A DIOCLETIANIC ROMAN CASTELLUM OF THE *LIMES ARABICUS* IN ITS LOCAL CONTEXT:
A FINAL REPORT OF THE 2001 DA’JANIYA SURVEY

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By

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And Hereby certify that it is worthy of acceptance.

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Professor W. Raymond Wood

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Professor Lawrence Okamura
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ABSTRACT

The Roman fort at Da’janiya is the largest and best-preserved fortification on the Roman limes between the two legionary forts at Lejjun and Udruh. The fort at Da’janiya is something of an anomaly, since at just over 100 m by 100 m; it covers over four times the extent of the typical castellum in Jordan. There has been some test excavation within the fort itself, limited to establishing the dating of the construction; but until this project there has been no survey of the area surrounding the fort.

This project was a small scale, very intensive archaeological survey around the fort. In the course of five weeks of fieldwork, 43 sites were visited and recorded, including watchtowers, roads, and agricultural sites contemporary with the fort, as well as Nabatean and lithic period sites. Other periods were represented as well, but precise dating awaits analysis of the pottery. These findings allow some limited field conclusions: the fort at Da’janiya is situated on a nearly perfectly flat plain, surrounded by extinct volcanic cones. The presence of watchtowers on these cones provides a wide area of observation and control for the fort. There are also two separate ancient roads, running north/south within the survey area. There is not an extensive settlement around the fort itself, and the fort does seem to be placed to guard the agricultural zone to the west.
Introduction

The list of scholars who have traveled through and studied the area of modern Jordan which contains the Roman *limes* of the province of *Arabia Petraea* is long. However, in this lengthy history of study, few such scholars have had the time or resources for such an intensive study of any single area within the larger territory. Many such researchers have traveled large segments of the length of the *limes*, beginning with Brünnow and von Domaszewki at the turn of the 20th century, and most recently with Findlater, *et al.* (2002). These researchers by necessity only observed the most obtrusive sites within their survey area. This is certainly no slight to previous scholarship, as it is their work building the framework of our current understanding of the region which allows projects such as the current survey to fill in the small scale blanks in their larger scale research.

The current survey was designed to elucidate the relationship of one of the sites, Da’janiya, published first by Brünnow and von Domaszewki (and subsequently by many others; see chapter 2 for the previous scholarship on the survey area) to its local context. Later chapters will also discuss the current understanding of the Roman *limes* with the addition of new material from this survey.

The Roman fort at Da’janiya is situated about 40 km north of Ma’an, just west of the Desert Highway. When built, circa AD 300, it was the largest fortification on the Roman frontier between the two legionary forts at Lejjun and Udruh. It is approximately 32 km northeast of Udruh, and approximately 75 km south of Lejjun. The fort at
Da’janiya is something of an anomaly, since at just over approximately 100 m by 100 m, it covers over four times the areal extent of the typical castellum in Jordan, which rarely exceeds 50 m by 50 m. One major question relating to Da’janiya is why should there be such a large fort in this spot? There is no immediately apparent evidence for sedentary settlement in the area immediately surrounding the fort during the main period of occupation. Is it protecting the edge of the agricultural zone to the west? Is it protecting some resource in the area that is unknown today?

Even today, it is a prominent feature of the local landscape, as its walls are preserved in some locations as high as 3m. It lies on a slight rise on the otherwise nearly flat plain surrounding it. This plain is dotted with several volcanic cones rising out of the surrounding plain. It is also situated on the bank of a wadi, which provided water for the large reservoir associated with the fort. From the remains of plaster adhering to the walls, the fort seems to have been covered in a white plaster, which is in stark contrast to the black basalt cobbles that form much of the desert floor around it. In its period of use it must have been a very impressive edifice, dominating its surrounding landscape symbolically as well as literally in a political sense.

The main question which this project attempts to clarify, if not answer, is the role of this fort in the overall defensive system of the Roman frontier. In particular, are there any outlying structures related to the fort, such as watchtowers, a vicus, or other structures of contemporary construction? The relationship of the fort to other known locations on the frontier, such as roads and other fortifications, is also an important research question. Arising from these two questions are two further main questions. First, what was the major threat – was the Roman military presence in the region
primarily to guard borders, or was it more of a police presence, guarding either the interior of the province or the important trade route running north-south. Second, was there actually a signaling system between the Roman military sites along the frontier? It was also possible for this survey to shed some light on questions relating to other periods, and to perhaps elucidate the nature of the garrison of the fort itself.

