team members collected Iron IA; Iron I–II; Iron II; Iron Age; and Byzantine sherds at the site (MacDonald *et al*. 1992, 266).

Wadi Faynan

The "Wadi Faynan Landscape Survey's" (WFLS) (Freeman and McEwan 1998, 68; Barker 1999; 2000; 2012; Barker *et al*. 1997; 1998; 2007) archaeological and geochemical evidence indicate that the Nabataeans mined copper in the region, although on a smaller scale than during the earlier Iron Age period. Furthermore, there is evidence of numerous farms and farmsteads in the area, associated with small-scale, floodwater-farming systems. The settlement at Khirbat Faynan and the hill-top fort, Tall al-Mirad, indicate that these, like the mining operations, were under direct political control by the authorities at Petra (Barker and Mattingly 2007, 427).

Khirbat Faynan

Nabataean-period occupation in Wadi Faynan was strongly focused in the vicinity of Khirbat Faynan, ancient *Phaino*, which may have been associated with mining. Other sites nearby appear to have been associated with farming systems, rather than the activities of nomadic pastoralists.

Romans took control of the Wadi Faynan region at the beginning of the second century AD. Subsequently, Khirbat Faynan developed as the control site for an imperial mining operation. It was probably chosen because there was a good water supply in Wadi Ghuwayr and a large expanse of potentially cultivable land in the wadi. The WFLS's analyses of the field system indicate that control was now centralized and unified, with farming carried out by people based at *Phaino*. The field system was expanded and an elaborate irrigation system of water conduits was constructed. Productivity was artificially raised above the normal carrying capacity of the arid Faynan landscape to feed the increased population (Barker and Mattingly 2007, 247).

During the Nabataean period, there was a significant settlement on the south bank of the Faynan opposite Khirbat Faynan. There are, moreover, major concentrations of Nabataean material on both the east and west sides of Wadi Shayqar. These may be interpreted as farms and farmsteads. Thus, according to the WFLS team members, the available evidence suggests that a substantial settlement existed at Khirbat Faynan in the Nabataean period, predominantly during the first century AD (Mattingly *et al*. 2007b, 294–301). However, relative to Khirbat Faynan itself, "the structural evidence of the Nabataean and Early Roman phases is particularly difficult to reconstruct without further excavation" (Mattingly *et al*. 2007a, 315).

Khirbat Faynan appears to have been the only community existing in the wadi in the later Roman period and seems to

have been inhabited almost totally by slaves and Christians sent to work the mines (Gustafson 1994; Freeman and McEwan 1998, 68). I will return to this site in the chapter on the Byzantine period.

A reservoir, Roman in date, is located on the south bank of Wadi Faynan. It was fed by an aqueduct, which has been traced for several kilometres up Wadi Ghuwayr. The reservoir measures 31 × 22.4 m and is at least 4 m deep (Mattingly *et al*. 2007a, 317). A water-power mill is located to its west. It was fed by a channel branching from the aqueduct that supplied the reservoir. Mattingly *et al*. (2007a, 317) date it to the Roman period. Its use is uncertain. However, it is generally presumed to have been employed for milling grain.

Tall al-Mirad

Tall al-Mirad, located on a hilltop on the south side of Wadi Faynan to the west, was possibly a Nabataean fort. It consists of a series of fortified structures (King *et al*. 1989, 204; Mattingly *et al*. 2007b, 294). From it, there are clear views down the wadi to the west, to Wadi `Arabah and up the valley to the east, to Khirbat Faynan and the mountains beyond. Smith II thinks that it guarded the approach to Wadi Faynan via the Wadi Fidan valley (2010a, 46). Both the spread of material around Khirbat Faynan and the impressive fortified site of Tall al-Mirad suggest something more than pastoralists or subsistence farmers at work in Wadi Faynan during the Nabataean period (Mattingly *et al*. 2007b, 294).

Umm al-Amad

In Roman times, from around the turn of the era to the third century AD, another boom in copper production took place in which, very typically, the old mines were reused. Faynan presented us with the largest completely preserved mine, Umm al-Amad, in the entire Roman Empire (Hauptmann 2007, 306).

The Southeast `Araba Archaeological Survey Territory

Smith II recorded a number of important sites in the northeastern Wadi `Arabah, going as far north as Qasr at-Tilah (see above), as part of his "The Southeast `Araba Archaeological Survey". Sites south of Tall al-Mirad, which are within the territory of interest here, include, in a north-south direction: Khirbat Umm Qantara; Bir Madhkur; Khirbat as-Faysif/Sufaysif; Qasr at-Tayyibah; Khirbat as-Sa`idiyeen; and Gharandal (Smith II 2010a, 32–46; Parker and Smith II 2014).

Khirbat Umm Qantara

Khirbat Umm Qantara, a road/caravan station, is located in the centre of Wadi `Arabah to the west of Bir Madhkur and along a cross-route through Wadi `Arabah. Smith II identifies the route with the Incense Road. The pottery that he collected at the site is primarily from the Early Roman/Nabataean period, with some Late Roman sherds present (Smith II 2010a, 42–43).

Bir Madhkur

Bir Madhkur is situated in the foothills to the east of Wadi `Arabah. It would have been on one of the main routes from/to Petra/Gaza. There is substantial evidence, mainly in the form of pottery, of activity at the site from the Nabataean and Early Roman periods. However, the early settlement itself has yet to be revealed. Nonetheless, there is evidence of regional activity in the area during these periods at Khirbat Sufaysif (see below) and Khirbat Umm Qantara (see above). This is related primarily to trade and communication. The Late Roman period is one of increased activity at Bir Madhkur. The site's fort, measuring 30 × 30 m, with four corner towers, was built in the fourth century. According to Smith II, it was probably where a mounted cavalry unit was billeted (2010b, 151). At that time, also according to Smith II, Bir Madhkur became an administrative centre, relative to the agricultural activity in the central Wadi `Arabah. Contemporaneously, a bath complex was built at the site. Smith II dates the site to the later Roman and Early Byzantine periods (2010a, 39–43; 2010b; see also King *et al*. 1989, 205).

Khirbat as-Faysif/Sufaysif

Khirbat as-Faysif/Sufaysif is a small caravan station. Smith II discovered the site in 2003 and partially excavated it in 2010. He understands it as a road station along the ancient route that linked Petra to Gaza, that is, the Incense Road (2010a, 39). Ben David shows the road going southwest from the centre of Petra, south of Jabal Haroun, and then northwest to Wadi `Arabah (2012, 21–22, fig. 5). Pottery collected is almost exclusively Early Roman/Nabataean, along with some Late Roman material (Smith II 2010a, 37–39).

Qasr at-Tayyibah

Qasr at-Tayyibah is situated in the foothills of the ash-Sharah mountains near the mouth of Wadi at-Tayyibah (King *et al*. 1989, 207). The principal structure at the site is a *qasr* (the Arabic for `castle' [from Latin *castrum*]), measuring *c.* 24 × 23 m. Smith II uncovered evidence, based on the collected sherds, indicating that copper smelting was a major activity at the site in the Early Roman/Nabataean period (Smith II 2010a, 36–37; Parker and Smith 2014).

Khirbat as-Sa`idiyeen

Khirbat as-Sa`idiyeen is a fort, now in a ruined state due to bulldozing activity. It is located *c*. 31 km to the southeast of Bir Madhkur. The ceramics that Smith II collected at the site date almost exclusively to the Nabataean and Early Roman period (Smith II 2010a, 34–36; Parker and Smith II 2014).

Gharandal

Gharandal is the location of a spring and an oasis on the eastern side of Wadi `Arabah. It is located *c*. 100 km north of the Gulf of al-`Aqaba, 38 km south of Bir Madkhur, and *c*. 40 km southwest of Petra. Its archaeological remnants,

which are located *c*. 200 m west of the mouth of Wadi Gharandal, consist of a fort, bathhouse, aqueduct system, and possible domestic structure (Darby *et al.* 2010). The fort/*castellum* measures ca. 37 × 37 m and has four corner towers. Pottery collected at the site indicates that it was occupied predominantly in the Nabataean and Roman period with a decline in settlement in the late Byzantine period (Darby *et al.* 2010, 190; Smith II 2010a, 34). It is generally identified with *Arieldela*/*Ariddela* of the *Notitia Dignitatum* and Beersheba Edict respectively (Seeck 1876; Darby *et al.* 2010, 190; Smith II 2010a, 32–34; see also King *et al*. 1989, 207).

In addition to the above-listed sites, team members of "The Southeast `Araba Archaeological Survey" documented an 8 km segment of a road, aligned roughly north–south, from the mouth of Wadi Nukheila to Gharandal. They also identified what may be other segments of this road to the north of the latter site. Although the road cannot be dated, it may be related to the Early Roman/Nabataean settlements in the area (Parker and Smith II 2014).

The above list of sites, all located on the eastern side of Wadi `Arabah, indicates that there was a series of forts/*castella* and/or way stations/caravanserai guarding and/or serving those who used the main north–south and the east–west routes in the region during the Early Roman (and Nabataean) period. In addition, these sites would have guarded local resources, notably water, as well as monitoring traffic in the wadi (Parker and Smith II 2014). Other similar-functioning sites were located on the western side of the wadi (Smith II 2010a, 36, 43, 46; Parker and Smith II 2014). Many of these sites would have been associated with the spice trade during the period of interest here. In addition, where conditions permitted, there were agricultural fields associated with the sites. The produce from these fields, as well as from the flocks of goats and sheep kept in the region, would have provided at least some of the food needs required by the sites' inhabitants and those using the routes.

Conclusions

In the first century BC, the expanding Roman Republic absorbed the whole Eastern Mediterranean, which included much of the Near East. In 63 BC, the Roman general Pompey moved south and established Roman supremacy in Phoenicia and Syria. This marked the beginning of the Roman period in the area of interest.

As compared to previously-treated, cultural-temporal units, there is an increase in literary, epigraphical, and archaeological evidence for the Roman (and Nabataean) period. Relative to the latter, this is due, at least to some extent, to the increasing and continuing work both within Petra and its environs.

A change towards increased humidity began at the beginning of the second century BC. As a result and relative to the southern Levant, the Early Roman period coincided with a relatively wet phase. In the second century AD, the climate began a drier trend.

Strabo is our main literary source for many of our insights into the social and cultural order of the Nabataeans and Petra during the Roman period. He and his sources provide information about Nabataean involvement in the spice trade and its routes, Nabataean customs as well as the type of fruits they grew, the animals they raised, the clothes they wore and the houses in which they lived, and Petra as their metropolis.

The Babatha Archives are important for Nabataean studies because they provide information on legal practices, agriculture and landownership in the Nabataean realm both before and after the Roman annexation. Moreover, there is inscriptional information on the Romans' annexation of Nabataea.

Paul, in his letters to Christians at Galatia and Corinth, may provide some information relative to his early proselytizing among the Nabataeans. It is interesting to note at least Aretas IV's opposition to this early Christian apostle to the Gentiles.

Roman (and Nabataean) archaeological remnants are found throughout the territory of interest. The most prominent Roman remains are the *Via Nova Traiana* and its associated caravanserai, castella, and forts, which are spread throughout the area. All would have been related to the trade crossing through the territory from north to south and from east to west, as well as the metallurgical activities in the Wadi Faynan region. In addition, a number of Nabataean temples outside of the area's principal centre, that is, Petra, provide insight into pilgrimage and other religious practices in rural regions. To support this, there were numerous agricultural villages, hamlets, farms and pastoralists' sites, which were necessary to provision the various enterprises within the region.

Relative to the immediate Petra region, there is evidence of Nabataean wine presses and the remains of a probable ritual dining area in at least its wine-producing suburb of Beidha. Within Petra, the earliest evidence of Nabataean culture comes from the early first century BC. A number of temples and tombs are dated to the end of the first century BC during the early years of Aretas IV. The style of these structures is especially Hellenistic and early imperial. This is paralleled by the beginning of Nabataean private houses or "villas". Petra experienced a massive building boom at this time. Such indicates general economic wealth and welfare. A second building boom took place within Petra during the time of Rabbel II, that is, in the late first century–early second century AD.

The *Khatt Shabib*, a north–south running stone wall, is found throughout the southern Transjordan Plateau. It lies to the east of the *Via Nova* and may date to the period of interest in this chapter. It could be a boundary line indicating the Roman (and Nabataean) consciousness of the separation between the desert and the sown.

The Southern Ghors, Northeast `Arabah and the Wadi Faynan regions were extensively settled during the period of interest. There is evidence of metallurgical activity in the area as well as numerous farms and farmsteads. Khirbat Faynan was the centre of this activity. Farther to the south, documented sites support the extensive use of the area for both trade and agricultural purposes.

6

BYZANTINE PERIOD (AD 324–640)

Introduction

The distinction between "Roman" and "Byzantine" is a modern convention. As a result, a single date of transition is hard to assign. However, there are several important dates. In AD 285, Emperor Diocletian (284–305) divided the Roman Empire's administration into eastern and western halves. Such, however, resulted in little or no implications for the economic, religious, social and cultural conditions of the region. Between 324 and 330, Emperor Constantine I (306–337) transferred the main capital from Rome to Byzantium, on the European side of the Bosphorus. The city became *Constantinople* ("City of Constantine"). Under Emperor Theodosius I (379–395), Christianity became the empire's official state religion. Thus, Byzantium is today distinguished from ancient Rome proper insofar as it was oriented towards Greek rather than the Latin language and culture, and characterised by Christianity rather than Roman polytheism.

For Jordan and the general area of the Levant, the Byzantine period began in 324 and ended with the Muslim Conquest in 636/640. Within this regional context only, there are broad chronological subdivisions into Early Byzantine (fourth and fifth centuries) and Late Byzantine (sixth and early seventh centuries).

The Byzantine period is considered to be a time in the Levant when there was maximum settlement. There was continuity with the previous period, an expansion of settlement, a peak of population and desert agriculture, a shift in the local economy from international exchange and caravan traffic towards agriculture and local exchange, and diminishing importance of the Arabian trade network (Hill 2006, 53–54; see also Hirschfeld 2004, 133). This period, like the one before it, was marked by technological ability, especially in the field of hydraulic engineering and by a high level of organization (Hirschfeld 2004, 144).

Climate

A variety of data sources for climate indications has led to conflicting conclusions. For some, the Byzantine period began when the climate was significantly drier than during the first century BC and the first century AD. The climate gradually became more arid in the course of the Byzantine period (Frumkin *et al*. 1994, 323, fig. 6; Frumkin 1997, 240, figs 22–4; but see Weninger 2009, 9, fig. 4).

The timing of the onset of the aridification of climate is somewhat disputed. Bruins (1994, 308) considers the entire Byzantine period, beginning from the fourth century, as one of gradually increasing aridity. While most research supports the gradual drying of the climate after the fourth century (Frumkin 1997, 244; cf. Enzel *et al*. 2003, 268, who date the onset to the late fifth century), there is some evidence for the continuity of the relatively humid climatic phase into the Byzantine period.

Heim *et al*. (1997) have obtained sedimentological and palynological evidence for climate conditions over the past 2500 years from a 3.60 m core (DS 7-1 SC), drilled in 1993, in the floor of the Dead Sea just to the northeast of `Ayn Gedi. Pollen obtained from the core includes cereals, olive, walnut, and grape. This, in the opinion of the authors, supports intensive cultivation of these Mediterranean plants (Heim *et al*. 1997, 399). Specifically, walnut and grape were grown, in particular, during the Roman and Byzantine periods (*c*. 70 BC–AD 600). In summary, the palynological evidence suggests a less arid period *c*. 2000 BP. In the opinion of Heim *et al*., this period continued until *c*. AD 700 ± 50–100 years (1997, 41, fig. 3; see also Weninger 2009, 9, fig. 4).

Issar sees climatic change as the main factor in the expansion of settlement (1995; 1998; Issar and Govrin 1991; Issar and Makover-Levin 1995). A second position minimizes the influence of climatic change and emphasizes the role of human abilities as the main agent of the expansion of settlement in this period (Hirschfeld 2004, 133). For example, Patrich (1995, 473) is of the opinion that the prosperity and density of the Negev settlements, in the area to the west of the territory of interest, should be attributed more to state encouragement and human labour than to major climatic factors. He thinks that if a climatic change did occur, it was on a minor scale – perhaps increasing the average yearly precipitation by not more than 50 mm and increasing only slightly the number of rainy days per annum (Patrich 1995, 473).

Once again, as with the Iron II period, there does not appear to be a correlation between good climatic conditions and the high population that is evidenced not only in this area, but throughout the Levant during the Byzantine period. Here, again, the "filling up" may be due to increased populations elsewhere or, as Patrich indicates "state encouragement and human labor" (1995, 473). This necessitated the use of a peripheral area to "house" this increase. The people involved,

during both the Roman (Nabataean) and Byzantine periods, would probably have been those who had been there all along plus newly-arrived immigrants.

Literary and Epigraphical Evidence

The literary sources for the period consist of: ecclesiastical writers (documenting the history of the church and the lives of the saints); secular histories and writings in praise of the emperor; documentary material, for example, church councils, law codes, and military and administrative texts; and regional records such as papyrus archives. In addition, there are inscriptions, either dedicatory, public monumental, or funerary (Shahid 1984, 1–4; Watson 2008, 443). These sources will be used throughout the chapter in conjunction with the treatment of the archaeological evidence.

Archaeological Evidence

Archaeological evidence for the Byzantine period is found throughout the territory of interest here. The presentation will, once again, be from north to south on the plateau and then in the same direction for the area of the Dead Sea Rift Valley.

Wadi al-Hasa Archaeological Survey Territory

WHS team members collected Byzantine period-sherds from 125 – or 11.64% – of the 1074 sites they documented. At 52 of these sites, Byzantine sherds were predominant (MacDonald *et al*. 1988, 232–238, table 51 and 239, fig. 60). However, at 11 of these 52 sites, five or fewer Byzantine sherds were collected. In addition, what was read as Late Roman–Byzantine, Byzantine–Umayyad, and Byzantine/Mamluk sherds were collected at a number of sites (MacDonald *et al*. 1988, 232–249, tables 52 and 53).

A glance at the settlement pattern map for the Byzantine period of the WHS territory will show immediately that the sites for the period are located in three areas: 1) west of Wadi La`ban; 2) in Wadi al-`Ali; and 3) in the eastern extremity of the survey area in association with Wadis ar-Ruweihi and al-Hasa (MacDonald *et al*. 1988, 239, fig. 60). However, more than half of them are located to the west of Wadi La`ban. A large number of these sites are multi-period ones and, thus, without excavation, it is impossible to determine the extent of Byzantine occupation at them. Nevertheless, they could have been villages, hamlets, or farms during the period in question. The wadis of the survey territory do not seem to have been extensively employed as places of Byzantine activity. Was this due to the fact that they contained little or no water at the time? A surprise is that there is almost no evidence of Byzantine presence along the route of the *Via Nova Traiana*, which cuts through the area. There is evidence of a route between Wadi `Afra and Wadi La`ban leading to/from Wadi al-Hasa. It could have been one which the Byzantines used (MacDonald *et al*. 1988, 295) (Fig. 6.1).

Khirbat adh-Dharih and the Hermitage of John the Abbot are two significant Byzantine-period sites within the WHS territory. They will be treated in some detail.

Khirbat adh-Dharih

As indicated in the previous chapter, Khirbat adh-Dharih is a major site in Wadi La`ban. Its Roman (and Nabataean)-period remains are described above (al-Muheisen and Villeneuve 2005, 489; Delhopital *et al*. 2009, 805). The interest here is in its reoccupation, probably in the late sixth to mid-seventh centuries. The Christian settlement consists of a series of domestic units located within the northern courtyard of the Nabataean sanctuary. Here, also, the apse of a small church is clear. The excavators uncovered a lintel near the southern gate of the main courtyard of the sanctuary. It probably belonged to the gate that served as the main entrance into the hamlet. The lintel is adorned with an incised Greek cross inside a circle. Two rosettes flank the cross (al-Muheisen and Villeneuve 2005, 498).

Hermitage of John the Abbot

The Hermitage of John the Abbot, at Hammam `Afra (WHS Site 104), is located in Wadi `Afra, about 3 km south of its confluence with Wadi al-Hasa. It consists of three caves, containing paintings and inscriptions, on the east side of the wadi. About 25 m to the west of the mouth of the caves, the top of a rock has been carved out to form a "room" with entrances, a window, but no roof at the time of the WHS team members' visit to it in 1979 and the early 1980s. Hot water comes from a number of springs in the sandstone on the west side of the wadi. Water flows in the wadi all year round and as a result there is lush vegetation. The area is now a public picnic location.

The caves constituting the hermitage are decorated with different techniques: plaster with painting on it, painting directly on the rock, and incisions. They need not all be contemporaneous. Medallions, which form part of the decorations, consist of crosses, a fish, and birds.

An inscription, which is incomplete, in the largest of the three caves indicates that the hermitage was finished by the zeal of the Abbot John, in the month of Artemisios (perhaps the eighteenth of the month) of the year…. This is the first evidence in the search for a monastery in the neighbourhood. There are two graffiti on the south wall of the same cave. One has a cross before the name of Theodore. The second graffito, which ought to be longer, is an invocation to Jesus, Lord or God of the angels, supposedly of the archangel Michael, to protect the writer (the monk) living in the hermitage. Piccirillo translates: "(O Lord Jesus Christ) of the archangel of the most High, save your servant…" (MacDonald 1980, 363–364; MacDonald *et al*. 1988, 243–244).

Tafila-Busayra Archaeological Survey Territory

TBAS team members collected Byzantine ceramics at the majority of the squares in Zones Busayra, 1, and 2 (MacDonald *et al*. 2004, 61–62). In addition, they collected sherds from the Byzantine period at 135 – or 46.55% – of the 290 sites documented. Moreover, TBAS Site 133, a Greek inscription (see below), is a Byzantine-period site. In addition, survey team members collected Byzantine/Early

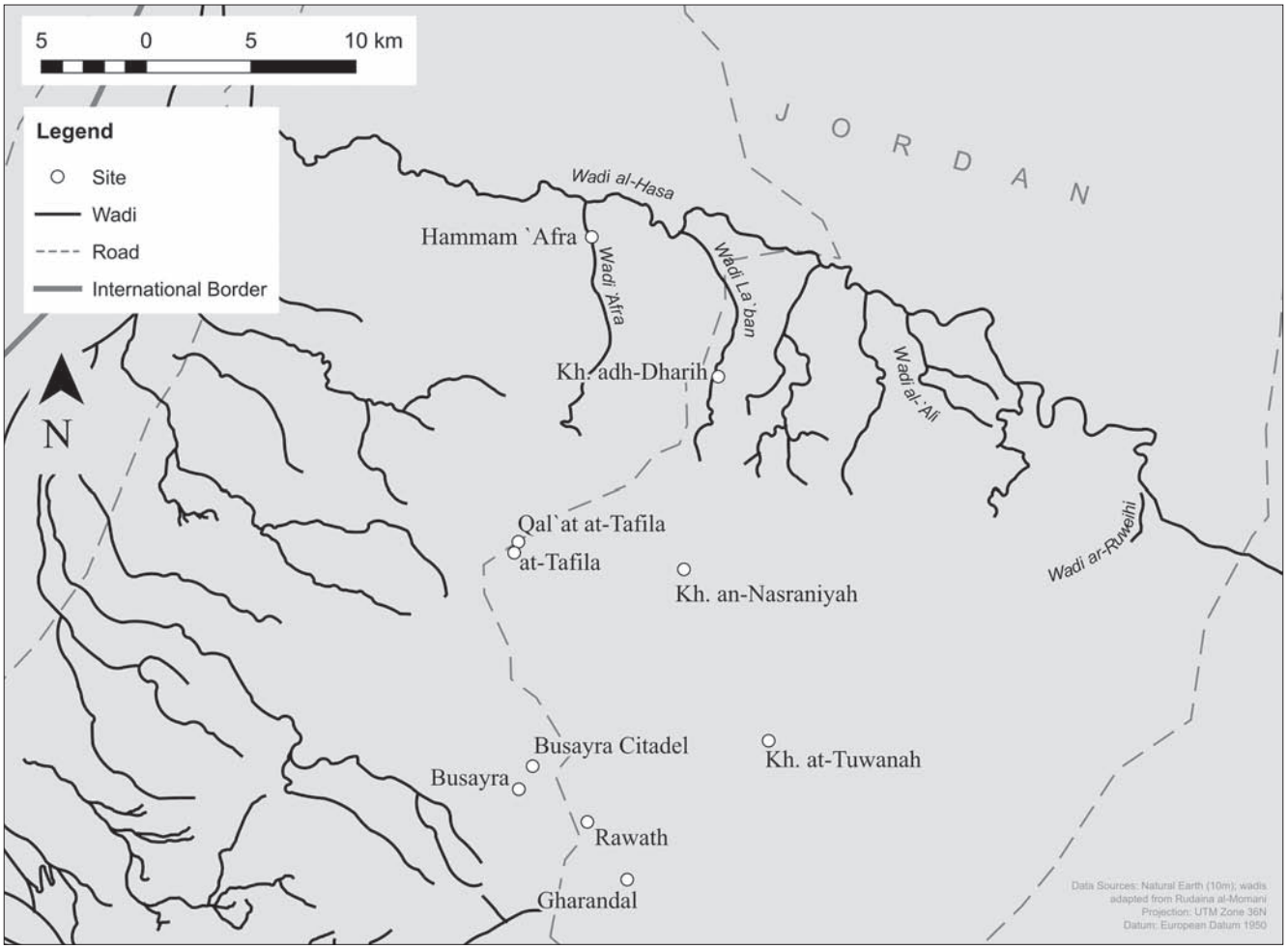

Fig. 6.1: Map of Byzantine sites and places mentioned in this chapter located within and nearby the WHS and TBAS territories.

Islamic sherds at 11 sites and Byzantine–Early Islamic sherds at two sites. Thus, they documented Byzantine presence at around 50% of the sites investigated (MacDonald *et al*. 2004, 61–62, and fig. 25).

It is apparent that the Byzantine period was one of intense occupation of the TBAS territory. Sites from the period are found throughout it. They are in the form of agricultural villages, especially in the western half of the area; farms; churches (see below), in the neighbourhood of Busayra; and camping sites, indicating pastoralism, throughout the region. It would appear that the resources of the area were fully exploited during the period (MacDonald 2004, 65). Much of this could have been associated with services provided to the mining and smelting industries in Wadi Faynan in the lowlands to the east (see below).

Khirbat at-Tuwana

Khirbat at-Tuwana (TBAS Site 192), a major commercial site along the *Via Nova Traiana* during the Roman (and Nabataean) period (see previous chapter), probably continued to exist during the Byzantine one. However, Late Byzantine sherds (sixth century AD) are few and the transitional types into the Umayyad period are practically non-existent. Thus, the town probably declined or ceased to exist during the Late Byzantine period (Fiema 1997, 315). This conclusion appears to be supported, as indicated above, by the few Byzantine sites associated with the *Via Nova Traiana* both north and south of the site.

Greek Inscription (TBAS Site 133)

Glueck visited the Busayra Citadel (TBAS Site 135) in 1933. At the eastern end of a small mound south of the modern village he noted "the ruins of a church, oriented due east and west and measuring 13 by 6 meters. There is a ruined apse at its east end" (Glueck 1934, 78). He found four half-columns inside the walls of the building and Nabataean, Byzantine, and Medieval Arabic sherds on the sides and top of the mound (1934, 78). Saller and Bagatti, presumably dependent on Glueck, list Busayra as the site of a church in their brief survey of ancient Christian monuments in Transjordan (1949, 228, figs 14 and 231, #122). There is presently no evidence of the material remains that Glueck noted. However, there may be confirmation of the existence of such a church, or possibly a second one, by the discovery of a Greek inscription that TBAS team members documented in 1999. The inscription, which includes a large Christian text, is on one of the stones forming an arch of a roofless house in the abandoned Ottoman village of Busayra. The particular stone of interest here is

in secondary usage since the inscription is presently upside down (MacDonald *et al*. 2004, 275, Photo 22).

The surviving portion of the inscription measures 30 cm in height and 42 cm in width, with letters that are 4 cm high. It appears that it was meant to be visible from a distance of several metres. If, indeed, the inscription belonged to the church that Glueck mentioned, then it could have been located originally on the lintel above the (main?) entrance to the church. The inscription itself is a quotation from Psalm 120.8 and the large cross that divides the text into two equal parts, in combination, suggests undeniably a Christian context. The writing is centred around the cross – such is standard practice – with equal number of letters on each side. Reconstructed, the text reads, in English: "Lord, protect your entrance and exit. It was written in the year [ ]" (Gagos 2004, 422).

Greek Inscription at Qal`at at-Tafila (TBAS Site 151)

TBAS team members discovered a second Greek inscription while documenting the Crusader Castle, Qal`at at-Tafila (TBAS Site 151 [see below]) (MacDonald *et al*. 2004, 300–302, photos 28 and 29), located in an old segment of the town of at-Tafila. The inscription is on one of the stones forming the bottom half of the north wall of the castle. Thus, like the previously-discussed one, it is in secondary usage since it is now turned on its side. The entire inscription, although difficult to read, is indeed present since it appears that there is a boss on all sides of the stone which measures *c*. 27 cm in width by 23 cm in height.

The text of the inscription belongs to a very well-known and well-attested type of Christian invocation. Here, in English, is what Gagos reads: "[Lord?] come to the aid of … Mark" (2004, 422).

Khirbat an-Nasraniyah

Khirbat an-Nasraniyah (TBAS Site 168) is located to the northeast of Busayra. At this site, Glueck recorded a fallen lintel decorated with three carved Byzantine crosses, each enclosed in a circle (1935, 98). The site is probably an agricultural village and the pottery that TBAS team members collected at it is predominantly Byzantine (MacDonald *et al*. 2004, 321). Across an agricultural field and up the hill to the north, a distance of *c*. 200 m, is a building with a mosaic on its floor. Its entrance faces south. It could have been a church (Saller and Babatti 1949, 231; Schick 1994, 135). However, although excavations have been carried out at the site, the results of the work have not been published.

Gharandal

Gharandal, in al-Jibal (Graeco-Roman Gabalitis) – located 5 km to the southeast of Busayra and 15 km south-southeast of at-Tafila – was called Arindela and `Arandal in the Byzantine and Early Islamic times, respectively (Walmsley 1998, 433; Walmsley *et al.* 1999, 459). It was at this time that it came to historical prominence. It was the third ranking town of *Palaestina Tertia*, the capital of Jibal and the seat of a bishop (Walmsley 1998, 433).

According to Walmsley (1998, 433), Gharandal was probably a Nabataean town that replaced Iron Age Busayra as the main political centre of al-Jibal. Records from early church councils register two bishops from Arindela. Byzantine remains at the site consist of a church with prominent upright monolithic columns, a large double-rectangular enclosure south of the church on the ridge summit, remnants of other substantial buildings, and extensive domestic quarters (Walmsley 1998, 434).

The church is a well-constructed, single-apsed, colonnaded basilica with an impressive narthex. Three doors gave access to the narthex from a cobbled courtyard. Mosaics were uncovered in the narthex and both aisles while the floor of the nave was covered with pavers. The recovery of glass tesserae indicates that the church's internal walls were decorated with glass mosaics while tiles indicate that the roof was tiled. The sanctuary is raised and remnants of chancel screens have been identified. Although no inscriptions were discovered at the church, the excavators date it to the fifth–eighth centuries (Walmsley *et al*. 1999, 463–464).

The above-described Greek inscriptions, the church at Gharandal, as well as other sites – for example, Khirbat Qasr ad-Dayr I and II (TBAS Sites 2 and 3 respectively) (MacDonald *et al*. 2004, 154–155); Khirbat `Ayn al-Beida' (TBAS Site 5) (Glueck 1934, 79; MacDonald *et al*. 2004, 158–159); and Khirbat ad-Dayr (TBAS Site 15) (MacDonald *et al*. 2004, 173) – indicate Christian presence in the region during the Byzantine period. Relative to "ad-Dayr" in a site's name, it is generally recognized that such indicates that locally it was known as the location of a church and/or monastery.

Rawath

Rawath, which is located a short distance to the northwest of Gharandal, is to be equated with Byzantine Rabatha. It has not been excavated and is considerably damaged (Walmsley *et al*. 1999, 475).

Shammakh to Ayl Archaeological Survey Territory

SAAS team members collected Byzantine-period sherds at 50 – or 46.30% – of the random squares they transected; Byzantine/Early Islamic at one random square; and Classical (Hellenistic–Byzantine) sherds at 27 random squares. In addition, at the 366 sites documented, they recorded: Roman-Byzantine sherds at two sites; Late Roman–Byzantine at one site; Roman/Byzantine at two sites; Byzantine at 189 – or 51.64% – of the sites; Byzantine/Early Islamic at seven sites; Late Byzantine/Early Islamic at one site; and Classical (Hellenistic–Byzantine) at 24 sites. Here again, for this period, as for the Iron II and Roman (and Nabataean) periods, the Byzantine period is well represented. It is also represented in the form of villages, hamlets, farms, pastoralists' camps (probably seasonal), and sherd scatters (MacDonald *et al*. 2010; 2011) (Fig. 6.2).

Wadi Musa Water Supply and Wastewater Project (WMWSWP)

The findings of the Wadi Musa Water Supply and Wastewater Project (WMWSWP) (see previous chapter and Fig. 5.3) are in keeping with those of the SAAS project. WMWSWP team members recorded Late Roman–Byzantine pottery at 24% of the 132 sites documented. They conclude that, as in the previous period, the landscape was exploited by an agricultural society (`Amr *et al*. 1998; `Amr and al-Moumani 2001).

Jabal ash-Sharah Archaeological Survey

Tholbecq, in his "Jabal ash-Sharah Archaeological Survey", mentioned in previous chapters, recorded 160 sites. Of these, "the Byzantine period is represented on one-fifth of the sites" (Tholbecq 2013, 300).

Udhruh (SAAS Site 150)

As indicated in the previous chapter, the fortress at Udhruh was rebuilt *c*. 303–304 and Kennedy and Falahat think that it was where *Castra Legionis VI Ferratae* was stationed in the early years of the fourth century (2008, 152). According to Killick, the *Principia*, which he excavated in 1981–1982, "had been extensively remodelled in the Byzantine period and the rest of the site witnesses extensive rebuilding in that latter period, probably destroying remains of the Roman barracks, Roman baths and other monuments" (1989, 579). Killick goes on to remark that the Byzantine and Islamic periods are illustrated by an extensive reconstruction and re-arrangement of the site. In addition, he posits that the Byzantine settlers erected several houses on top of the Nabataean kiln located outside the walled town (Killick 1989, 579).

Udhruh paid the second highest amount of taxes recorded in the Beersheba Edict, a list of sites (mostly in *Palaestina Tertia*) of the early sixth century (Killick 1983a, 231; for an interpretation of the edict see Di Segni 2004). This attests to its continued importance during the Byzantine period.

Udhruh Church

The Udhruh Church (SAAS Site 193) is located outside the walls, at the southwest corner, of the fort. It appears to have been triapsidal at one time and underwent changes through reuse, for example, as a mosque. The church's mosaic floor, under a later one, is badly damaged (Falahat 2007, 543). Within the structure, SAAS team members noted a baptismal font in a side room on the north, a holy water fountain at

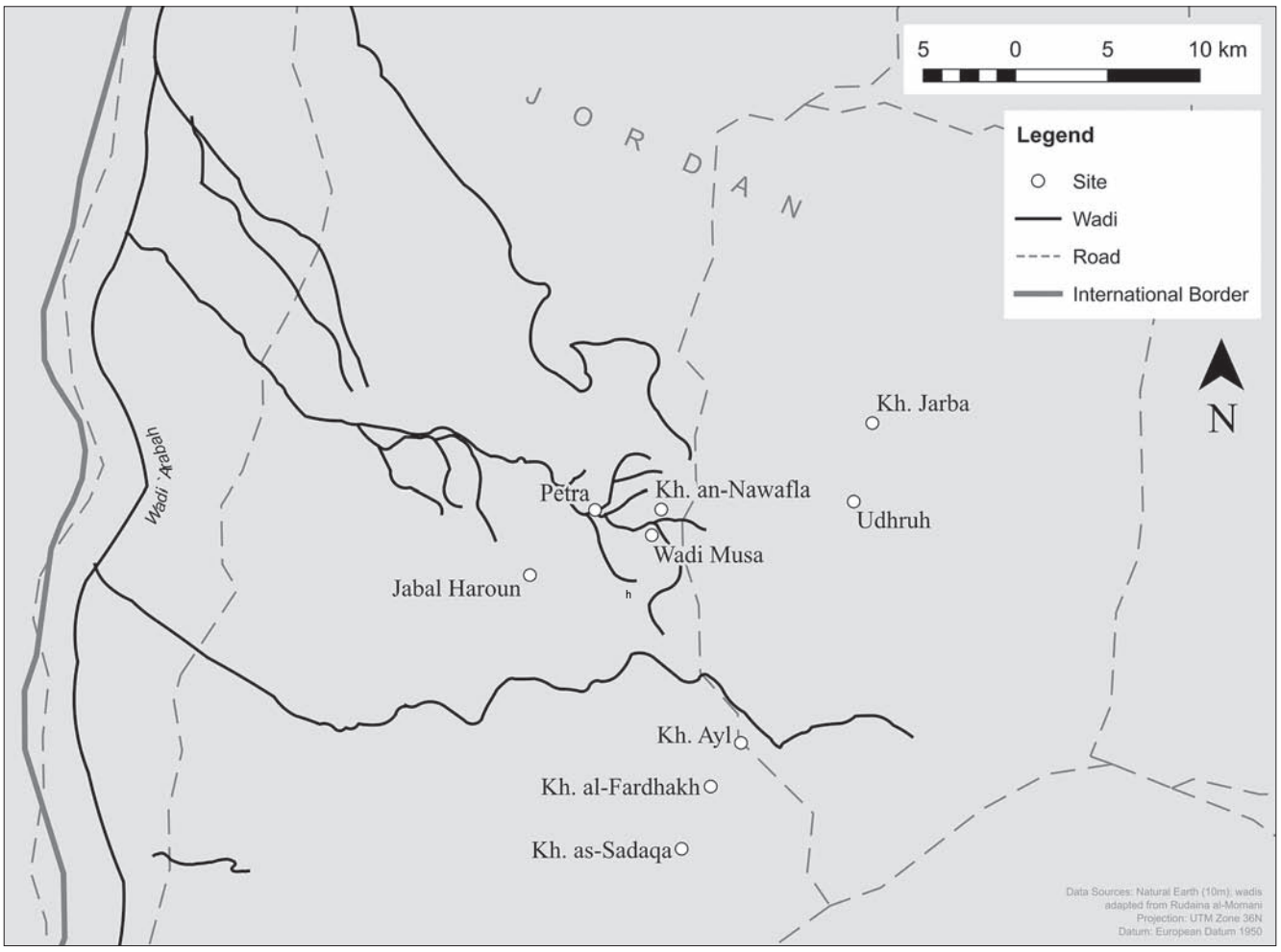

Fig. 6.2: Map of Byzantine sites and places mentioned in this chapter located within and nearby the SAAS and ARNAS territories and the Petra region.

the entrance, a sarcophagus near the north entrance door in the narthex, parts of columns and their bases, and parts of the chancel screen in the nave area. The church's excavators found human burials underneath the floor of the church. They date the Byzantine sherds, which they collected in the church and in association with the burials, to the fifth century–early Islamic period (al-Salameen *et al*. 2011, 239).