The actual results of the survey are manifold and in many cases, not at all what would have been expected. These will be detailed in the conclusions, but the most important result is that apparently the Late Roman *limes*, in association with the fort, is evidently not the substantial interconnected web of roads, fortifications and watchtowers postulated by nearly all previous scholars. Within the survey area, there appears to be a substantial Iron Age (most likely Iron II) system of major watchtowers. There is substantial Early Roman/Nabatean reoccupation of these Iron Age sites and occupation of other major sites as well. The Late Roman/Early Byzantine period (the period to which the fort is securely dated by excavation) shows, if anything, a contraction of activity in the area. While in earlier periods, there was obviously a connected web of defenses, in the Late Roman/Early Byzantine period, it seems that the fort itself was relatively isolated. The “outer road” postulated by Brünnow and von Domaszewski (1905), and Thomson (1917) and the “branch road” suggested by Parker (1986) are not apparent within the survey area. It is possible that these (likely the same road) were never typical paved Roman roads, as the terrain in the survey area is not such as to require paving. It is also possible that these roads underlie the modern Desert Highway – which would mean that previous maps of their location are somewhat inaccurate. More troubling, the road
would then bypass the fort at Da’janiya by approximately 4 km – which would be unusual for a Roman fortification ostensibly part of a frontier road system.

**Previous Scholarship**

Da’janiya has been visited by numerous scholars, although the most important early study was by Brünnow and Domaszewski, who provided a plan of the fort in their 1905 publication [Brünnow and Domaszewski; 1905. vol. 2. pp 8-13]. Their most important theoretical contribution to the current understanding of the survey is their theory of the inner and outer *limes* – a double line of forts and roads providing a defense in depth along the frontier.

Thomson’s survey of Roman milestones, published in 1917, touches on the region also, and his work on the road system in the area is important, as well. Nelson Glueck, in both his *Explorations in Eastern Palestine II* (1935) and *The Other Side of the Jordan* (1940) relates his travels and observations in the survey area.

As for more recent work in this region, during the 1980’s, Philip Freeman also visited Da’janiya and published on it [Freeman; 1990]. Kennedy and Riley published aerial photos of the fort itself in *Rome’s Desert Frontier from the Air* [Kennedy and Riley; 1990. pp. 168, 172-175, 192-193]. S. T. Parker also surveyed the fort itself and published a corpus of pottery from surface collections in and around the fort in *Romans and Saracens* (1986). The only excavation conducted to date in the fort itself was done by Parker, as part of his Limes Arabicus Project [Parker; 1990. pp 134-141], [Godwin; in
press]. Parker’s work at Da’janiya was limited to soundings that provided a stratigraphic sequence for the archaeological history of the fort, and shed some light on earlier suppositions as to the function of some of the rooms within it – particularly in refuting Brünnow and Domaszewski’s suggestion that some of the rooms inside were stables, and perhaps their identification of this site as a base for a *cohors quingenaria equitata*. Derek Welsby, in his 1994 article identified two phases of construction for the curtain walls of the fort.

The most recent work in the area before the current survey was by George Findlater, who visited the fort in the context of a survey of the broader region, but who did not concentrate on the immediate environs of the fort at Da’janiya [Findlater; pers. comm.]. Also, Burton MacDonald, who directed the Wadi el Hasa Survey [MacDonald 1988] to the north of this area has recently published the final report on his more recent work, the Tafila-Busayra Survey [MacDonald 2002], which (rather neatly) fills in the gap between his previous Wadi el Hasa Survey and this survey area.
Methodology

Original plan vs. actuality

The fieldwork for this survey was planned to consist of a surface survey of all sites within 5 km of the fort, utilizing pedestrian transects, plotting and recording of all sites of all periods, and collecting artifacts from those sites. Sites were to be mapped using both Global Positioning System (GPS) and traditional mapping methods. In the field, it became apparent that this plan was unfeasible, because the site density in the area surrounding the fort was so low that pedestrian transects were not practical as a method. Therefore, a system combining limited pedestrian transects radiating from the fort, and more purposive survey, both pedestrian and vehicular, in a larger radius (Purposive survey, for this project, is defined as any informed, nonrandom, non-statistically valid method of site location). This method worked well, providing reasonable assurance of finding any significant site in the plain surrounding the fort, and allowing for the discovery of more distant sites in the survey area. Some use was also made of local informants as to the location of sites.