Four Arab-Christian inscriptions, written on limestone blocks found within the church and on the northern wall of the church's northern aisle, ask God for forgiveness for both the writers and their relatives. According to al-Salameen *et al*. (2011), one is dated to between AD 642 and 811 and the other to AD 1246.

Udhruh Archaeological Project (UAP)

Recent work around the Udhruh fortress on the part of the "Udhruh Archaeological Project" (UAP), a cooperative venture between the University of Leiden and Jordan's Al-Hussein Bin Talal University, has shed new light on an underground system of canals and aqueducts (often referred to as qanats) and reservoirs with capacities for millions of litres of water. According to UAP team members, this agricultural system transformed the region into a complex man-made landscape. They conclude that it was certainly exploited in the sixth century and could have been established and exploited throughout the Roman (and Nabataean), Byzantine and into the early Islamic times. Although the area around Udhruh is relatively barren at the present, members of the UAP think that it could have been a "huge green oasis" in past times.

Petra Region

Petra's hinterland during the sixth/seventh century is marked by a notable reduction in the number of sites compared with the Roman (and Nabataean) period (Fiema 2001, 114). However, Khirbat an-Nawafla, mentioned in the previous chapter, needs to be considered here.

Khirbat an-Nawafla

Khirbat an-Nawafla (SAAS Site 358) (MacDonald *et al*. 2011, 371), mentioned in the previous chapter as a site whose main occupation began in Nabataean times and as having been reduced in size in the Late Roman/Early Byzantine period, started to expand again during the Late Byzantine period. Its Christian inhabitants left many relics including crosses carved on stones. A monumental building, probably the local church, was constructed during this period. It continued to be used during the Early Islamic period (`Amr *et al*. 2000, 239–241).

Petra and Christianity

According to the *Notitia Dignitatum* (Seeck 1876, Or. II 9, 14, 16, 17), written at the end of the fourth or the beginning of the fifth century, Petra became the capital of *Palaestina Salutaris* (later known as *Palaestina Tertia*), after rearrangements of the Roman provincial administration and its boundaries in the fourth century (Pharr 1952, VII.4.30) (The *Codex Theodosianus* [Pharr 1952] was a compilation of the laws of the Roman Empire under the Christian emperors since 312). As was typical elsewhere, provincial authority was divided between a civilian governor, or *praeses*, and a military governor, or *dux*. This status was retained at least until the end of the sixth century (Fiema 2001, 112–113).

Eusebius in the *Onomasticon*, which was written between 313 and 325, and Jerome's *Book on the Sites and Names of Places of the Hebrews*, a translation and notes on the *Onomasticon* (some 70 years later) (Taylor *et al*. 2003; MacDonald 2010, 28), calls Petra a "noble/famous city" (36.13–14). In a later account, written between 324 and 337, he writes that churches were built there (Hollerich 1999, II.23.42.11–12). In the same account, Eusebius characterizes Petra as a place "filled with superstitious men, who have sunk in diabolical error" (Hollerich 1999, II.23.38–41) (Fiema 2012, 31).

None of the churches that Eusebius refers to have been identified. The ones within Petra that have been excavated are dated to at least a century later (see below).

The division among Christians at Petra is indicated by the fact that some of the city's bishops attended Orthodox councils while others attended Arian ones. For example, at the Council of Sardica in 343, Asterius of Petra deserted the Arians and went over to the opposition. For this, the emperor Constantius, Constantine's son, banished him. Once reinstated, he attended the Orthodox council in Alexandria in 362. Germanus of Petra, on the other hand, was one of the signatories of the semi-Arian Council of Seleucia in 359 (Fiema 2012, 32).

There are no records of bishops from Petra attending church councils of the fifth and sixth centuries. The only exception is Bishop Theodoros, who attended the anti-Monophysite Synod in Jerusalem in 536.

John Moschus, a monk who lived in the late sixth–early seventh centuries, recounts the "saying" of Abba John of Petra to him and his friend and travelling companion, Sophronios (Moschus 1992, 94, ch. 113). He also mentions Abba Athenogenes, Bishop of Petra (Moschus 1992, 103–107, chs. 127–129).

At the turn of the fifth century Petra became a place of exile for ecclesiastics and common criminals (Fiema 2001, 113). However, by the late fifth century it was an important and seemingly prosperous Christian town. Recent excavations within the town have uncovered three churches: 1) the Church of Saint Mary or the "Petra Church", late fifth–early seventh century (Plates 37–41); 2) the Ridge Church, sixth century and probably destroyed by the earthquake of AD 551; and 3) the Blue Chapel (Plate 42), late fifth or early sixth century AD. Moreover, ad-Dayr, "the monastery" (Plate 43), and a nearby hermitage indicate Christian presence as does the fact that an inscription within the Urn Tomb commemorates its conversion into a church in AD 446 (Plate 44). From the above, it appears that Byzantine Petra became the religious centre of the region (Perry and Bikai 2007). (As part of the

"Beidha Documentation Project", Bikai *et al*. [2005, 340; 2007, 371] found another church which was used in both the Byzantine and Crusader eras). (See Figure 5.5, previous chapter, for locations of the above-mentioned churches).

An inscription found at al-Rabba/*Areopolis* in Moab dates to 687 when Stephen was the metropolitan (an ecclesiastical position) of the town. It indicates that the seat of the metropolitan of *Palaestina Tertia* was transferred from Petra, the capital of the province in the Byzantine period, to al-Rabba, shortly after the Islamic conquest (Schick 1994, 142).

The AD 363 Earthquake and its Effects on Petra

Petra suffered a devastating earthquake in AD 363. Excavations have shown that shops along the colonnaded street of the city were damaged. However, they continued to be used following the disaster until they were gradually abandoned in the mid-seventh century. Domestic structures on az-Zantur were largely abandoned after the earthquake. However, the final stage of occupation in that area of the city ends in the early fifth century. The earthquake also destroyed the Great or South Temple/Great Palace/Audience Hall, as well as some vital dams within the Siq. The repairs to the latter were neither sufficient nor durable since this entrance to the city seems to have been no longer in use by the mid-seventh century (Fiema 2001, 113).

When the Church of Saint Mary/"Petra Church" was built and being used, some major architectural landmarks of Petra – for example, Qasr al-Bint, the Temple of the Winged Lions, the Great or South Temple/Great Palace/Audience Hall, the theatre, and the Colonnaded Street (see previous chapter and Fig. 5.5) – either lay in ruins or were only hastily or partially restored following the earthquake. The shops that formerly lined the Colonnaded Street were replaced by simple structures in the fifth and sixth centuries. Although Petra was still an enclosed city, large parts of it, especially the south-central area, were abandoned in most of the Byzantine period (Fiema 2001, 116). Thus, the city could not have been the orderly one it was in the Roman (and Nabataean) period.

The Petra Papyri

In 1993, during the excavation of the Church of Saint Mary/"Petra Church", which is located in the centre of Petra, the excavators found carbonized Byzantine papyrus scrolls. The scrolls cover a period of some 50 years between AD 528 and 578 (or perhaps 582), that is, during the reign of Emperor Justinian (AD 527–565) and his successors. They needed extensive conservation work before they could be read. They are generally referred to as the "Petra Papyri" or "Petra Scrolls".

The scrolls, which are written mainly in Greek, consist of economic documents dealing with possessions, dispositions, and acquisitions of real estate and other types of property. The people depicted in them are all wealthy landowners. Relative to these people, the scrolls contain sworn and unsworn contracts, agreements and settlements of disputes concerning loans, sales, divisions of property, cessions, registrations, marriages, and inheritance The documents make reference to Petra as well as other settlements and places around Petra. They mention the Church of Saint Mary, "Monastery (Holy House) of the Saint High Priest Aaron" (see below), and other buildings such as "the Hospital/Hostel of the Saint Martyr Cyricus in the city of Petra". Among the key figures in the texts are men of administrative ranks – ecclesiastical, civilian, and military (Bikai 1996; Gagos and Frösén 1998, 477).

In the Petra Papyri, Udhruh/Augustopolis and Kh. as-Sadaqa/*Kastron Zadacathon* appear to still have been under the jurisdiction of Petra, suggesting that, despite increasing regionalization, the Petra region formed a political and economic whole within the province of *Palaestina Tertia* until the end of the Byzantine rule (Kouki 2012, 17, 43).

Church and Monastery of Saint Aaron on Jabal Haroun

As mentioned above, the Petra Papyri mention the existence of "the Monastery (Holy House) of our Lord the Saint High-Priest Aaron" outside the city of Petra (Gagos and Frösén 1998, 477) (Plate 45). The specific papyrus, Inventory 6, is dated to June 13, AD 573 (or earlier) (Frösén and Fiema 2004, 7). The best candidate for this "monastery" is the ruins of a Byzantine monastery on Jabal Haroun.

Excavations on the part of the "Finnish Jabal Haroun Project" (FJHP) have uncovered a monastery below the peak of Jabal Haroun, located *c*. 5 km to the southwest of Petra. It is likely the one referred to in the Petra Papyri.

It is probable that a Christian structure was located at the summit of the mountain before a Muslim shrine was built there. This structure would, of course, have existed at the time the monastery was occupied. It was a memorial to Aaron, the brother of Moses and Miriam, who is believed to have been buried there. The Muslim shrine may, indeed, be a refurbished Byzantine church which was originally built in the time of Justinian.

Numbers 20.22–29 and Deuteronomy 32.48–51 locate Aaron's death at Mount Hor while Deuteronomy 10.6 locates it at Moserah. Josephus, on the other hand, places the death of Aaron on one of the high mountains that encompass Petra (*Antiquities* 4.4.7). Similarly, both Eusebius, in the *Onomasticon*, and Jerome, in the *Book on the Sites and Names of Places of the Hebrews*, place the death of Aaron at Or, a mountain near Petra (Taylor *et al*. 2003, 98; MacDonald 2010, 209–212).

The FJHP-excavated monastic complex included a church, a chapel containing a baptismal font, and auxiliary structures and rooms. A mosaic floor within the church dates to the sixth century. The excavators conclude "that the complex, in addition to its monastic function, had most probably also served as a pilgrimage centre dedicated to the veneration of Saint Aaron, between the late fifth and the eighth centuries AD, possibly continuing up to the Crusader times (twelfth century AD)" (Frösén and Fiema 2004, 6). An earthquake was probably responsible for the monastery's destruction

sometime in the sixth century. The church, along with the chapel, was restored and modified. Both continued to be used for centuries afterward; however, in a reduced and seemingly impoverished form (Fiema and Frösen 2008, 452).

Ayl to Ras an-Naqab Archaeological Survey Territory

ARNAS team members collected Byzantine sherds from 19, 24, and 31 random squares in Zone 1, 2, and 3, respectively (MacDonald *et al*. 2012, 420, table 5.4) – or from 52.86% of the squares. In addition, they collected sherds from the same period from 216 – or 55.53% – of the sites they documented (MacDonald *et al*. 2012, 427, table 5.10). Moreover, they collected Classical (Hellenistic–Byzantine) sherds from 20, or 5.14%, of the sites (MacDonald *et al*. 2012, 427, table 5.11).

As is the case for the Iron II, Roman (and Nabataean)-period sites in the ARNAS territory, the majority of the Byzantine-period sites are also located in Zone 2, that is, the zone in which there are the best possibilities for agriculture and pastoralism. Even those sites from the period in question that are found in Zones 1 and 3 are, for the most part, located in proximity to Zone 2, that is, in their eastern and western extremities, respectively. However, all the topographical zones in the survey territory appear to have been used during the Byzantine period (MacDonald *et al*. 2012, 428, fig. 5.7). This was probably due to the fact that even marginal areas had to be exploited. Finally, the Byzantine sites in the TBAS area, like those in the previously described ones are, for the most part, agricultural villages, hamlets, and farms.

Eleven of the Byzantine-period sites in topographical Zone 1 of the ARNAS territory are along an ancient – and now a four-wheel-drive-only – road that goes southwest from just south of Rajif on the plateau to Gharandal in Wadi `Arabah. It is likely that this was one of the routes from the plateau to Wadi `Arabah during the Byzantine period (MacDonald *et al*. 2012, 427). Moreover, as we will see below, on the basis of settlement patterns in areas to the south, it appears that the main route(s) shifted to the west of the *Via Nova Traiana* during the period.

To the south of Udhruh (SAAS Site 150), such sites as Khirbat Ayl (ARNAS Site 1), Khirbat al-Fardhakh (ARNAS Site 5) and Khirbat as-Sadaqa (ARNAS Site 7) most likely continued to exist during the Byzantine period. They are all located on a branch of the *Via Nova Traiana*, are substantial in size, and yielded pottery from the period in question. In fact, George of Cyprus refers to Khirbat al-Fardhakh as "*Pentacomia*, a Byzantine center" (MacDonald *et al*. 2012, 28–36).

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

Byzantine period sites are by far the most common ones within the SGNAS territory (Fig. 6.3). Project team members collected Byzantine-period sherds, without further specification, at 60 sites (MacDonald *et al*. 1992, 100, table 53); Early Byzantine ones at three sites (MacDonald *et al*. 1992, 108, table 54); Late Byzantine pottery at eight sites (MacDonald *et al*. 1992, 111, table 55); and Late Byzantine–Umayyad ceramics at two sites (MacDonald *et al*. 1992, 111, table 56). These sites range from sherd scatters to villages. For example, there are six Byzantine-period village/hamlet sites in the Northeast `Arabah. They are located along the "Old Road" between Wadis al-Hassiya and al-Ghuweiba. Other, near-by sites may be cemeteries associated with one or other of them.

In addition to the work on the part of SGNAS team members in the area, ongoing work on the part of such individuals as Politis (2012a–b) and Meimaris and Kritikakou-Nikolaropoulou (2005) have added immeasurably to our knowledge of the region.

Dayr `Ayn `Abata

Dayr `Ayn `Abata, a Byzantine monastery located on the eastern slopes of the Dead Sea just to the north of Wadi al-Hasa, has been excavated and a final report on it is published (Politis 2012a–b) (Plate 46). However, since the site is located north of the territory of interest to this work, it will not be treated here.

Hermitage at the Mouth of the Wadi al-Hasa Gorge

A hermitage (SGNAS Site 7) is located just to the southeast of Khirbat Sheikh `Isa, at the mouth of the Wadi al-Hasa gorge and on its north bank (MacDonald *et al*. 1992, 104 and 250; MacDonald 2010, 202). A Greek inscription scratched on a wall of the hermitage reads: "O Lord God of this holy place, come to the help of your servant" (Saller and Bagatti 1949, 195). This hermitage was at one time identified with "The (place) of Saint Lot" of the Madaba Mosaic Map. However, since the 1986 discovery of the monastery of Saint Lot at Dayr `Ayn `Abata (SGNAS Site 46), the site is deemed to be a hermitage. It could have been associated with Lot's Cave/Dayr `Ayn `Abata. There are other hermitages and church/monastery sites in the area, for example, those on the Lisan Peninsula to the northwest of Lot's Cave (Holmgren and Kaliff 1997; 2005), as well as the Hermitage of John the Abbot described previously.

Khirbat Sheikh `Isa

Khirbat Sheikh `Isa (SGNAS Site 4) is frequently identified with Christian Zoara/Zoar of the Madaba Mosaic Map (MacDonald 2010, 31–33). On this late sixth century AD map, Zoora, or Zoara, is depicted as a fortified town with three towers and an arched entrance gate, surrounded by six date palms. Alliata identifies the "Balak also Segor, now Zoara" of the map with Ghor as-Safi (1999, 58). He does not specify a particular site.

The site of Bala/Sigor/Soora/Zoar/Zogora/Zoora is of importance to both Eusebius (*c*. 260–339) and Jerome (*c*. 342(?)–420), who, in the *Onomasticon* and *Book on the Sites and Names of Places of the Hebrews* respectively,

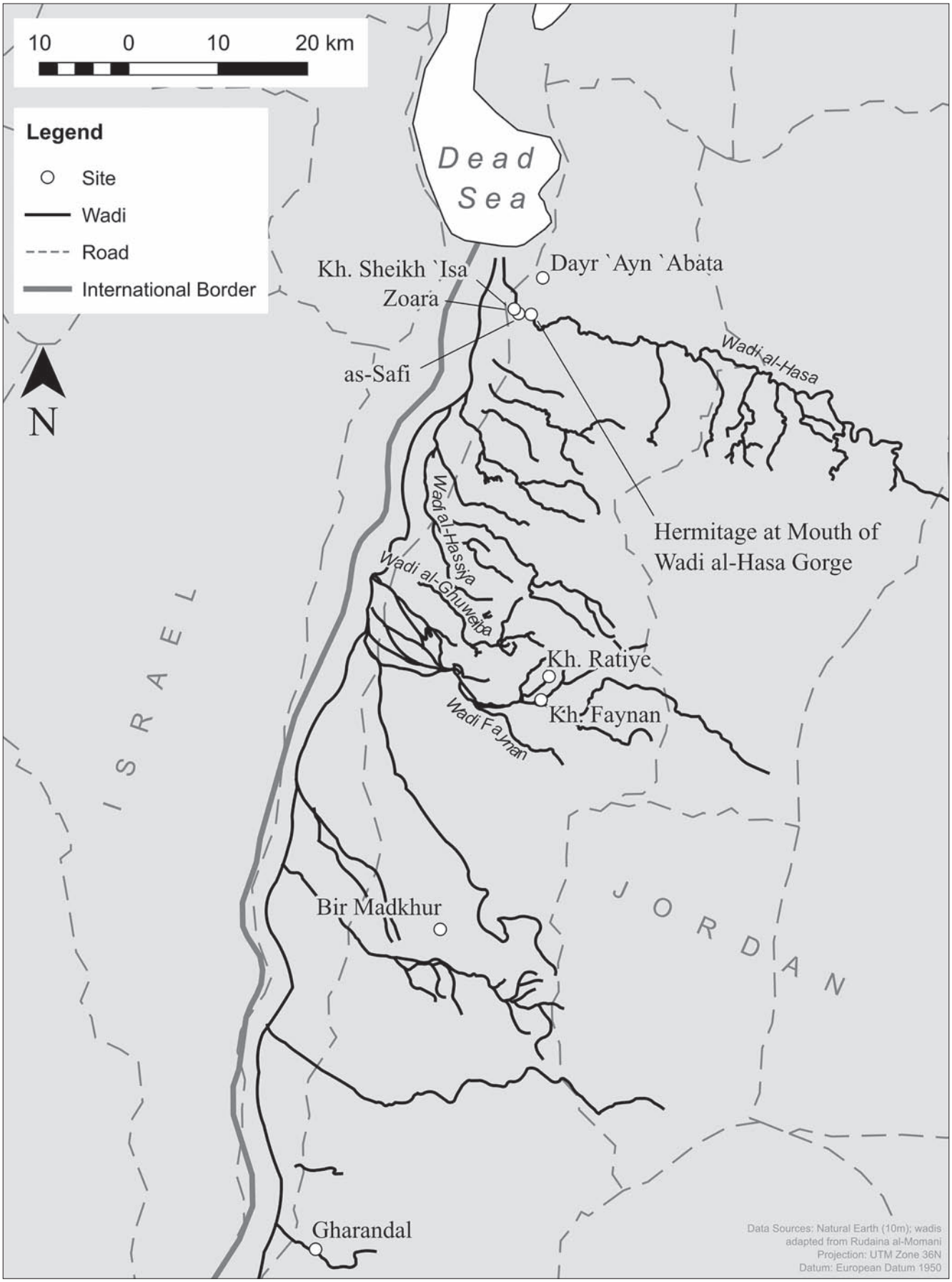

Fig. 6.3: Map of Byzantine sites and places mentioned in this chapter located within the SGNAS territory, the Faynan region, and the Northeast `Arabah.

provide multiple entries for it under various names. It was a town that would have existed in their time, that is, fourth and fifth centuries. Eusebius and Jerome locate the site beside the Dead Sea. They see it as the location of a garrison of (Roman) soldiers and, Jerome adds, manned by the inhabitants of the town. Moreover, it was a prosperous place, growing both balsam and date palms (Taylor *et al*. 2003, 31 and 54; MacDonald 2010, 200).

The *Notitia Dignitatum* (Seeck 1876, 34.26), dated to the end of the fourth and beginning of the fifth century, also indicates the presence of a Roman garrison at Zoar (MacDonald 2010, 200–201). Thus, a substantial military presence was located at the site. It would have controlled the Dead Sea Rift Valley (Parker and Smith II 2014).

Early Byzantine Zoora was the seat of a bishop in the Province of *Palastina Tertia* (Meimaris and Kritikakou-Nikolaropoulou 2005, 4).

Explorers who have visited the site over the years have reported column drums, grave markers (some with crosses and menorahs), inscriptions (Greek and Aramaic) incised on stones, coins (Byzantine and Islamic), and Byzantine and Mamluk/Ottoman sherds at it (MacDonald *et al*. 1992, 112–113; Whitcomb 1992, 115). More recently, Photos-Jones *et al*. (2002) have carried out a survey of the area followed up by test excavations. Their work has expanded to encompass the entire Ghor as-Safi (Politis *et al*. 2005; Meimaris and Kritikakou-Nikolaropoulou 2005, 4).

Greek and Jewish-Aramaic Inscriptions from Ghor as-Safi

Over 700 inscriptions, in Greek and Jewish-Aramaic, originate from the an-Naq` cemetery, a burial place since the Early Bronze Age located on the south bank of Wadi al-Hasa just to the south of the modern town of as-Safi. The inscriptions were among the stones forming the walls or the cover stones of graves, found always with the inscribed surface facing towards the dead. None of these inscriptions have been found, however, as the result of scientific excavations (Meimaris and Kritikakou-Nikolaropoulou 2005, ix; 2008).

The most characteristic elements of the inscriptions are the great number of Greek personal names, as well as the many Hellenised-Nabataean, Arabic and Latin ones; Christian and Jewish expressions and symbols; dating formulae; and indication of the age of the deceased. All this information contributes to the history of Zoora and its district during the fourth–sixth centuries AD (Meimaris and Kritikakou-Nikolaropoulou 2005, ix).

The Wadi Faynan Landscape Survey (WFLS)

According to The Wadi Faynan Landscape Survey (WFLS), by the Late Roman/Byzantine period the landscape of the area was severely compromised by the scale of industrial and agricultural activity. The production of copper required large quantities of charcoal and timber, that had to be brought in from the plateau above. This was due to the fact that the local environment had been stripped of suitable vegetation. The intense smelting activity around Khirbat Faynan produced a dense pall of airborne pollution that affected plants, animals, and people. Fertilizing the fields with domestic and household waste from Khirbat Faynan exacerbated the situation (Barker and Mattingly 2007, 427) (Fig. 6.3).

Metallurgical Activity during the Period

There is considerable debate about copper production in the region of Wadi Faynan during the Byzantine period. While some researchers argue that copper production is not attested at all in the Early Byzantine period, others suggest that it stopped in the late fifth century (Hauptmann and Weisgerber 1992, 65); still others posit that it continued into the sixth century and that the town of Khirbat Faynan did not decline in importance until the late sixth, or possibly even the early seventh, century. This is the position of the WFLS (Barker and Mattingly 2007, 427–428; see also Jones *et al*. 2012, 70). At any rate, copper production certainly did not continue on any significant scale in the following centuries (see next chapter). The evidence indicates a dramatic change in the use of the landscape following the seventh century (Barker and Mattingly 2007, 427–428).

Khirbat Faynan and associated Cemeteries

Khirbat Faynan (see previous chapters), *c.* 15 ha in size, is almost certainly the location of *Phaino*/*Punon*/*Pinon* (Numbers 33.43–43). Its identification is based on textual, toponymic, and archaeological evidence (Saller and Bagatti 1949, 231; MacDonald 2000, 83–84). The site appears to have been the only community existing in the wadi in the later Roman period and seems to have been inhabited almost totally by slaves and Christians sent to work the mines (Freeman and McEwan 1998, 68). Five or six churches have been identified in its immediate vicinity. All are of Late Roman/Byzantine origin. The best preserved of them are located on the eastern flanks of the Khirbat. The "monastery", which the WFLS labels Church 6, is situated on the lower slopes to the west of the Khirbat. It has an extensive cemetery around it and it is thought to have been re-used in the Islamic period (Creighton *et al*. 2007, 138–139).

Findlater *et al*. (1998) excavated a total of 45 undisturbed graves, each with a single inhumation, in the South Cemetery (WF3), located *c.* 500 m southeast of Khirbat Faynan. In addition, they investigated a further six robbed graves. The excavators date the cemetery to the Late Roman–Byzantine period (fourth–seventh centuries) (Findlater *et al*. 1998, 71–72). Some of the headstones associated with the graves have been published by Meimaris and Kritikakou-Nikolaropoulou (see below).

While excavating in the South Cemetery, Findlater *et al*. documented what they refer to as the "South Church". It is located *c.* 140 m to the northwest of the South Cemetery. The church is large, measuring 20 × 20 m, "with a semi-circular apse" (Findlater *et al*. 1998, 71).

Meimaris and Kritikakou-Nikolaropoulou have published 13 (eight of them previously published) inscriptions from

Wadi Faynan, specifically from the Khirbat Faynan area (2008, 147–161). Ten of them come from the South Cemetery, two from the west cemetery and one from the so-called "monastery" church. Nine are funerary stele, three are tombstones, and one is a sandstone block. They all date to the fifth and sixth centuries AD. The tombstones date to AD 592, a time associated with a famine at Phaino when "… one-third of the population (or mankind) died" (Meimaris and Kritikakou-Nikolaropoulou 2008, 153).

Khirbat Ratiye

Khirbat Ratiye is located to the northwest of Khirbat Faynan and closer to the mining area. It is a rectangular enclosed site, measuring *c*. 45 × 25 m. There is a 5 × 5 m tower-like structure within it with a large reservoir behind, fed by a floodwater catchment wall. There are around 30 simple structures around the main building and on the facing slope to the east. The WFLS's investigation of a midden located on the south side of the site yielded an assemblage of mainly Byzantine pottery and glass. The WFLS sees the site as possibly the control base of the mining supervisor and as accommodation for some of the mining work force. It could have, thus, served as a Roman/Byzantine mining-control site (Mattingly *et al*. 2007a, 310, fig. 10.2 and 319–321, fig. 10.15).

The Southeast `Araba Archaeological Survey Territory

At the end of the Late Roman period, the fort at Qa` as-Su'aydiyyin, and the one at Qasr Wadi at-Tayyibah, as well as sites that "The Southeast `Araba Archaeological Survey" team members recorded in the vicinity of `Ayn at-Tayyibah, were abandoned (Parker and Smith II 2014). However, the presence of imported fine ware (African Red Slip) and imported amphora sherds from the Gaza region and Egypt suggest that trade continued through the region (Parker and Smith II 2014). Moreover, occupation at settlements such as Gharandal and Bir Madhkur continued into the Early Byzantine period (Parker and Smith II 2014).

Pilgrimage

Pilgrimage to holy places within the area of interest on the part of Christians played some part in the local economy; this included, specifically, visits and probably overnight stays in some cases to such places as Dayr `Ayn `Abata in the Southern Ghors (MacDonald 2010, 189–205; Politis 2012a–b) and to the burial place of Aaron on Jabal Haroun (Fiema and Frösén 2008; MacDonald 2010, 207–223). Not only did the pilgrimages support the monasteries financially but they often provided the manpower that kept them in existence (MacDonald 2010, 23).

Military Presence

During the Byzantine period, occupation continued at such posts as Bir Madhkur and Gharandal in Wadi `Arabah (Smith II 2010a; Parker and Smith II 2014). Also, the road from Aila through Wadi `Arabah continued to serve a military, as well as a transportation, function. According to Parker, no new forts were built after the early fifth century (1986). Moreover, some forts were abandoned as military installations and used for civilian purposes, for example, Udhruh, by the end of the Byzantine period. However, the tax system at Petra included provisions for the army. Moreover, the presence of army personnel is attested in *Kastron Zadacathon*, generally identified with Kh. as-Sadaqa (ARNAS Site 7) (MacDonald *et al*. 2012, 35–36), in the sixth century (Fiema 2001, 115).

A Weakened Byzantine Empire

The so-called Justinian Plague and a Persian invasion of AD 614 weakened the Byzantine Empire and made it vulnerable to the Muslims. These are treated chronologically!

Justinan Plague

The reign of the Justianian I (AD 527–565) was noted for several things, one of which was a plague. Due to the fact that the outbreak of the plague occurred during his reign, it is often referred to as the "Justinian Plague". Procopius, writing in AD 542, informs us about it: "During these times there was a pestilence, by which the whole human race came near to being annihilated" (II.xxii). The plague, which has been claimed as one of the greatest in history, is said to have caused the death of tens of millions of people in the 540s. Moreover, throughout the Mediterranean basin, it returned in each generation until about 750. The plague weakened the Byzantine Empire and may have contributed to the success of the Muslim conquests of the seventh century.

Persian Invasion

In AD 614, the Persians, under Khosru II (AD 591–628), invaded Palestine as part of an attempt to re-establish the Achaemenid Empire. They destroyed almost all the Christian shrines in Jerusalem and Palestine. In an instant, nearly three centuries of work lay in ruins. However, the devastation did not affect the churches of Transjordan.

Soon after the Persian invasion, the Byzantine emperor, Haraclius, launched a 15-year campaign to regain, among other lands, Palestine. He captured Jerusalem in AD 629 (This would be the last time the Byzantines and Persians would war with each other). However, his triumph was short-lived. On the occasion of his victory, he did not observe that the Arabs had attacked a Byzantine outpost near the Jordan River. In quick order, the shattered Byzantine provinces could not defend themselves from the Arabs, and were quickly overrun.

The Muslim Conquest

The Byzantines defeated the first Muslim advances at Mu'ta, located on the Transjordan Plateau just to the north of Wadi al-Hasa, in AD 629. The tribes of southern Jordan, who were allied with the Byzantines, initially opposed the

Muslim invaders and a number of hostile encounters are recorded (Schick 1992, 113). In 630, Mohammed accepted the surrender of Udhruh (SAAS Site 150) and Kh. Jarba (SAAS Site 241) and negotiated with the local bishops. This indicates that there were no regular garrisons stationed in the south or any imperial administration.

The Byzantines' decision to end subsidies to the Arab tribes was a disaster. Unhappy tribesmen aided the Muslims in defeating their former allies. The Byzantine army was wiped out at the Battle of Yarmuk in AD 636. By 640, the last of the opposition against the invaders was removed. Most of the area submitted peacefully. Security of life and property were guaranteed in return for the payment of a poll tax (Schick 1995, 72–73; Watson 2001, 491; 2008, 470).

Conclusions

The Byzantine period is distinct from the Roman one insofar as it was oriented toward Greek rather than Latin language and culture and characterized by Christianity rather than Roman polytheism. It began at a time when the climate was drier than in the previous period. This lack of precipitation does not appear to have had a detrimental effect on population growth in the region. In fact, state encouragement and human labour seem to have been the factors affecting prosperity and the density of settlements.

The southern Transjordan Plateau and the Dead Sea Rift Valley to the west were intensely occupied during the period. The occupation is evidenced in both the literary and archaeological record. As for the latter, this is in the form of towns, villages, hamlets, farms, pastoralists' camps, churches, hermitages, inscriptions, roads, and metallurgical activity.

The churches of the area are of particular importance since they testify to the Christian character of the period. This is particularly the case for Petra, which appears to have been the ecclesiastical centre of the territory of interest. However, the number of churches and cemeteries, with the associated inscriptions, indicates that the Faynan region was more than just a centre for metallurgical activity.

There does not appear to have been a great dichotomy, as in several of the previous time-stratigraphic units, between the two main morphological segments of the study area. In fact, the types of sites, with the exception of the copper-working ones, appear to be similar.

The Byzantine Empire was weakened by both the Justinian Plague and the Persian invasion. As a consequence, the period came to an end with the Muslim Conquest of the area. It is to this that our attention must now be turned.

7

EARLY, MIDDLE AND LATE ISLAMIC PERIODS (AD 640–1917)

Introduction

There are various archaeological divisions for the Islamic period of Jordan. Whitcomb, for example, divides the period: Early Islamic 1: 600–800 and Early Islamic 2: 800–1000; Middle Islamic 1: 1000–1200 and Middle Islamic 2: 1200–1400; and Late Islamic 1: 1400–1600 and Late Islamic 2: 1600–1800. He begins the Modern period in 1800 (Whitcomb 1992, 113). Whitcomb's reasoning for the above is that "a periodization based on archaeological periods is a more useful system for discussing settlement patterns and other cultural manifestations by the archaeological and cultural historian" (Whitcomb 1992, 113).

For this work, however, I will follow the more traditional division of the Islamic period: Early Islamic (Umayyad [640–750]; Abbasid [750–878] and Fatimid [878–1099]); Middle Islamic (Crusader [1099–1187]; Ayyubid [1187–1250]; and Mamluk [1250–1517]); and Late Islamic (Ottoman [1517–1917]) (see McQuitty 2008). The Modern period begins with the end of World War I and the expulsion of the Ottoman Turks from Jordan in 1917. The reason for using this categorization rather than the one which Whitcomb proposes is because, with the exception of the pottery from the four sites of the SGNAS project that Whitcomb (1992, 113–18) analyzed, the various pottery specialists who analyzed the pottery from the SGNAS and the other four projects that I directed followed it.

It ought to be realized that the two above-listed divisions of the Islamic period of Jordan are not the only ones presently used. A look at some of the websites associated with modern Islamic research in Jordan will bear this out.

Climate

Palaeoclimatic research points to two humid intervals that occurred in our area of interest after the Byzantine period: 1) the Mamluk period (twelfth-fourteenth centuries); and 2) the Late Ottoman period (the nineteenth and early twentieth centuries) (Issar 1998, 125). Now to specifics!

Following the Roman and Byzantine periods, dry conditions were the norm in the Early Islamic period until the mid-ninth century. The pollen record indicates an abandonment of agriculture with reduced percentages of olive and a slight increase in natural, more arid Irano-Turanian vegetation (Heim *et al*. 1997, 399). Furthermore, a recent study of oxygen-18 levels in speleothems (stalagmites) in caves of upper Galilee reveals that there was an abrupt increase in temperatures between AD 700 and 900 (Issar 1995, 352). The drier climate favoured transition from sedentarism to pastoralism (Heim *et al*. 1997, 399).

Regardless of the uncertainty concerning the timing of the beginning of climate aridification, it is generally agreed that the dry climatic trend which began in the Byzantine period culminated in the first half of the Early Islamic period, from the seventh to the ninth century, when conditions were probably more arid than at present. From the tenth century onwards, more humid conditions once again prevailed until the thirteenth century (Bruins 1994, 308–309; Frumkin 1997, 244).

The level of the Mediterranean Sea rises and falls with the world's sea levels. A rise in global temperature should, thus, melt the polar ice caps and raise the level of the world's oceans. Thus, any increase in the level of the Mediterranean ought to indicate an increase in global temperatures. Studies indicate that the levels of the Mediterranean Sea peaked between AD 400 and 800. On the other hand, the level of the Dead Sea is not impacted by the level of the Mediterranean. It is more closely tied to the amount of rainfall in the region. Frumkin *et al*. (1991) have shown that the low level of the Dead Sea in AD 800 is consistent with a dry period at that time in history. The indications are that the climate was more arid than at present.

Beginning with the tenth century, more humid conditions once again prevailed until the thirteenth century. This was followed by a more arid phase beginning at least around AD 1400, if not earlier, in late Mamluk times (Ghawanmeh 1995). According to members of the "Wadi Faynan Landscape Survey" (WFLS) project, the geoarchaeological and palaeoecological evidence indicates an overall arid climate interspersed with wet episodes during the Ottoman period. A biologically-richer environment developed about 100 years ago with climate slightly wetter than prevails today (Barker and Mattingly 2007, 428). The present climate is substantially drier than most previous Holocene periods, indicating that current conditions in the Near East are not reflective of earlier periods in its history (Sauer 1994, 378).

Literary and Epigraphical Evidence

The textual sources for the period include inscriptions, written sources, geographical lists, historical sources, and other sources such as stories about Christians (Schick 1994).

The accounts of Arab geographers are of particular importance for the period (Walmsley *et al*. 1999, 475). In addition, for the Ottoman period there are: tax records; (land) registers and court records; papers of the Church Missionary Society; archives of the Latin Patriarchate of Jerusalem; ethnography and tribal/oral history; and various photographic archives (McQuitty 2008, 541, table 17.1). These sources will be referred to in what follows.

The Early Islamic Period (Umayyad [640–750]; Abbasid [750–878] and Fatimid [878–1099])

The Early Islamic period spans over 450 years. During this time the central seat of authority shifted from Damascus to Baghdad and then to Cairo.

History

The period begins with the defeat of the Byzantine armies at Yarmuk in northern Jordan (636/640). This victory of the Arab forces under the leadership of Khalid ibn al-Walid was the last of a series of battles and skirmishes between the two sides in the lands east of the Jordan Valley and the Dead Sea.

The Muslims captured Damascus and in AD 661 proclaimed it the capital of the Umayyad Empire. The northern part of Jordan benefited during the Umayyad period due to its proximity to the capital city. Its strategic geographic position also made it an important thoroughfare for pilgrims venturing to the holy Muslim sites in Arabia. As Islam spread, the Arabic language gradually came to supplant Greek as the main language. Christianity was still widely practiced through the eighth century (see below).

Civil unrest led to a series of revolts that ultimately ended the Umayyads' control of the region. The newly formed Abbasid Empire (750–1258) put an end to Umayyad control and moved the capital to Baghdad. The Abbasids remained the dominant force in Jordan, however, for only a little more than a century.

The Fatimids spread from Tunisia in Northern Africa to Egypt, where they established their capital in Cairo. Unlike their predecessors, the Fatimids were Shi`ite and claimed political and spiritual authority through their genealogy, traced back to the Prophet Muhammad through his cousin `Ali's family line. The Fatimids ruled for a little more than two centuries or until the beginning of the Crusader period.

During the Early Islamic period, the southern Transjordan Plateau and the Dead Sea Rift Valley to the west formed a small part of larger empires. In the final years before the Crusader conquest, at the very end of the eleventh century, the south of Jordan may have been under the control of a minor prince of Damascus called Zahir al-Din. For much of the Early Islamic period, central government control in what is now southern Jordan appears to have been comparatively weak (or at times completely absent).

Few of the written sources of this time deal specifically with southern Jordan. The Arab writers discussing Jordan in the period prior to the beginning of the twelfth century tend to be more concerned with the area north of Wadi al-Mujib, known as al-Balqa`. This bias is reflected in the fact that, in Jordan, it was al-Balqa` that received the bulk of the architectural patronage under the Umayyad caliphs and later rulers. This is especially evident in the form of the so-called "Desert Castles" that date to this period (Whitcomb 2008, 486). None of them are located in the south of the country.