Survey Area boundaries

The boundaries of the survey area were determined by several factors. As the primary goal of the survey was to elucidate the relationship of the fort at Da’janiya with its surrounding geography, both cultural and natural, it was decided to organize the survey in such a way that the fort itself was in the center. Therefore, as the survey area radiates from the fort in the center, it was limited in size mainly by available time and
resources, although there were geographic features which suggested good boundary points as well. Finally, the Department of Antiquities, in the person of their representative to the project, Mr. Adnan Rafiah, was also consulted as to the best location for the boundary of the survey area. All of the boundaries of this survey area were artificial, none based on a geographic feature.

**Site Visibility and Obtrusiveness**

Within the survey area, site visibility was very good. Roughly the western half of the survey area lies within the modern agricultural zone, and at the time of the survey fieldwork this agricultural zone was partially plowed, and almost completely lacking in vegetation. The eastern half of the survey area consists of gravel desert, with very little vegetation at all.

Site obtrusiveness in the survey area was extremely variable – in fact almost bimodal in its distribution. In both of these environments, sites consisting of any structure at all, even small cairns and rock alignments, were visible at a considerable distance. Within the survey area several extinct volcanic cones stand above the surrounding topography, and these also allow good site visibility, as structures and rock shelters are relatively clearly visible.

However, lithic and ceramic scatters on the surface were mostly visible only when a team member walked over them, and even then, the “background noise” (camouflaging gravels) of the desert surface sometimes made it difficult to distinguish such artifacts.
Site Definition

For the purposes of the current survey, the following definition of archaeological site was used: Any scatter of artifactual material, and any manmade structure apparently predating the 20th century and not still in use was recorded as a site. However, several factors modified this basic definition.

First, the underlying limestone bedrock contains ubiquitous chert nodules and tabular chert formations, so there is considerable lithic ‘background noise’ among the gravel of the desert surface. This difficulty, combined with the previously stated research design of the survey probably caused some underreporting of sites consisting only of lithic artifacts, based on comparison with other nearby survey reports [MacDonald 1988].

Second, in the section of the survey area corresponding to the modern agricultural zone, there exist innumerable rock alignments and areas of stone clearance. These are still in use for modern agricultural activity. Many of these likely are of considerable antiquity, but extensive pedestrian investigation failed to reveal any artifactual evidence for an ancient date for these alignments and cleared areas. Since no artifactual evidence, and thus no dating evidence, was present, and mapping the alignments in even a small area would have occupied far too much of the available time they were not recorded as sites. However, the general area of these alignments is within the agricultural zone indicated in Figure 3.

Third, within the survey area there are several cisterns. All of these have been modified recently, mostly by reinforcing them with modern concrete and in some cases metal covers. It is likely that they are of considerable antiquity, but no artifacts were found to confirm this. For this reason, they were not recorded as sites, but were recorded
on the maps, and will be discussed later as part of the discussion of the general regional context of the fort. Water resources are clearly a critical, if not the critical, aspect of understanding the region.

**Site Location**

Three main methods of site location were used during the 2001 survey: Purposive vehicular survey, purposive pedestrian survey, and pedestrian transects. The purposive methods were informed by a variety of sources. These included previous scholarship, local informants, and the visibility of sites – some of which are visible from some kilometers away. Unfortunately, this survey was not able to use aerial photos, which would have been particularly helpful in this terrain, as nearly any structure would have appeared clearly. The Jordanian Royal Geographic Center granted permission for the use of aerial photos from their archives, but when the archives were searched, it was discovered that the aerial surveys had missed the region of this survey, according to the maps of aerial survey flight plans in the Jordanian Royal Geographic Center archives.

This survey area was particularly suited to purposive vehicular survey, as the conditions of site visibility detailed above allowed most sites to be perfectly visible from a vehicle at a considerable distance. MacDonald (MacDonald 1988: 18), in his Wadi el Hasa survey, acknowledged a sample bias within his western survey universe towards sites located near roads and tracks. In the case of this survey, the flat open terrain and lack of significant vegetation allowed for more confidence in the coverage achieved by this method.
The original research design called for many more transects that would provide a more statistically valid set of results. It immediately became clear that this plan would result in intensive coverage of an area of low site density, while occupying all the available time for the survey. Thus a more purposive strategy was adopted. However, in order to test whether the purposive strategy was missing a significant number of sites, a number of pedestrian transects were undertaken, and while they recorded two lithic scatters that otherwise would have gone unnoticed, they did not offer significantly different results than the more purposive strategy in this environment.

**Collections**

The Da’janiya survey collected artifacts at any site at which they were apparent. The Jordanian Department of Antiquities permit under which the survey was conducted allowed no excavation whatsoever, so such techniques as shovel testing were out of bounds. Thus all artifact collections were surface collections. Given the conditions of site visibility detailed above, this was not a serious problem.

There was a definite intentional bias towards artifacts that were diagnostic, such as ceramic rims, handles, and bases, which can be closely dated. At sites of low artifact density, often all evident artifacts were collected. At sites of higher density, there was an attempt to collect a representative sample of artifacts as well as to collect at least a sample of all types present. While this strategy is useful for ensuring that as much evidence as possible is available for dating the individual site, it is not valid for statistical analysis. It tends also to ensure that unusual types are overrepresented in the collected
sample, which is helpful for full understanding of the site, but again, constrains statistical analysis.

**Dating of Sites**

The sites recorded by the Da‘janiya survey were dated by analysis of the artifacts collected. Most sites were dated by ceramic chronology. Dr. S. T. Parker was extremely gracious in conducting this chronological analysis of the ceramics. It is important to remember that this dating method does not allow for the degree of precision possible with other methods (usually requiring excavation), such as coin analysis, radiocarbon, dendrochronology and even the relative dating provided by stratigraphy.

In all cases where no artifacts were collected, dating was not possible at all, and in some cases with small artifact assemblages, the limited dating conclusions possible should be regarded cautiously. For sites with no artifacts collected, the only available dating evidence without further excavation is the amount of heavy desert varnish on stone features and the surface of the site.
Site Descriptions

Site number: 1 (Plate 1)

Location (UTM coordinates): E765001 N33833259

Elevation: 1111 m

Periods of Occupation (pottery chronology): Late Roman, Early Byzantine

Description:

This is Da’janiya fort itself. It has been surveyed many times, and limited test excavations were performed by Parker (c.f. Parker 1986). This survey did not collect artifacts from the fort itself.

The size of the fort, its construction of black basalt boulders, white mortar and plaster and its remarkable state of preservation make it a striking sight today. It is an irregular parallelogram about 100 m on a side, with curtain walls preserved as much as 4.5 m high. The fort has four corner towers, which straddle the walls, and are approximately 7 m square. Each wall, except the east, has two interval towers, each about 4-5 m square. The east wall has four, with the central two on each side of the main gate. There is another main gate in the center of the west wall, and a small postern on the south wall. The interior of the curtain wall is lined with rooms built against it, there seem to be 58 of these, although it is likely that the current ruined state of the structure obscures additional subdivisions of the visible rooms (Godwin, in press). Interior building blocks include a principia, in roughly the expected location, apparent barracks blocks, and what must have originally been an underground rectangular cistern (14 m by 5.5 m) under the via principalis of the fort. The fort has been relatively securely dated by
stratified pottery and coin evidence to a construction date of circa AD 300; although Lander (1984) suggested that the fort was Severan in date. It seems likely that the modern reservoir near the fort is built on the site of a major ancient reservoir, and thus the plain around Da’janiya served as a gathering place for nomadic pastoralists, as well as for caravans and other travelers. Thus the construction of the fort could be explained as an effort to control this activity.

Site number: 2 (Plate 3)

Location (UTM coordinates): E765017 N3383229

Elevation: 1109 m

Periods of Occupation (pottery chronology): Roman/Byzantine, Early Byzantine

Description:

This site is located about 60 m from the east gate of Da’janiya (Site 1). It consists of a circular structure 4.4 m in diameter, constructed of squared, mostly limestone blocks, roughly 30 cm by 60 cm by 30 cm. The walls are approximately 60 cm thick, and at some points are preserved as high as 1.25 m. The walls line a depression that is approximately 1.5 m deep. It contains blown sand, so its actual depth is unclear; and likely changes periodically. A single season’s wind action could account for as much as half a meter of deposition/erosion. What may be an entrance is visible to the southeast.

This structure was first published by Brünnow and von Domaszewski, who identified it as a ‘tower’ (Brünnow and von Domaszewski, 1905: 13). Parker and others have more recently identified this structure as a lime kiln. This is supported by several lines of evidence. First, the structure is surrounded by a slight mound of lime debris.
This mound is in some contrast to the surrounding ground cover, which consists mostly of black basalt cobbles. Second, there are considerable quantities of lime mud in and around the structure. Third, there is some slag present in and around the structure, including a pot sherd that was somewhat melted.