The Byzantine–Umayyad Transition – A Time of Decline, Not Persecution

Literary and archaeological evidence indicates that around AD 600 the Christian communities in Palestine were still thriving. However, by around the time of the Abbasid revolution in AD 750, their numbers had declined sharply. This is evident from the fact that the number of churches and monasteries that the Christians were still using in AD 750 was half or less of the number that they had been using in AD 600 (Schick 1989, 37).

The Muslim Conquest was not characterized by extensive destruction or total disruption of everyday life. Most of the cities surrendered on terms to the Muslims with or without undergoing sieges. The Muslims, during the Umayyad period (AD 640–750), did not routinely pillage and sack cities. Neither did they actively persecute the Christians, although they did subject them to social discrimination through their tax policies (Schick 1989, 42).

After the Muslim Conquest the new Muslim rulers maintained amicable relations with the population of Palestine, which remained overwhelmingly Christian throughout the Umayyad period. As well, Muslim authorities do not seem to have interfered in purely ecclesiastical matters. Most of the restrictions against Christians came during the subsequent Abbasid period (AD 750–878) (Schick 1989, 43).

Schick posits that the widespread abandonment of monasteries and churches following the Muslim Conquest in AD 640 was due primarily to economic and social factors that had little to do with Christian-Muslim relations. He asserts that the decline was a result of broad economic changes that resulted from the conquest. Afterward, Palestine ceased to be a major conduit for international trade or an exporter of such products as olive oil and wine into the Mediterranean. The general population declined as the orientation of the Muslim world turned to the east and away from the Mediterranean. Even whole regions, for example, southern Jordan, were largely abandoned in the course of the Umayyad period. As these places were abandoned, so were the churches and monasteries (Schick 1989, 47–48). As will be apparent below, the archaeological evidence from the area that is the focus of this work supports Schick's assertions.

Archaeological Evidence

Evidence for Early Islamic presence in the area immediately south of Wadi al-Hasa is meagre. On the basis of the archaeological finds, it can be concluded that there was little in the way of settlement in the territory. What evidence there is for settlement comes from Khirbat adh-Dharih, a

site discussed previously in the Roman (and Nabataean) and Byzantine chapters of this work.

Wadi al-Hasa Archaeological Survey Territory

There is little evidence of Early Islamic presence in the WHS territory. However, Khirbat adh-Dharih, a site which has been featured in previous chapters, has remains from the period.

Khirbat adh-Dharih

Khirbat adh-Dharih is one of the few excavated sites on the plateau dated to the Umayyad and Early Abbasid period. Its excavators label the settlement a hamlet during the period in question. At the time, the site consisted of a series of domestic structures, which, like the ones from the Byzantine period, are limited to the northern courtyard of the Nabataean-Roman sanctuary. One of the excavators' main discoveries was a small, very well preserved bath, 2–3 m high. It is located near the south-eastern corner of the courtyard (al-Muheisen and Villeneuve 2005, 498).

The site's excavators discovered a series of Arabic inscriptions and graffiti, dating to the Early Islamic period, in the northern courtyard of the site's sanctuary. The most important, found near the eastern gate of the sanctuary, is a short monumental inscription. It is a dedication by a certain Hisham ibn Shabur, dated 79Hg or AD 698–699. It is one of the earliest Islamic inscriptions discovered. Its date demonstrates that Khirbat adh-Dharih was an Islamic site in the late seventh century (al-Muheisen and Villeneuve 2005, 498) (Fig. 7.1).

Tafila-Busayra Archaeological Survey Territory

South of at-Tafila, and in the neighbourhood of Busayra, archaeological evidence indicates that there was also a decline in settlement in this region in the Early Islamic period relative to the Byzantine one. A couple of reasons could explain this situation. First, there does not seem to have been metallurgical activity in the Wadi Faynan area to the east during this period (Jones *et al*. 2012). In addition, there does not appear to have been a stopping point in the area for the Hajj pilgrims passing through it. However, at the excavated site of Gharandal, and perhaps at the site of its neighbour Rawath, there is evidence of Early Islamic settlement.

Gharandal

Gharandal in al-Jibal surrendered to the Muslims in AD 635. It was placed with much of central and southern Jordan in the Province of Damascus, the *Jund Dimashq*. The region would seem to have been of importance to the Muslims since the pilgrimage route between Damascus and Makkah and al-Madinah passed through it (Walmsley 1998, 434). However, there is little archaeological evidence for this throughout the southern Transjordan Plateau.

In the late eighth/ninth to tenth centuries the sanctuary area of the Byzantine church (fifth–eighth centuries; see previous chapter) at Gharandal was dismantled. The result was an extensive demolition of the church's apse and sanctuary platform, including the total removal of the chancel screens. The body of the church and the steps leading into the sanctuary and the apse were deliberately filled with soil to create a reasonably level surface. There is also evidence that the roof of the building was removed (or repaired) at this time (Walmsley *et al*. 1999, 463–464).

Rawath

Rawath, which is located a short distance to the northwest of Gharandal, is to be equated, as mentioned in the previous chapter, with Byzantine *Rabatha*. It has not been excavated and is considerably damaged. It would seem that by the tenth century, Rawath had displaced Gharandal as the main centre of al-Jibal (Walmsley *et al*. 1999, 475), the district of southern Jordan immediately to the north of Sharah.

Rawath and its district of al-Jibal are described as fertile by tenth century Arab geographers, al-Istakhri and Ibn Hawqal. The geographers note that it was inhabited by Arabs (meaning the Bedouin) who had gained (political) mastery over the district in the Early Islamic period (Walmsley *et al.* 1999, 475).

Shammakh to Ayl Archaeological Survey Territory

Although the area appears to have been barely settled during the Umayyad period, Muslims must have passed through it each year as they made the pilgrimage to Makkah. However, their passage is largely ignored (Schick 1994, 145). Nevertheless, there is Early Islamic presence at both Udhruh and Khirbat an-Nawafla.

Udhruh

The inhabitants of Udhruh surrendered to the Muslims in 630. They agreed to pay the poll tax. According to some sources, arbiters of the Muslim opponents, Muawiyah and `Ali, met at Udhruh in 657/658. It would seem that Udhruh was a neutral Muslim site at the time. The Abbasids went to the town in 687–688, that is, before they went to al-Humayma in the Hisma. In the ninth century the inhabitants of the town are described as *mawali* of the Banu Hashim (Schick 1994, 149), that is, non-Arab Muslims or "clients" of the Hashemites, the tribe to which Mohammed belonged (see Crone 1991).

The site of Udhruh (SAAS Site 150) has been discussed in previous chapters on the Roman (and Nabataean) and Byzantine periods. It continued to be of significance in the Islamic periods. SAAS team members collected Early Islamic, Middle Islamic, and Late Islamic sherds from it.

As mentioned previously, Killick asserts that in the Byzantine and Early Islamic periods reconstruction and rearrangement of the site was carried out. As for the Early Islamic period, it is represented in the form of town houses. The Arab geographer, al-Maqdisi, writing *c*. 985, indicates that Udhruh was a township in the district of Sharah, that is, the one immediately south of al-Jibal (Walmsley 2008, 498).

Fig. 7.1: Map of Islamic sites and places mentioned in this chapter located on the Southern Transjordan Plateau.

Khirbat an-Nawafla

`Amr *et al*. (2000) excavated Khirbat an-Nawafla (SAAS Site 358; MacDonald *et al*. 2011, 371) between 1997 and 2000. The site, as mentioned previously, was occupied from the Nabataean through Islamic periods. The interest here is in its remains throughout the Islamic periods.

Early Islamic-period evidence from the site is significant. Khirbat an-Nawafla was a substantial village at the time. Its excavators uncovered a significant Early Abbasid inscription at it. It is the only known inscription dated to the Early Abbasid period (132–264 AH/AD 750–878) from the southern Bilad ash-Sham (Jordan and Palestine) (`Amr *et al*. 2000, 241 and 243). Later Islamic periods, starting with the Fatimid (878–1099), are the richest in terms of recovered artifacts.

The Ayl to Ras an-Naqab Archaeological Survey Territory

There is little evidence of occupation in the southern extremity of the Transjordan Plateau in the Early Islamic period. The pilgrimage route would have veered southeastward towards Ma`an before reaching this area.

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

The Early Islamic period is well represented in the Southern Ghors, especially at the four sites of Tawahin as-Sukkar, Fifa, Khirbat Sheikh `Isa, and al-Rujoum. Whitcomb studied the ceramics that SGNAS team members collected at them. As a result, he concluded that the prosperity of the area in the Islamic period was due to agricultural products, which included special dates, indigo (for the production of purple dyes), and sugar cane. The growing of the latter crop may be placed in the tenth or eleventh centuries. However, it could be that indigo was grown in the Southern Ghors before sugar cane (Whitcomb 1992, 117). In keeping with this assessment of the area, Walmsley states that "the towns of the eastern Wadi `Arabah experienced a relative economic boom during the later [9th–10th] centuries" (1987, 278) (Fig. 7.2).

Relative to the relation between Khirbat Sheikh `Isa and al-Rujoum, Whitcomb asserts that if Khirbat Sheikh `Isa was Byzantine Zoara (see previous chapter), occupation continued in the Byzantine town after the establishment of Islamic authority in the area. During the Early Islamic 2 period (800–1000), that is, the Abbasid and Fatimid periods, the new urban centre of Zughar or Sughar was founded at al-Rujoum. Whatever the reasons for this move, Zughar became the commercial focus for an industrial expansion based on indigo and possibly sugar plantation. After 500–600 years of occupation, the centre was transferred to the area that is now the location of the modern village of as-Safi (Whitcomb 1992, 116).

Some of the products produced in the Southern Ghors during the Islamic period may have been shipped to `Aqaba at the northern tip of the Red Sea to supply the Egyptian pilgrims passing through the area on their way to/from Makkah. In addition, many of the pilgrims originating in Palestine may have passed through the Southern Ghors on their way to the Hijaz. These too would have to be supplied with provisions from the area (Whitcomb 1992, 117).

In addition to the above-listed four sites, team members of the SGNAS project documented ceramic materials from all the Islamic periods in the area (MacDonald *et al*. 1992, 119, tables 58 and 59, 120–121, fig. 29, 123, tables 60 and 61, 124–125, table 62). These sites, many of which could have been pastoralists' camps, would have been associated with the industrial activity at the sites just described, as well as with the Middle Islamic, copper-production site of Khirbat Nuqaby al-Asaymir in Wadi Faynan immediately to the south (see below), and the trade resulting from them.

Team members of the SGNAS documented the remnants of an aqueduct in Wadi Khuneizir (MacDonald *et al*. 1992, 178, photo 32, 261, SGNAS Site 112). Could it have been associated with milling and the sugar cane industry in the area of ancient Fifa?

Wadi Faynan Region

There is uncertainty as to whether or not copper production continued up to the mid-seventh century in the Wadi Faynan region. Whatever the situation, it did not endure in the subsequent centuries on any significant scale. The evidence indicates a dramatic change in the use of the landscape. According to members of the "Wadi Faynan Landscape Survey" project:

> the absence of any coins relating to the period AD 668–1210 (covering the Ummayad, Abbasid, Fatimid, early Seljuq and Frankish phases) and the general absence of diagnostic pottery are consistent with a shift to the use of the valley by pastoral groups, leaving behind a materially-impoverished and vestigial archaeological record…. (Barker and Mattingly 2007, 428).

Middle Islamic Period (Crusader [AD 1099–1187]; Ayyubid [AD 1187–1250]; Mamluk [AD 1250–1517])

History

The Crusader armies arrived in the Levant in AD 1099. They built a series of forts in the territory of interest that included at-Tafila, ash-Shawbak and al-Wu`ayra, just outside Petra, and at al-Habis, within it (see Fig. 7.1). These Crusader-controller installations all impeded Islamic communications between Egypt and Syria (Milwright 2006, 4).

The present-day castle at at-Tafila, generally dated to the Ottoman period, may well be the site of the Frankish fortress mentioned in a Latin document dated AD 1239 that lists the castles of *Oultrejourdain* (Transjordan). It seems likely that the castle occupied the same site as the present rectangular one (Johns 1937, 96; Pringle 1997, 98, no. 214; 2001, 680; MacDonald *et al*. 2004, 300–302).

A castle called al-Sala` was captured from the Franks in Ramadan 584 H/AD 1188–1189 by the Ayyubid amir along with al-Karak and ash-Shawbak. A Latin list of castles in

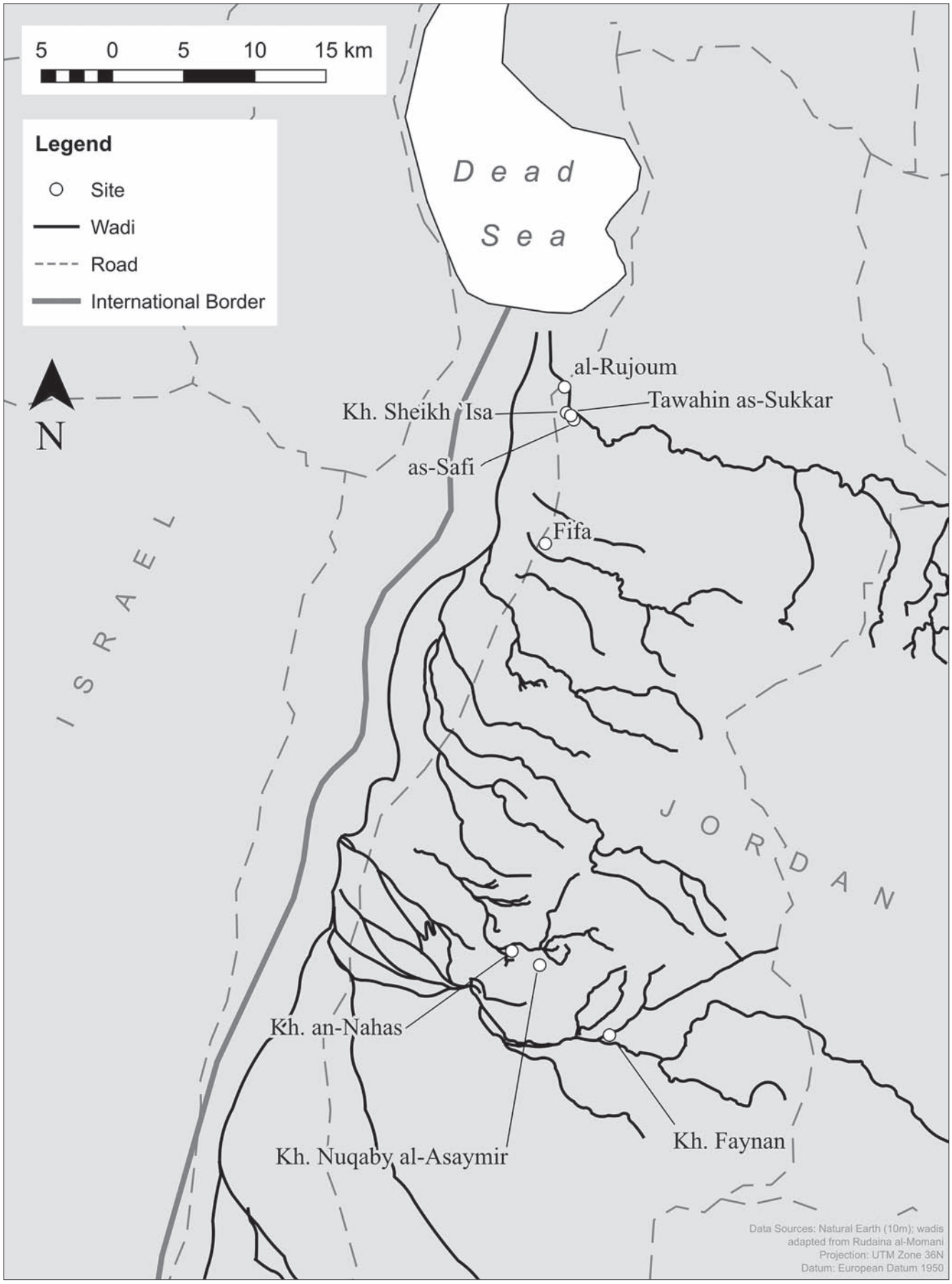

Fig. 7.2: Map of Islamic sites and places mentioned in this chapter located within the SGNAS territory and the Faynan region.

Muslim hands around 1239 refers to it as *Celle*. Sala` is listed in the territories of al-Karak in *c*. 1300. It is not stated whether it was still functioning as a fort by this time (the account may, however, contain anachronistic data) (Milwright 2006, 10). Khirbat as-Sila', a natural rock castle some 10 km south of at-Tafila, is sometimes attested as its location. Here, Medieval occupation is attested by surface finds of pottery (Zayadine 1985, 164–66, fig. 9; Lindner 1992, 145–146, note 1; Pringle 2001, 680; however, see MacDonald *et al*. 2004, 276 where no Islamic pottery is reported).

In 1115, Baldwin I founded the castle of ash-Shawbak, or "Mount Royal", to protect the southern approaches to Palestine, control the desert route, and to act as a centre for Frankish settlement. It stood on one of the main routes between Cairo and Damsacus. As such, it threatened the free traffic of Syrian pilgrims making the annul Hajj to the Holy Cities of Makkah and al-Madinah. Due to its location, Baldwin was able to extract payments from merchants and pilgrims passing through Jordan via the King's Highway (*darb al-malik*) and other routes farther east (Milwright 2006, 3–4).

Two other Frankish castles in the area of interest are that of al-Wu`ayra, northeast of Petra on the north side of Wadi Musa, and al-Habis, within Petra. The castle of al-Wu`ayra declined in status under Ayyubid rule, which indicates that it was of greater strategic significance to the Latins of *Oultrejourdain* (Milwright 2006, 26).

Salah ad-Din, an Ayyubid leader, defeated the Crusaders in the Battle of Hattin in July 1187. In 1187–1188, the Crusader castles of *Oultrejourdain* fell to his armies. Finally, the Latin Kingdom ended in Syria-Palestine by 1291. By this time, the Mamluks (AD 1250–1517), who had their base in Egypt, had replaced the Ayyubids as the dominant power.

During the Ayyubid and Mamluk periods, with the exception of ash-Shawbak and the Southern Ghors, the area south of the Wadi al-Hasa appears to have been the least economically developed part of Jordan (Milwright 2006, 20). The most economically significant crop, it appears, was the sugar cane grown in the Dead Sea Ghors (Whitcomb 1992, 116–117) and the Jordan valley (see below).

Except for a brief period, the Islamic population of southern Jordan did not appear to have an interest in the copper resources of the Wadi Fidan/Faynan region (Grattan *et al*. 2007). The interest that was shown could have taken place in the Ayyubid period (see below). The main interest of the Islamic rulers in the south was that of safe passage for the pilgrims on their way to Makkah and al-Madinah.

Archaeological Evidence

Relative to the previous period, there is evidence for an increased population in the entire area of interest during the Middle Islamic period. On the plateau, this is especially the case for the area around Petra, as well as within the site itself. Much of this increased archaeological evidence is due to the Crusaders who entered the area at this time. Relative to the Dead Sea Rift Valley, industrial sites occupied in Ghor as-Safi during the Early Islamic period continued to be of importance in the Middle Islamic period. Moreover, there was the renewal of copper production in the Faynan region at this time

Wadi al-Hasa Archaeological Survey Territory

WHS team members collected Ayyubid/Mamluk sherds at nine sites (MacDonald *et al*. 1988, 253, table 55), seven of which are located on the plateau west of Wadi La`ban (MacDonald *et al*. 1988, 254, fig. 63). Two of these sites, namely, Umm Qnan al-Qarn (WHS Site 13) and Khirbat Naukha (WHS Site 20) are predominantly Ayyubid/Mamluk ones (MacDonald *et al*. 1988, 251–253) (see Fig. 7.1). Neither has been excavated. They warrant further investigation.

A road, in the area where the above-mentioned Middle Islamic-period sites are located, has been mentioned previously. Brünnow and von Domaszewski date it to the Roman period (1904, 108–109) as does Abel (1967, 229); Musil refers to it as the *Sultani-Strässe* (1907, 242); and Glueck dates it to as early as the Early Bronze Age (1935, 108). It appears to be one that predates the *Via Nova Traiana,* which is located to the east (MacDonald *et al*. 1988, 254, fig. 63). In addition to this road, there is a modern paved road that goes north from at-Tafila to `Aima Khirbat Rihab. There are many Islamic, as well as earlier-period, sites along this road (MacDonald *et al*. 1988, 254 , fig. 63, 262, 269, 271, fig. 66) It appears that it is an ancient one.

Tafila-Busayra Archaeological Survey Territory

Relative to the TBAS territory, as far as settlement and/or pastoralism is concerned, the situation improved somewhat during both the Middle and Late Islamic periods as compared with the Early Islamic period. The increased settlement during the Middle Islamic period may have been associated, at least partially, to mining and smelting activity to the east in Wadi Faynan (see below).

As is the case just south of Wadi al-Hasa, Middle Islamic-period sites are more common in the Busayra region than Early Islamic ones (MacDonald *et al*. 2004, 62–63, table 23). They include Khirbat at-Tuwanah, Khirbat al-Janin, Gharandal, and probably Rawath (see Fig. 7.1). However, the latter site has yet to be excavated.

Khirbat at-Tuwanah

Khirbat at-Tuwanah (TBAS Site 192) (MacDonald 2004, 348–354) appears to have been at least partially re-settled in the Ayyubid-Mamluk period after a seeming abandonment during the Late Byzantine one (see previous chapter). Settlement at this time seems to have been confined to the southern parts of the caravanserai area and the lower slopes of nearby hills (Fiema 1997, 315).

Khirbat al-Janin/Khirbat `Ayn Jenin

Khirbat al-Janin (TBAS Site 10) is located on the western side of the King's Highway, above `Ayn Jenin, and to the northeast of the Busayra Citadel (MacDonald *et al*. 2004,

278–279). Hart sounded it in 1985 and declared it to be a large Medieval site. He describes it as "a confusing maze of walls and terraces covering several hectares" (Hart 1987a, 45). In addition to the sherds from the Medieval period, Hart uncovered sherds from the Iron Age, Nabataean and Late Roman periods along with Iron Age and Nabataean tombs. Absolute dating evidence was absent from Khirbat `Ayn Jenin, "but the stratigraphy there provides a useful sequence of the Medieval Islamic pottery" (Hart 1987a, 47). Middle Islamic, Middle Islamic/Late Islamic, and Late Islamic sherds were among those that TBAS team members collected at the site (MacDonald *et al*. 2004, 166–168).

Gharandal

Stone walls for domestic occupation were built on the fill that was deliberately deposited in the former Byzantine-period church. Walmsley *et al*. date the resulting houses to the eleventh–thirteenth centuries. Modifications were made to these domestic structures in the fourteenth–sixteenth centuries. They were abandoned, apparently before the seventeenth century. Thus, there was the cessation of village settlement at Gharandal (in al-Jibal) in the late Middle Islamic period (Walmsley *et al*. 1999, 468). Some use of the site was made after the seventeenth century, for example, stock herding and/or temporary winter shelters (?). However, the site did not become a prolonged village settlement at this time (Walmsley *et al*. 1999, 463–465).

South Jordan Iron Age II Project (SJIAP)

Whiting *et al*.'s South Jordan Iron Age II Project (SJIAP) documented several substantial mediaeval sites. The largest was situated east of the modern settlement of Jarba, in the desert zone of their survey area (see Fig. 7.1). It consists of 20 or more rectilinear structures built of limestone, flint and basalt blocks. Decorated and undecorated handmade mediaeval wares littered the surface of the site. Other mediaeval sites were found off the plateau edge and on the plateau. SJIAP team members conclude that mediaeval sites were equally spread across the different environmental zones of the survey area and were usually situated near a spring (Whiting *et al*. 2009, 279).

Ash-Shawbak Castle

Ash-Shawbak Castle is located 30 km north of the town of Wadi Musa (Plate 47). It was virtually continuously occupied under the Crusaders (1115/6–1189), the Ayyubids (1189–1262), the Mamluks (1262–1517), and the Ottomans (1517–1917).

The castle was originally built by the Crusaders' King, Baldwin I. It remained the most important defensive stronghold south of al-Karak until the modern era, for control of this region lay in its possession. During its Crusader phase, it was the dominant fortress in a chain of defenses reaching south to the Red Sea and defining the eastern borders of the Latin Kingdom of Jerusalem. It was part of the protective system for the King's Highway between Syria and Egypt and between the caravan routes along the Arabian desert and the Mediterranean (Vannini 2011, 302). The castle contains the remnants of two churches – one is dated to AD 1116 according to Milwright (2006, 3), 1118 according to Pringle (2001, 678).

Under the Ayyubids, the castle guarded the essential southern access to the road linking Cairo and the rival Ayyubid base in Damascus. The castle was the gate to greater Syria during the early years of Mamluk expansion, while coastal Palestine was still occupied by the Crusaders. In later years, its military significance diminished with the consolidation of the entire Levant as Mamluk territory (Brown 1988, 225). In the early Ottoman period, the fortress played a supportive role to the Hajj forts farther to the east. It is listed as one of the postal stations between Damascus and Cairo (but see below) (Petersen 2012, 15).

Doshaq

Doshaq is located 5 km east of ash-Shawbak Castle and adjacent to the line of the *Via Nova Traiana* (see Figs. 7.1 and 5.1). It is comprised of three building blocks within an enclosure. Petersen thinks that Doshaq served as both a postal station between Cairo and Damascus and perhaps as one of the stations on the Medieval Hajj. It is more accessible than ash-Shawbak Castle as it is located at a junction of the King's Highway and the Hajj Route farther to the east (Petersen 2012, 16).

Shammakh to Ayl Archaeological Survey Territory

The site of Khirbat an-Nawafla (SAAS Site 358) is an important Middle Islamic site within the SAAS territory (see Fig. 7.1). It has been referred to on several occasions previously.

Khirbat an-Nawafla

The Middle Islamic Ayyubid/Mamluk village at the site was the most expansive (`Amr *et al*. 2000, 241–244). The site is a prime candidate for the location of the village of al-`Udmal, mentioned by al-Nuwairi as a resting place for Sultan Baybars during his trip from Cairo to al- Karak in AD 1276 (`Amr *et al*. 2000, 246).

Petra Region

There are several significant Middle Islamic sites in the Petra region. They include al-Wu`ayra and the Monastery at Jabal Haroun (see Fig. 7.1). In addition, the Beidha Documentation Project has recorded Crusader-period remains.

Al-Wu`ayra

Al-Wu`ayra is located on a remote, rock plateau immediately northwest of Wadi Musa and *c*. 1 km north of the entrance

to Petra. It is a Crusader fort, the construction of which could have begun before AD 1116. After 1187, the Crusader occupation of the site ended with its fall to Salah ad-Din's army in 1188, that is, the same year as the Crusader defeat at al-Karak and shortly before the fall of ash-Shawbak in 1189 (Brown 1987, 269). As a result of her excavations at the site in 1987, Brown concludes, tentatively – for no coins, inscriptions, or other specifically dated artifacts were retrieved in the excavation – that the chronology for the site is: 1) early twelfth–late twelfth century AD (Crusader [1108/1116–1188]); and 2) late twelfth–early thirteenth century AD (AD 1189–1263 [Early Ayyubid]) (Brown 1987, 269–270; Brown and Reilly 2010, 121; see also Hammond 1970 and Vannini and Tonghini 1997). The Christian nature of the site is demonstrated by the existence of a chapel within it (Pringle 1998, 175–176; 2001, 681).

Brown and Rielly's study of the faunal assemblage from al-Wu`ayra indicates that the food supply for the Frankish fortress depended on both local resources and trade networks. The al-Wu`ayra assemblage shows a strong priority on storable food. Such would be expected at a military installation. Brown and Rielly conclude that the fortress' food economy "would have been closely tied to the production regime in the Wadi Musa valley to ensure adequate meat supplies and access to grains, fruits, and olives, in addition to craft products, raw materials, and labor" (2010, 137).

Monastery at Jabal Haroun

The monastery at Jabal Haroun (see previous chapter) was still in existence when the Crusaders arrived in Transjordan. Fulcher of Chartes mentions it during Baldwin's expedition in 1100 and Gilbert the Abbot indicates that there was an oratory there, while Master Thetmarus mentions it during his visit to Petra in 1217. The latter records that two Greek Christian monks lived at the site (Peterman and Schick 1996, 477; Fiema and Frösén 2008, 434).

Today, the summit of Jabal Haroun is the location of a Muslim shrine (*weli*). The construction of the shrine is recorded by an Arabic inscription above its entrance. According to Palmer, the inscription states: "the building was restored by esh-Shim'ani, the son of Mohammed Calaon, sultan of Egypt by his father's orders, in the year 739 of the Hirjah" (1871) (AH 739 = AD 1338–1339). Others, however, read that the shrine was built AH 728 (AD 1327–1328) or *c.* AH 900 (AD 1495). It was built reusing materials from the monastery. Within it, there is another Arabic inscription that records that the construction of the tomb was carried out by an-Nasir Muhammad ibn Qalun (Peterman and Schick 1996, 477–478).

Crusader/Ayyubid/Mamluk-period pottery is present at the site of the monastery at Jabal Haroun. Furthermore, the site's excavators found a thirteenth-century mother-of-pearl cross in the uppermost levels related to the Church's Western Building (Fiema and Frösén 2008, 434).

Although the church and chapel were in ruins, the excavators point out that the twelfth century reference to a "monastery" at Jabal Haroun may not, in fact, be inappropriate. A small, yet visible, monastic community may have been there and could have possibly used the Western Building. One of the rooms of the building could have been used as a chapel (Fiema and Frösén 2008, 434–436).

Beidha Documentation Project

The "Beidha Documentation Project" documented buildings of the Crusader period, including two mosques, wine presses, two cisterns, and water channels (Bikai *et al*. 2005, 340; 2007, 371; Sinibaldi 2009, 449–450) (see Fig. 7.1). The analysis of the ceramics from the excavated areas of the site supports a Crusader-period presence (Sinibaldi 2009, 461). It appears that the Byzantine-period church was used again in the Crusader era (Bikai *et al*. 2007, 371; Sinibaldi 2009, 450). The area could have been, as in former periods, an important agricultural one during the Middle Islamic period.

Within Petra

The Crusader site of al-Habis is located within Petra. In addition, archaeological evidence that "The International Wadi Farasa Project" uncovered points to occupation there during the Middle Islamic period (see Fig. 5.5).

Al-Habis

Al-Habis is located on a rocky pinnacle just to the southwest of Qasr al-Bint and overlooking the city centre of Petra. It consists of a tower standing on the summit of a mountain and surrounded by discontinuous and irregular lines of walls, pierced by embrasures, which form two enclosures lower down (Hammond 1970; Pringle 2001, 681). There are some doubts as to whether or not it is a Crusader-period fortress (Kennedy 1994, 29). However, Hammond, after a full survey, is of the opinion that it is. Kennedy (1994, 30), Vannini (2011, 298–299, 308–309), and Pringle (2001, 681) support this position. Although its Crusader name is unknown, Pringle thinks that it may be identified as the castle of al-Aswit (2001, 681). Hammond dates the site to the period AD 1116 to *c.* 1188 (1970, 35). The fort of al-Habis appears to have been abandoned close to the end of the twelfth century (Hammond 1970, 35).

Wadi Farasa is located southeast of Petra's city centre. At it, "The International Wadi Farasa Project" has revealed evidence of a large Medieval settlement that extended on two natural terraces where an important, Nabataean-period complex with a funerary function, centred in the area of the Soldier's Tomb, was previously located (Schmid 2001; Sinibaldi 2009, 454; for a list of the annual preliminary reports on the project see Schmid 2010, 234–235). The Medieval phase of the site is the only one of importance after the Nabataean one. Excavations revealed several built structures, reusing pre-existing walls from the Nabataean phase, with a clear defensive function. Medieval pottery was recorded in all excavated areas along with five funerary stone slabs, carved with Christian symbols. The indication is of Christian presence in the area for at least two generations.

All these elements are evidence for a significant Crusader-period settlement, perhaps a fortified post connected with the defense of the Petra Valley (Sinibaldi 2009, 455). According to Schmid (2009), the structures at the site were probably associated with another fortification held by the Crusaders in the area of the High Place of Sacrifice.

Southern Ghors and Northeast `Arabah Archaeological Survey Territory

As indicated relative to Early Islamic presence in the SGNAS territory, the sites of Tawahin as-Sukkar, Fifa, Khirbat Sheikh `Isa, and al-Rujoum were occupied in the Middle Islamic period (see Fig. 7.2). Moreover, settlement continued at all of these sites into the beginning of the Late Islamic period.

Wadi Faynan Region

Copper mining ceased in the Faynan region following the Byzantine period. There is evidence, however, for its renewal at Khirbat Nuqaby al-Asaymir in the Middle Islamic period (see Fig. 7.2).

Khirbat Nuqaby al-Asaymir

Khirbat Nuqaby al-Asaymir is located *c.* 1 km south of the main channel of Wadi al-Ghuweiba, 1 km southeast of the large Iron Age smelting site of Khirbat an-Nahas (see chapter on the "Iron Age"), and *c.* 6 km northwest of Khirbat Faynan (see previous chapter). Recent work at the site and in its vicinity on the part of Jones *et al.* led them to conclude that there was a renewal of copper production in the Faynan region in the Ayyubid or Middle Islamic IIA period (first half of the thirteenth century). The dating is based on both ceramic and numismatic evidence (Jones *et al.* 2012, 88). This is somewhat at variance with that of the WFLS findings that there was a brief period of renewed interest in the Faynan ores during the Mamluk period (Barker and Mattingly 2007, 428). In any case, this metallurgy activity was followed by centuries of pastoral-dominated land use in the Ottoman period (Barker and Mattingly 2007, 428).

Late Islamic Period (Turkish-Ottoman [AD 1517–1917])

History

The early Ottoman period was one of prosperity and a time of renewed stability and investment in the Wadi al-Hasa area and in Jordan in general. This was due to the fact that the area was included in a great and well-governed empire (Hütteroth and Abdulfattah 1977, 7). Much of the interest in the Wadi al-Hasa area had to do with the defense of religious pilgrims on their way to Makkah and al-Madinah. Improvements in stability and the extension of cultivation have led Hütteroth and Abdulfattah (1977; see also Hütteroth 1975) to call this the golden age of the Ottoman Empire (Hill 2006, 60). However, there was a 40–50% change in the density of population between 1596/97 and *c.* 1880 AD. The reason is the general decline of the administrative and fiscal organization of the state, which began at the end of the sixteenth century (Hütteroth and Abdulfattah 1977, 56–58). The picture of the country in the late sixteenth century is similar to that of the late nineteenth century when migrations into Transjordan on the part of the Druze, Armenians, and Circassians began.

Archaeological Evidence

Late Islamic presence is well represented throughout the study territory. It is especially prominent in the Late Ottoman period.

Wadi al-Hasa Archaeological Survey Territory

Late Islamic presence is well attested throughout the southern Transjordan Plateau. For example, in the territory immediately south of Wadi al-Hasa, WHS team members collected Late Islamic-period ceramics from numerous sites (MacDonald *et al.* 1988, 257–259, table 57, 263–264, table 58, 264–265, table 59, 265–268, table 60, 268–269, table 61, 270, fig. 65, 271, fig. 66). These sites are concentrated in two segments of the survey territory, namely, the western and eastern ones (MacDonald *et al.* 1988, 254, fig. 63).

During the time when Jordan was part of the Ottoman Empire, the pilgrimage route to Makkah and al-Madinah, probably located along the old King's Highway, was found to be too difficult because of the many wadis it intersected. Therefore, a new route was laid out farther to the east, closer to the desert. Here the wadis are less pronounced and the road could be used even during the rainy periods of the year. Along this route, now generally referred to as the "Hajj Route", provisions had to be provided for the travellers, very often pilgrims. In addition, the route needed to be protected from the Bedouin tribes of the desert and, thus, the Ottomans built forts along it. Both a segment of this road (WHS Site 1073) and one of these forts, Qal`at al-Hasa (WHS Site 1074), are within the eastern extremity of the WHS territory (Plate 48). Moreover, WHS team members documented the Ottoman bridge (WHS Site 1072) that crosses Wadi al-Hasa at Qal`at al-Hasa (MacDonald *et al.* 1988, 270, fig. 65; 280; see also Burckhardt 1822, 658; Brünnow and von Domaszewski 1905, 16, fig. 570; 17, fig. 571; 18, fig. 572; 19, fig. 576; Musil 1907, 27; Glueck 1934, 69). Moreover, there are a number of other sites which appear to have been associated with Qal`at al-Hasa. Among them were possible Ottoman villages/hamlets. These sites would have provided services for travellers along the Hajj Route (MacDonald *et al.* 1988, 280). Moreover, other Islamic-period sites in the area could have been associated with pastoralists' activities, at least on a seasonal basis, in the area (see Fig. 7.2).

Tafila-Busayra Archaeological Survey Territory

Farther to the south, members of the TBAS project found remnants of milestones (TBAS Site 250) at Jurf ad-Darawish (MacDonald *et al.* 2004, 385) and probably a watchtower,

Rujm al-Hajj (TBAS Site 251), just to the north (MacDonald *et al*. 2004, 386) (see Fig. 7.1). This could be further evidence of the Hajj Route in the area. Eventually, the Ottomans built a railway to al-Madinah (see below).

In addition to the Hajj Route, there were other Ottoman routes through the territory. For example, a road went from Ma`an on the plateau to Gharandal in the central Wadi `Arabah (MacDonald *et al*. 2012, 276–277).

Shammakh to Ayl Archaeological Survey Territory

There are several sites within the SAAS territory that provide evidence for Late Islamic presence in the area. Two of them, namely, Khirbat an-Nawafla and Udhruh, have been treated on several occasions previously. In addition, Khirbat al-Mu`allaq/Kh. al-Müallaq/Kh. `Ashaish is a site from the Ottoman period (see Fig. 7.1).

Khirbat an-Nawafla

Khirbat an-Nawafla (SAAS Site 358) is of importance for its Early Ottoman-period remains since this period is archaeologically the least known one in Jordan. The site produced extensive evidence for the period with several terraces and houses with arched roofs. These were found above the Ayyubid/Mamluk buildings and directly below the Late Islamic traditional village, the origin of which begins during the late nineteenth century (`Amr *et al*. 2000, 247).

Udhruh

The site of Udhruh (SAAS Site 150) continues to be mentioned by Arab geographers in the Late Islamic period (Killick 1989). Moreover, a fort was built there in the Ottoman period. It is of the same size and design as the one at Ma`an, which is located to its southeast. It is not certain when and by whom it was built. Petersen, however, thinks that it was built by a local leader rather than by the Ottoman authorities (2012, 213). The Ottoman fort represents the last historical period of occupation of the archaeological site of Udhruh before the present village was built in the late 1930s (Killick 1989).

Khirbat al-Mu`allaq/Kh. al-Müallaq/Kh. `Ashaish

Khirbat al-Mu`allaq/Kh. al-Müallaq/Kh. `Ashaish (SAAS Site 032) has been treated previously as an Iron II-period site (see above and Musil 1907, II: 1, 283; Glueck 1935, 79; `Amr *et al*. 1998, 532–533; MacDonald *et al*. 2010, 337). It is located south of Wadi Musa, to the north of the Panorama Hotel, and to the west of the main road between Wadi Musa and at-Tayyibah. The site is a very large agricultural village, consisting of many structures, the walls of some of which still stand to a height of over 1 m. A team from the "Natural History Museum of Nürnberg" excavated segments of it from 1991 to 1995 and describe it as an Edomite fortress and a Late Islamic village (Lindner *et al*. 1996a).

Petra Region

There are Late Islamic settlements at Beidha and Ba`ja I in the Petra region (see Fig. 7.1).

Beidha

Although not a large number of other Late Islamic-period villages have been excavated in the south of Jordan, Sinibaldi and Tuttle have excavated one at Beidha, to the north of Petra. They date it, tentatively, within the range of the late fifteenth to the seventeenth centuries or, following Whitcomb (1992, 113), to the Late Islamic AD 1400–1800 (Sinibaldi and Tuttle 2011, 448).

Ba`ja I

Ba`ja I, located *c*. 10 km to the north of Petra, is a Late Islamic settlement. Lindner dated it to the Late Islamic (Ayyubid-Mamluk) period (1999, 491). However, further work at the site on the part of Bienert and Lamprichs led to the conclusion, on the basis of the fact that 76.34% of the pottery collected dates to the Late Islamic-Ottoman period (Bienert *et al*. 2000, 135), that the settlement was large and that it has well preserved architectural features (Bienert *et al*. 2000, 139).

Southern Ghors and Northeast `Arabah Survey Territory

Relative to the Southern Ghors and Northeast `Arabah territory, there appears to have been a decrease in settlement following the Mamluk period. The Ottoman-period presence is confined to sites associated with sherd scatters and possibly pastoralists' seasonal camps. At no location in the survey area is their evidence of substantial Ottoman presence. The exception comes from eye-witness accounts from the nineteenth century. These explorers speak of a village in the neighbourhood of the mouth of Wadi al-Hasa (Burckhardt 1822; Kitchener 1884).

Wadi Faynan Region

Metallurgy activity in the Faynan region during the Middle Islamic period (see above) was followed by centuries of pastoral-dominated land use in the Ottoman period (Barker and Mattingly 2007, 428). Relative to the Ottoman period, the findings of the WFLS project are in keeping with those of the SGNAS one to the north.

The Southeast `Araba Archaeological Survey Territory

"Southeast `Araba Archaeological Survey" team members identified Late Islamic pottery at only four sites. This picture is confirmed, at least for the eighteenth and nineteenth centuries, by Western travellers, who report primarily the presence of nomadic tribes, and that on a seasonal basis, in Wadi `Arabah. Team members conclude that this section of

the wadi was sparsely settled by sedentary people in the Late Islamic period. The evidence suggests nomadic transhumance more than settlement (Parker and Smith II 2014).

Forts and Watchtowers

As mentioned above, during the Ottoman period, within and nearby the area of interest of this work, forts and watchtowers were built along the Hajj Route. They included: Qal`at al-Hasa (eighteenth century [1757–1774]); Qal`at al-`Unaiza (late sixteenth century [1576]); and Qal`at al-Ma`an (sixteenth century [1531]). Petersen has recently studied and published information on most of them (2012, 85–112).

Hajj Route

The Hajj Route has also been referred to on several occasions above. Thus, all that is needed here is a brief summary.

During the seventh and eighth centuries the Umayyads established the Hajj Route – Syrian Hajj Route (*Darb al-Hajj al-Shami*) – as the principal road connecting Makkah and al-Madinah with their capital in Damascus (Petersen 2001, 685; 2012, 9). At the beginning, the route in Jordan followed a westerly track along the King's Highway on the Transjordan Plateau. During the Middle Islamic period the three fortresses of `Ajlun, al-Karak and ash-Shawbak protected this route in Transjordan. In the sixteenth century, the Ottomans made the Hajj Route part of a direct route between Makkah and the imperial capital at Constantinople (Petersen 2001, 685). The route was then changed so that it lay along the edge of the desert. This took place during the reign of Suleiman the Magnificent (AD 1520–1566). Part of the reason for the change was the fact that a more easterly route was more accessible during all periods of the year. It, unlike the direction of the previous one, would not be so affected by the flooding of the wadis in their western extremities. This route is the one now followed, in part, by the modern Desert Highway.

As mentioned above, WHS team members found evidence of this route in the form of a bridge and segments of a paved road in the eastern segment of Wadi al-Hasa (MacDonald *et al.* 1988, 280; Petersen 2012, 84, fig. 20). These structures would have been important especially during the rainy months of the year. Members of the TBAS project found remnants of milestones at Jurf ad-Darawish (MacDonald *et al*. 2004, 385) and probably a watchtower, Rujm al-Hajj, just north of Jurf ad-Darawish (MacDonald *et al*. 2004, 386). This could be further evidence of the Hajj Route in the area. In addition, there were other Ottoman routes through the territory. For example, the *Darb ar-Rasīf* went from Ma`an on the plateau to Gharandal in the central Wadi `Arabah.

Hejaz Railway

The Hejaz Railway was built in the Late Ottoman period. The initial plan was that the railway would go from Damascus to Makkah and ultimately to the Yemen. However, it never got farther than al-Madinah (it is 1789 km from Damascus to al-Madinah) largely because of local political objections. A primary concern in building the route was to bring pilgrims to the holy cities of Makkah and al-Madinah. However, military and commercial ambitions were not far behind. The line would follow the centuries old Hajj Route well away from the coast and the whole enterprise was entirely Turkish funded and largely built by the Turkish army Railway Battalions of conscript labor. The railway reached Ma`an in 1904 and its terminus at al-Madinah in 1908. Passenger traffic accounted for about half the total revenue generated by the railway, though in fact this was largely concentrated to the north. Within the Hejaz proper, most traffic comprised pilgrims and troop movements. Lawrence (1935) was regarded as the "principal expert" on it. The railway was subject to allied intelligence as early as 1915. The harassment of the line, designed to keep the Turks bottled up in the Hejaz, is well known. In southern Jordan, the railway continues to provide building materials; for example, the rails are now used as roof beams and sleepers as fence posts. Within or near the territory of interest, Ottoman railway stations are located at al-Hasa, Jurf ad-Darawish, and Ma`an.

Traditional, South-Jordan Agricultural Villages

There are many Ottoman-period villages and towns in the territory of interest in the southern segment of the Transjordan Plateau (see MacDonald *et al*. 1988; 1992; 2004; 2005) (Plate 49). These settlements would have provided provisions for those who first worked on building the roads, the forts and watchtowers, the railway, and its stations. In addition, all would have to be manned and maintained. Once the routes and railway were established, there would be the need for providing for those who travelled along them. Towards this end, the farmers and pastoralists of the region would have provided wheat, fruit, vegetables, goats, sheep, and their by-products. In addition, they would have supplied pack and riding animals for the pilgrims.

Team members of the WHS, TBAS, SAAS and ARNAS projects documented dozens of so-called traditional, south-Jordan, agricultural villages between Wadi al-Hasa and Ras an-Naqab. These villages are generally dated to the Ottoman period. They served people for part of the year. However, for the most part, the inhabitants of these villages left their houses and lived, in the warmer months of the year, in tents in the areas where they pastured their flocks of goats and sheep. Among those which the SAAS project surveyed are: at-Tayyibah (Site 69); Khirbat `Ayn al-Hajm (Site 79); Khirbat Abu Dannah (Site 119); al-Hay (Site 172); Arja (Site 207); Khirbat Bir Khidad (Site 254); Rafayeh (Site 283); `Ayn Shammakh and Shammakh (Sites 299 and 300); and Khirbat Basta (Site 322). The buildings in these villages are now, for the most part, abandoned. Nevertheless, some of them are still used to store equipment and to pen animals overnight.

Conclusions

Early Islamic presence is almost completely absent from the area immediately south of Wadi al-Hasa. This is generally the case for most of the southern Transjordan/Edomite Plateau. Exceptions to this are found at Khirbat ad-Dharih and Gharandal in the Busayra region, at Khirbat an-Nawafla in Wadi Musa, and at Jabal Haroun southwest of Petra. At some of these sites, the archaeological evidence is complemented by the epigraphical.

Settlement-wise, there are, what appear to be, several Ayyubid/Mamluk-period sites, most likely villages, hamlets, farmstead, and pastoralists' camp sites, in the northwestern region just south of Wadi al-Hasa. Moreover, Middle Islamic presence is evident at Khirbat al-Janin, Gharandal, Khirbat an-Nawafla, and a number of other sites in the Petra region.

Early Middle Islamic presence is especially evident in the form of major forts in the Crusader period. These are succeeded by the same type of structures built and/or re-occupied during the Ayyubid/Mamluk period on the plateau. Moreover, in the region of Petra, Ayyubid/Mamluk settlement is attested at several village sites. The increase in settlement during this period is due to the Crusaders' interest in the area and especially in the control of the routes between Damascus and Cairo and to the pilgrimage sites. Moreover, some of this could be due to the metallurgical activity in the Wadi Faynan region as well as the indigo and sugar cane industry in the Southern Ghors.

Late Islamic presence is found throughout the southern Transjordan Plateau. This presence is especially evident in the form of villages, hamlets, farms, and pastoralists' seasonal sites. A good example of this is the large number of traditional, south-Jordan, agricultural villages throughout the plateau.

Late Islamic presence in the eastern extremity of the territory of interest is probably associated with the pilgrimage route to Makkah and al-Madinah and later the railway line as far south as al-Madinah. Evidence for the Ottoman promotion of the Hajj pilgrimage route to Makkah and al-Madina is found in the form of the improvement to the roadway, the building of forts and watchtowers/way stations along its route, and then the building of the Hejaz Railway. The roadway, forts, and railway would have required provisions from the people who frequented the area. This would have been the reason for the many Ottoman-period villages, hamlets, and/or farmsteads in the territory of interest.

Relative to the southern segment of the territory of interest in Wadi `Arabah, it appears that this section of the wadi was sparsely settled by sedentary people in the Late Islamic period. The evidence suggests nomadic transhumance rather than settlement. Thus, once again, there is a discrepancy relative to settlement patterns between these two morphological units. The absence of Late Islamic presence in the Dead Sea Rift Valley is probably due to the degradation of the landscape and the lack of resources.

8

SUMMARY AND CONCLUSIONS

Introduction

This work presents the archaeology and history of human presence in the southern Transjordan/Edomite Plateau and the Dead Sea Rift Valley to the west from the beginning of the Early Bronze Age around 3800/3700 BC to the end of the Ottoman period in AD 1917. It is based on the archaeological, literary and epigraphical sources. Evidence from archaeology spans the five–six thousand year time frame. The time for which literary evidence for the area is available, however, is only from the Middle Bronze Age (2000–1550 BC) onward. Once it is available, it complements the archaeological record. These two sources, along with auxiliary ones, are used to describe human settlement patterns, palaeoenvironments, resources available, industries practiced, and life styles of those who inhabited the area. The result is a "story" of the people who occupied the area over the past five-six thousand years.

Geographical Area of Interest

The geographical territory of interest here extends from Wadi al-Hasa in the north to Ras an-Naqab in the south, a distance of *c*. 115 km. From east to west, it extends from the steppe to the international border line between Jordan and Israel, a distance of *c*. 60 km. The western or Dead Sea Rift Valley segment of the territory includes the Southern Ghors and the Northeast `Arabah, including the Wadis Fidan and Faynan region, as far south as Gharandal. The total area covered is *c*. 6900 square kilometres.

What is especially important to note about the study area is that it encompasses three main morphological units (desert, highlands and Rift Valley) and three plant geographical territories (Mediterranean, Irano-Turanian and Saharo-Sindian). Due to this, one finds differences in the archaeology and history of the different units.

The region of interest is a peripheral one. Such being the case, there were periods in the past when it was "filling up" or "emptying out" in terms of human presence.

Natural Resources of the Area

The natural resources of the area include water, plants, animals, bitumen, salt and sulfur, and copper and manganese. The most critical resource is water.

Archaeological Work in the Area

From 1979 to the present I have been engaged in archaeological survey work in the area that is the focus of this work. Such is the origin of this study. However, this resulting archaeology and history of the region is based not only on the findings of my efforts but also the work of dozens of the other researchers who have explored/surveyed and/or excavated in the area.

Early, Middle and Late Bronze Periods (3800/3700–1200 BC)

In Jordan, the Early Bronze Age is generally associated with the beginning of urbanism. Such would have been an important transit in human history. For with the towns there came fortifications and the necessary negotiations that are the result of living in densely populated places. Living in a town would have involved, furthermore, issues such as sanitation, payment of tithes and/or taxes, and entrusting oneself and one's family to the governing structure of the community.

The Early Bronze Age in the Levant, however, is not one with a constant trajectory. In fact, the Early Bronze IV period (2300–2000 BC) is generally recognized to have been a non-urban interlude between the first urban horizon in the fourth millennium BC and an urban renaissance in the Middle Bronze Age (2000–1550 BC). This period saw the abandonment of talls, a population shift to rural areas, and a change in socio-economic strategies from intensive agriculture, industry and trade to pastoralism and small-scale mixed agro-pastoralism.

Although the period is labelled the "Bronze Age", the production of metal objects must have been limited. Tools and other items for daily use such as adzes, sickles, knives, etc. were certainly overwhelmingly still made from stone.

Archaeological evidence for Early Bronze I–IV-period occupation of the area of interest comes from its northwestern segment, immediately south of Wadi al-Hasa, and from north of Petra on the plateau. The indications are that agricultural pursuits and pastoralism seem to have been the main activities carried out in this morphological unit. However, at the same time, in the morphological unit to the west – that is, in an area of the Dead Sea Rift Valley – there were large Early Bronze I–III cemeteries in the Southern Ghors, specifically at as-Safi and Fifa, as well as Early Bronze IV ones in the

Wadis Khuneizir and al-Nukhbar region at the limits of the Southern Ghors and the beginning of the Northeast `Arabah. Moreover, in this same lowlands area, ancient mining and smelting, including the continuous exploitation of the copper ores, was carried out in the Wadis Fidan and Faynan region throughout the Early Bronze Age. Support for this includes: copper mines dating to the Early Bronze II–III period were noted in Wadis Dana, Khalid, and Ratiye/Qalb Ratiye; a mine in Wadi Khalid produced some Early Bronze IV sherds that were used as lamps; mining tools are found at most sites in the region; smelting furnaces, dated by radiocarbon means to EB II–III, are attested on hilltops; slag heaps, also dated by radiocarbon means, are from Early Bronze II–III; and it is estimated that copper production reached amounts of several hundred tons.

The Early Bronze Age evidence in the area of the Dead Sea Rift Valley, especially in the form of both copper exploitation and cemeteries, is, thus, not paralleled by what was happening on the plateau during the period. The lowlands area was the centre of activity and the movement of people. Trade was to the north, northwest, west and southwest rather than towards the east, that is, towards the plateau. In contrast, as indicated above, the latter area was the focus of agriculture and pastoralism, apparently with little contact with the west.

What is especially noteworthy about the territory under study is the almost complete lack of archaeological evidence for both Middle and Late Bronze human occupation. It is only the Egyptian literary evidence that indicates some form of human presence, probably in the form of pastoral activity, in the area during these periods. It is from these texts that we have the earliest mention of a people called "Edomites". Thus, the Middle and Late Bronze periods are ones when the area was "emptying out".

Iron Age (1200–539 BC)

The biblical texts, which purport to describe relations between Edomites and Israelites at the end of the Late Bronze period and the beginning of the Iron Age, cannot be relied upon to reconstruct the history of the time. In fact, they date to a time much later than the one they claim to portray. However, those Hebrew Scripture texts dealing with these two neighbours during the Iron II period depict a constant state of enmity, probably due to conflicts between Edom and Israel relative to control of the area's resources, trade routes and lands. Moreover, the biblical writers frequently blame the Edomites for atrocities which they probably did not carry out against the Israelites.

The Assyrian texts, dating to the Iron II period, picture the Edomites as vassals to the great power centred in the northeast. However, although the rulers of Edom are portrayed as paying tribute to the Assyrians, their land seemingly prospered during the eight to the sixth centuries BC.

The Iron Age I period (1200–1000 BC) is poorly represented, if at all, on the southern Transjordan/Edomite Plateau. No Iron I sites have been excavated or even identified for the area. However, such is not the case for Wadis Fidan and Faynan, immediately east of the Dead Sea Rift Valley, where Iron I-period presence is associated with mining and smelting activities, especially at Khirbat an-Nahas and Rujm Hamrat Ifdan. Excavations at the former site have demonstrated industrial-scale, copper production from the early tenth to the ninth centuries BC. It appears that what was produced, mined, smelted, and made into a finished product was clearly destined for the west and the north rather than for the east.

There was an increase in population in all of the territory of interest during the Iron II period (1000–539 BC). The Iron Age sites excavated on the plateau all date to the Iron II period, specifically to the eighth–sixth centuries BC. Moreover, extensive survey work carried out in the southern part of Jordan over the past 25 years identified a number of so-called, "fortified Iron II (Edomite) mountain strongholds" along with other types of sites. In addition, a tenth–ninth century BC cemetery has been excavated in Wadi Fidan.

There is actually a gap of about 200 years between what was happening in Wadis Fidan and Faynan, that is, in the lowland areas to the west, and what was taking place on the plateau to the east during the Iron Age. Relative to the lowland sites or the earlier Iron Age-period ones, the evidence suggests that they participated in the interaction sphere of their western and northern neighbours and not with those on the plateau.

The present evidence favors a change from mainly pastoralism to a combination of pastoral/agricultural activity on the plateau as one moves from the early Iron Age into the Iron II period. Of course, during the Iron II period, a sedentary lifestyle would have been supported by the Assyrian control, beginning with Adad-Nirari III's "Expedition to Palestine" (end of the ninth or the beginning of the eighth century BC) where Edom is mentioned as one of the areas conquered.

The Iron II period in southern Jordan appears to be a time of "filling up". The best explanation for this phenomenon would be the movement of people into the area. With increases of population in areas to the north and west, this peripheral region became one where a surplus population would have settled. The increase in population can probably not be explained by an exceptionally high birth rate during the transition from Iron I to Iron II.

The Edomites were undoubtedly involved in the mining and smelting of copper in the region of the Dead Sea Rift Valley since it was one of the most important metal resources of the Ancient World. Control of this mineral resource was important and it would have fallen within the economic and political control of both the Edomites and, at times, their Assyrian overlords during the Iron II period.

The Edomites were also involved in the spice trade, the caravans of which would have passed through their land on their way to both Damascus in Syria, to the north, and to Gaza on the Mediterranean, to the west. The domestication of the camel, around the turn of the millennium, would have been important for this activity. Moreover, control of the port of al-`Aqaba on the Red Sea was important to the Edomites. This would give them control over imports and exports through the port and in Wadi `Arabah.

Miners, metallurgists, and traders would have required services; those so involved would have looked to the population of the area in which they worked, and/or passed through for water, food, security, and so forth. Thus, entrepreneurs would have been attracted to the area to provide these needs. This would have required greater agricultural production and thus more people would have been employed in this service industry and this too would have led to an increase in population. Associated with this would have been new technological advances such as the development of agricultural terraces and the expansion of plow agriculture. Moreover, the Assyrians brought peace to the area and a stable political situation would have resulted in an increase in population since such a situation attracts people to an area.

Persian (539–332 BC) and Hellenistic (and Nabataean) Periods (332–63 BC)

Relative to the previous Iron Age, especially the Iron II period, both the Persian and Hellenistic periods are poorly represented archeologically in the territory of interest. Nevertheless, there is some evidence, both from archaeology and texts, of occupation in both periods. As part of this evidence, the Nabataeans appear for the first time in both the literary and archaeological record.

The burning of incense became, in the first millennium BC, part of the daily life in the Mediterranean basin. Consumer demand for frankincense used in ritual and medical practice grew rapidly and prices soared to exceeding heights. The aromatic gum resin was obtained from trees that grow in southern Arabia and Somalia. From there it was transported by ship to the harbour of Qana and then by camel caravans northward to the Mediterranean coast and beyond. The Nabataeans became involved in this trade *c.* 380/370 BC. Eventually, their centre and holy precinct of Petra served as a place of reloading, with one route crossing the Negev to the port of Gaza on the Mediterranean and another leading through Damascus to Mesopotamia in the east and Phoenicia in the west. In early fourth century BC, however, Petra was not yet the seat of the tribe and certainly not the religious centre of the Nabataeans. It was likely a camp site with a few people in charge of the frankincense stores and herds of dromedaries in the surrounding area.

Roman (and Nabataean) Period (63 BC–AD 324)

As compared to previously-treated periods, there is an increase in both archaeological and literary evidence for the Roman (and Nabataean) one. Support for this comes from the abundance of archaeological work, in the form of both excavations and surveys, carried out within Petra and in its environs. In addition, there are the texts and inscriptional material in both the Greek and Nabataean languages.

In the first century BC, the expanding Roman Republic absorbed the whole Eastern Mediterranean, which included much of the Near East. The Roman Empire united the region with most of Europe and North Africa into a single political and economic unit. Though Latin culture spread across the region, the Greek culture and language, first established in the region by the previous Macedonian Empire, continued to dominate throughout the Roman period.

In 63 BC, the Roman general, Pompey, moved south and established Roman supremacy in Phoenica and Syria. In Judea, Pompey intervened in the civil war between the brothers Hyrcanus II and Aristobulus II. The armies of Pompey and Hyrcanus II laid siege to Jerusalem and after three months the city fell. This marked the beginning of the Roman period in the area.

After an "emptying out" at the end of the Iron II period, which continued throughout the Persian and Hellenistic (and Nabataean) ones, the Roman (and Nabataean) period was one when the southern segment of the Transjordanian plateau was again "filling up". A number of factors are responsible for this, for example, improvements in climate, in the technologies for mining and smelting, as well as in the field of hydraulic engineering. Along with the above, there was continued interest in, and the promotion of, the spice trade and agriculture. All benefited from a stable imperial power.

The earliest evidence of Nabataean material culture in Petra comes from the early first century BC. Relative to the late first century BC and early first century AD, the most striking feature of Nabataean material culture is the tendency towards monumentalization.

The Nabataean temples within the city of Petra are dated to the late first century BC. Qasr al-Bint is dated from the end of the century while the Temple of the Winged Lions dates to the early years of Aretas IV (9 BC–AD 40). The date of the South Temple/Great Temple/Great Palace/Audience Hall, or whatever it was, is uncertain. The reliefs associated with these temples are also dated to the late first century BC or to the turn of the century. The same is true for slabs with cupids and garlands, which follow international outlines, especially Hellenistic and early imperial styles. All this building would have happened in the time of Obodas III (30–9 BC) and Aretas IV.

Similarly, it is thought that the Khazna Faraoun/"The Treasury" within Petra was built in the second half of the first century BC. Furthermore, there was construction of buildings along the colonnaded street and impressive pavement within the Siq, including the water channels and the dams. In addition, the theatre is also dated to the late first century BC/early first century AD.

Finally, the beginning of Nabataean private houses or "villas" in the az-Zantur region of Petra date to this period. For example, two rich, Nabataean private houses show distinct Hellenistic and Roman influences.

It is evident that at the turn of the era there was a massive building boom in Petra. At the time, it was a flourishing city of monumental public buildings, lavishly-decorated residences and huge funerary monuments. Thus, general economic wealth and welfare can be deduced. The Nabataeans adopted Hellenistic architectural elements and styles and used craftsmen, after 30 BC, from Ptolemaic Egypt.

A second building boom took place at Petra, probably, to a large extent, during the time of Rabbel II (AD 70–106). It

included, among other construction projects: the Temenos Gate, associated with Qasr al-Bint; installation of the paved *cardo* that runs parallel to Wadi Musa; the Corinthian Tomb; ad-Dayr; and the Soldier Tomb. All this construction ended with the incorporation of Petra into the Roman Empire in AD 106 and the creation of the province of Arabia. However, the characteristic Nabataean painting on pottery continued at least into the fourth century AD as did the pottery shapes.

According to the available dating evidence, the earliest Nabataean façade tombs in Petra were being carved by 50 BC. They continued to be made up until AD 129, that is, after the Roman annexation.

The Nabataeans lost their monopoly in the spice trade when the trade's direction shifted to Egypt in the first century BC and the early first century AD. They then became agriculturalists. Both Nabataean rulers, Aretas IV and Rabbel II, were enthusiastic supporters of agricultural development and water-supply systems.

In AD 111–114, the Romans built the *Via Nova Traiana*, connecting Bostra in southern Syria to al-`Aqaba on the Red Sea. The road was built not simply for an economic purpose, but primarily with a military goal in mind. It cuts through the southern Transjordan Plateau, and there are forts (for example, Udhruh) and watchtowers located along it and other roads in the area.

Byzantine Period (AD 324–640)

The distinction between "Roman" and "Byzantine" is a modern convention. As a result, a single date of transition is hard to assign. However, some dates for the transition are significant: 1) Emperor Diocletian's division of the Roman Empire's administration into eastern and western halves in AD 285; 2) Emperor Constantine I's transfer of the main capital from Rome to Byzantium between 324 and 330; and 3) under Emperor Theodosius I, who reigned from 379 to 395, Christianity became the empire's official state religion. Thus, Byzantium is today distinguished from ancient Rome proper insofar as it was oriented towards Greek rather than the Latin language and culture, and characterised by Christianity rather than Roman polytheism.

For Jordan and the general area of the Levant, the Byzantine period began in 324 and ended with the Muslim Conquest in 636/640. The period is considered to be a time in the Levant when there was maximum settlement. There was continuity with the previous period, an expansion of settlement, a peak of population and desert agriculture, a shift in the local economy from international exchange and caravan traffic towards agriculture and local exchange, and the diminishing importance of the Arabian trade network. This period, like the one before it, was marked by technological ability, especially in the field of hydraulic engineering and by a high level of organization.

Petra became the capital of *Palaestina Salutaris* (later known as *Palaestina Tertia*), after rearrangements of the Roman provincial administration and its boundaries in the fourth century. This status was retained at least until the end of the sixth century.

At the turn of the fifth century, Petra became a place of exile for ecclesiastics and common criminals. However, by the late fifth century it was an important and seemingly prosperous Christian town. Recent excavations within the town have uncovered three churches: 1) the Church of Saint Mary or the "Petra Church", late fifth–early seventh century; 2) the Ridge Church, sixth century and probably destroyed by the earthquake of AD 551; and 3) the Blue Chapel, late fifth or early sixth century AD. Moreover, ad-Dayr, "the monastery", and a nearby hermitage indicate Christian presence, as does the fact that an inscription within the Urn Tomb commemorates its conversion into a church in AD 446. Thus, it appears that Byzantine Petra became the religious centre of the region.

Petra suffered a devastating earthquake in AD 363. Excavations have shown that shops along the colonnaded street of the city were damaged. However, they continued to be used following the disaster until they were gradually abandoned in the mid-seventh century. The earthquake also destroyed the Great Temple/South Temple/Great Palace/ Audience Hall as well as some vital dams within the Siq. The repairs to the latter were neither sufficient nor durable since this entrance to the city seems to have been no longer in use by the mid-seventh century.

When the Church of Saint Mary/"Petra Church" was built and being used, some major architectural landmarks of Petra – for example, Qasr al-Bint, the Temple of the Winged Lions, the Great Temple/South Temple/Great Palace/ Audience Hall, the theatre, and the Colonnaded Street – either lay in ruins or were only hastily or partially restored following the earthquake. The shops that formerly lined the Colonnaded Street were replaced by simple structures in the fifth and sixth centuries. Although Petra was still an enclosed city, large parts of it, especially the south-central area, were abandoned for most of the Byzantine period.

During the excavation of the "Petra Church", its excavators found carbonized Byzantine papyrus scrolls. The scrolls cover a period of some 50 years between AD 528 and 578 (or perhaps 582). These are generally referred to as the "Petra Papyri" or "Petra Scrolls", and needed extensive conservation work before they could be read.

The "Petra Papyri" refer to the existence of "the Monastery (Holy House) of our Lord the Saint High-Priest Aaron" outside the city of Petra. The best candidate for this "monastery" is the ruins of a Byzantine monastery on Jabal Haroun, located *c*. 5 km to the southwest of Petra.

It is probable that a Christian structure was located at the summit of the mountain before a Muslim shrine was built there. This structure would, of course, have existed at the time the monastery was occupied. It was a memorial to Aaron, the brother of Moses and Miriam, who is believed to have been buried there. The Muslim shrine may, indeed, be a refurbished Byzantine church that was originally built in the time of Justinian I (AD 527–565).

The excavated, monastic complex included a church, a chapel containing a baptismal font, and auxiliary structures and rooms. A mosaic floor within the church dates to the sixth century. The excavators conclude that the complex,

in addition to its monastic function, had most probably also served as a pilgrimage centre dedicated, between the late fifth and the eighth centuries AD, to the veneration of Saint Aaron. An earthquake was probably responsible for the monastery's destruction sometime in the sixth century. However, although it was downsized, it continued to be occupied afterward, possibly continuing up to the Crusader times (twelfth century AD).

Over 700 inscriptions, in Greek and Jewish-Aramaic, originate from the an-Naq` cemetery, a burial place since the Early Bronze Age located on the south bank of Wadi al-Hasa in the Southern Ghors. The inscriptions were among the stones forming the walls or the cover stones of graves, found always with the inscribed surface facing towards the dead. The most characteristic elements of the inscriptions are the great number of Greek personal names, as well as the many Hellenised-Nabataean, Arabic and Latin ones; Christian and Jewish expressions and symbols; dating formulae; and indication of the age of the deceased.

In the Late Roman/Byzantine period the landscape of the area was severely compromised by the scale of industrial and agricultural activity. The production of copper required large quantities of charcoal and timber, which had to be brought in from the plateau above. This was due to the fact that the local environment had been stripped of suitable vegetation. The intense smelting activity around Khirbat Faynan produced a dense pall of airborne pollution that affected plants, animals, and people.

There is considerable debate about whether or not copper production was carried out in the region of Wadi Fanyan during the Byzantine period. While some researchers argue that copper production is not attested at all in the Early Byzantine period, others suggest that it stopped in the late fifth century; still others posit that it continued into the sixth century and that the town of Khirbat Faynan did not decline in importance until the late sixth, or possibly even the early seventh century. At any rate, copper production certainly did not continue on any significant scale in the following centuries. The evidence indicates a dramatic change in the use of the landscape following the seventh century.

Pilgrimage to holy places within the area of interest on the part of Christians – specifically, visits and probably overnight stays in some cases to such places as Dayr `Ayn Abata in the Southern Ghors and to the burial place of Aaron on Jabal Haroun – played some part in the local economy. Not only did the pilgrims support the monasteries financially but they also provided the manpower that kept them in existence.

During the Byzantine period, no new forts were built after the early fifth century. Moreover, some forts were abandoned as military installations and used for civilian purposes, for example, Udhruh, by the end of the Byzantine period. However, the tax system at Petra included provisions for the army.

To the north of the area of interest, the Byzantines defeated the first Muslim advances at Muta in AD 629. The tribes of southern Jordan, who were allied with the Byzantines initially, opposed the Muslim invaders and a number of hostile encounters are recorded. In 630, however, Mohammed accepted the surrender of Udhruh and Jarba and negotiated with the local bishops. This indicates that there were no regular garrisons stationed in the south or any imperial administration.

The Byzantines' decision to end subsidies to the Arab tribes was a disaster. Unhappy tribesmen aided the Muslims in defeating their former allies. The Byzantine army was wiped out at the Battle of Yarmuk in AD 636. By 640, the last of the opposition against the invaders was removed. Most of the area submitted peacefully. Security of life and property were guaranteed in return for the payment of a poll tax.

The Early, Middle, and Late Islamic Period (AD 640–1917)

The Islamic period began with the defeat of the Byzantine armies at Yarmuk in northern Jordan. It ended with the expulsion of the Ottoman Turks from Jordan at the end of World War I.

The victory of the Arab forces was the last of a series of battles and skirmishes between the two sides in the lands east of the Jordan Valley and the Dead Sea. Jordan's strategic geographic position made it an important thoroughfare for pilgrims venturing to the holy Muslim sites in Arabia. As Islam spread, the Arabic language gradually came to supplant Greek as the main language. Christianity, however, was still widely practiced through the eighth century.

Early Islamic (AD 640–1099) presence is almost completely absent from the area immediately south of Wadi al-Hasa. This is generally the case for most of the southern Transjordan/Edomite Plateau. Exceptions to this are found at such sites as Khirbat ad-Dharih, Gharandal, and Khirbat an-Nawafla.

Settlement-wise, there are, what appear to have been, several Ayyubid/Mamluk-period sites, most likely villages, hamlets, farmstead, and pastoralists' camp sites, in the northwestern region of the study area just south of Wadi al-Hasa. Moreover, Middle Islamic presence is evident at Khirbat al-Janin, Gharandal, Khirbat an-Nawafla, and a number of other sites in the Petra region.

Middle Islamic (AD 1099–1517) presence is especially evident in the form of major forts, for example, ash-Shawbak, al-Wuayra, and al-Habis, in the Crusader period. These are succeeded by the same type of structures built on the plateau during the Ayyubid/Mamluk periods. Moreover, in the region of Petra, Ayyubid/Mamluk settlement is attested at several village sites. The increase in settlement during this period is due to the Crusaders' interest in the area and especially in the control of the routes between Damascus and Cairo and to the Muslim pilgrimage sites. Moreover, some of this could be due to the metallurgical activity in the Wadi Faynan region as well as the indigo and sugar cane industry in the Southern Ghors.

Late Islamic (AD 1517–1917) presence is found throughout the area of interest. It is especially evidence in the form of villages, hamlets, farms, and pastoralists' seasonal sites. In the eastern extremity of the territory of interest, it is associated with the pilgrimage route to Makkah and al-

Madinah and, later, the railway, which was completed as far south as al-Madinah. Evidence for the Ottoman promotion of the Hajj route is found in the form of the improvement to the roadway, the building of forts and watchtowers/waystations along it, and, finally, the building of the Hejaz railway and its stations.

Final Comments

A "story" of five to six thousand years of human presence and, sometimes absence, in the southern Transjordan/Edomite Plateau, Southern Ghors and Northeast `Arabah has been set forth. It is told on the basis of the archaeological and literary evidence. As research continues, we learn more about the people who occupied the area: when they were there; who they were; what the environment was like and how they coped with changes to it; what resources were available to them and how they used them; what the industries were that they developed and the occupations in which they engaged; and the type of lives they lived.

What is evident is that there were differences in certain archaeological periods in settlement patterns, as well as life-styles, between those who lived on the southern segment of the Transjordan/Edomite Plateau and those who lived in the Dead Sea Rift Valley or in the lowlands immediately to the west. Moreover, it is obvious that when there were periods of trade, for example, the spice trade, and industries, for example, copper mining and processing, the population of the area was higher. This was due to the fact that specialists were needed for such activities and service industries were developed to support them. In keeping with the above, stable governance brought about growth in population and prosperity.

No one factor can be seen as responsible for the rise and fall of population numbers in the area of interest. Climate, certainly, must be taken into consideration in an attempt to understand the dynamics of the "filling-up" and "emptying-out" of the area. However, other factors must also be considered.

For people to settle in an area, there is the need for water and arable land to grow the crops that are required by both humans and beasts, whether domestic or wild. Moreover, both would have to develop adaptive strategies to contend with changes in climate, deterioration of land resources, and natural occurrences.

Other important resources in the area were copper, manganese, bitumen, and salt. But in order to "harvest" these resources there would have been the need for appropriate technologies, which would have generally improved and developed through time. For example, developments such as the plow and terracing would have increased food production. Moreover, new technologies needed to be developed relative to the extraction of copper, for its smelting on site, and/or its "shipping" elsewhere for processing.

In order for all the above to succeed, a stable government – for example, in the form of the Assyrians, Romans, Byzantines, and Ottomans – was necessary. These governments would have insured that the conditions were conducive to new developments in hydrology, food production, and the extraction of minerals; that the trade routes were secure; and that essential services were available along them.

Stable governments would have seen that traders were provided with information relative to which routes were passable or not at certain times of the year, and whether or not the required services would be provided along the desired route. Relative to the needs of pilgrims visiting Christian sites and, later, on their way to Makkah and al-Madinah, there would have been the need again for security and the services that pilgrims required in the form of water, food, places for rest, animals, and so forth.

Finally, it appears that a number of factors have to be taken into consideration when attempting to understand the dynamics involved in the periods when there was a large or meagre human presence in the area between Wadi al-Hasa and Ras an-Naqab on the southern Transjordan/Edomite plateau or in the area of the lowlands of the Dead Sea Rift Valley to the west. No one factor can explain the ebb and flow of human population in the region.

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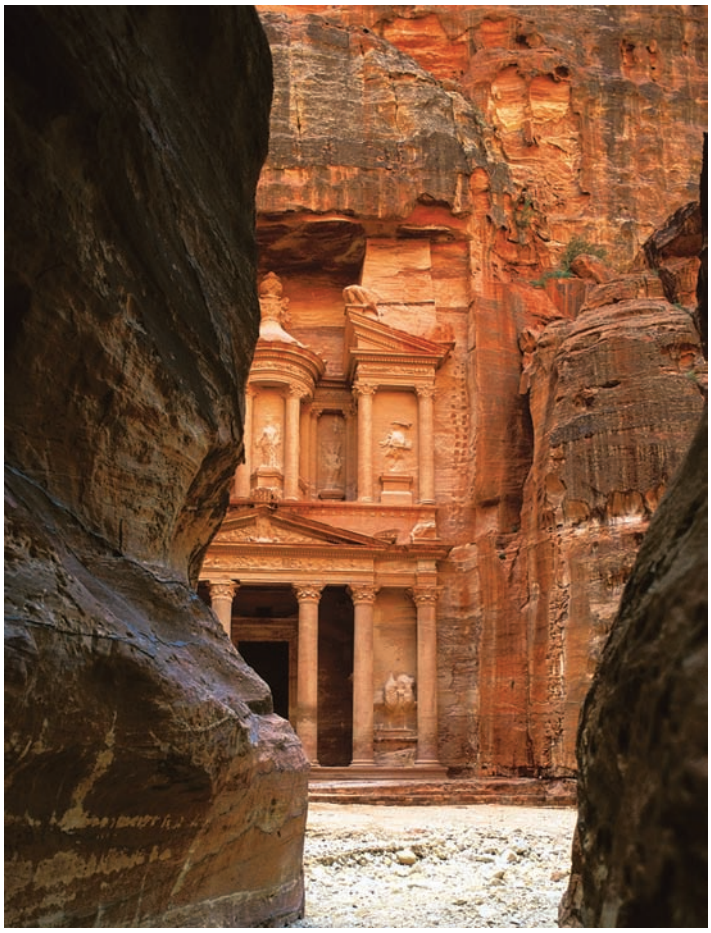

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Plate 45: Jabal Haroun, Aaron's tomb and monastery (photo by Jane Taylor [J7195-10.jpg]).

Plate 46: As-Safi, from Dayr `Ayn `Abata, in the Dead Sea Rift Valley, looking southwest (photo by Jane Taylor).

Plate 47: Ash-Shawbak Castle (APAAME_20090930_DLK-0181.jpg).

Plate 48: Qal`at al-Hasa (APAAME_20070417_FFR-0327.jpg).

Plate 49: Bir Hamid (ARNAS Site 241), traditional, agricultural south Jordan Ottoman village (photo by Scott Quaintance).