A total of 19 pottery sherds were collected, of which 2 were diagnostic (sherds that contain enough distinctive features to be [relatively] closely dated). The dating of these sherds was as follows: 1 E Byz; 1 Unidentified; 15 R/Byz body sherds; 1 tile, 1 kiln waster (the aforementioned melted sherd). This dating evidence is consistent with this structure having been contemporary with the primary occupation of the fort itself. No other artifactual material was observed or collected.

With the dating evidence above, and the abundant use of plaster throughout the fort, it is tempting to associate this structure with either the original construction of the fort, or with the later repair/reinforcement of the walls discussed by Freeman (Freeman 1990) and Welsby (Welsby 1998).

Site number: 3

Location (UTM coordinates): E764964 N3383190

Elevation: 1117 m

Periods of Occupation (pottery chronology): No pottery

Description:

This site is a rectangular stone structure 10.5 m northeast-southwest by 7.5 m northwest-southeast. It is approximately 85 m south of the east gate of Da’janiya (Site 1). The walls are roughly 65 cm wide, and constructed of the same black basalt boulders
as the fort. There is no trace of internal divisions inside the structure, and the wall to the southeast is much less distinct than the other three walls. The masonry is very well constructed and the wall alignments are very straight. There are indistinct wall alignments running northwest from the southwest corner for about 2 m, and from midway along the southwest wall for about 1 m. Inside the structure the surface level is about 40 cm below the surrounding surface and the structure is filling with blown sand.

There are roof tile fragments scattered around this site, but no pottery sherds were evident. There was no other artifactual material present. The similarity of the construction to that of the fort (Site 1), and the similarity of the roof tiles to those around site #4 suggest a date contemporary with the fort, but in the absence of pottery or other dating evidence, that date must be regarded as tentative at best.

Site number: 4 (Plate 2)

Location (UTM coordinates): E765031 N3383200

Elevation: 1130 m

Periods of Occupation (pottery chronology): Roman/Byzantine, Late Roman, Early Byzantine

Description:

This site is a mud brick structure 10 m (north-south) by 6 m (east-west), approximately 75 m east of the east (main) gate of Da’janiya fort (Site 1). The walls are preserved up to 4 courses high, each course consisting of mud bricks approximately 40 cm long, 15 cm high and 30 cm wide. The upper course of what may be a stone foundation is visible at one point. The structure is surrounded by abundant roof tile
fragments. The structure seems to have been divided into two roughly equally sized rooms by an east-west interior wall. The site currently forms a low mound about 1 m high on its north end, and .5 m high on its south end. The interiors of the walls are much less visible than the exteriors, due to the collapse which has filled the building forming the mound.

Based on the tile fragments and the pottery collected, this structure is probably contemporary with the fort. A weathered rectangular ashlar with a hole through one corner is located 2 m from the northeast corner of the building. In an olive producing area, it would be tempting to identify this as an olive press weight, but in this region, perhaps a reused door hinge block from the nearby fort is a better interpretation.

A total of 41 pottery sherds were collected, of which 3 were diagnostic. The dating of these sherds was as follows: 2 E Byz; 1 LR; 38 R/Byz body sherds. This dating evidence is consistent with this structure having been contemporary with the primary occupation of the fort itself. No other artifactual material was observed or collected.

While Brünnow and von Domaszewski identified this structure as a ‘tower’ (Brünnow and von Domaszewski, 1905: 13), Parker says that it has ‘nearly disappeared’ (Parker 1986:94). It seems likely that, barring significant decay of the structure between Brünnow and von Domaszewski’s visit and Parker’s work, this was a small outbuilding associated with the occupation with the fort.
**Site number:** 5 (Plate 11)

**Location (UTM coordinates):** E757924 N3390479

**Elevation:** 1359 m

**Periods of Occupation (pottery chronology):** Iron II, Late Roman, Late Roman/Early Byzantine, Ayyubid/Mameluke, Late Islamic,

**Description:**

This is a large multi-period site. It occupies an entire hilltop, which is called Hudeira. There are extensive extant walls forming many connected rooms (50+), and freestanding buildings. Most are rectilinear, though on the lower slopes they tend toward a more curvilinear plan. At the summit are the remains of massive walls, up to 1.5 m thick and in some places surviving to 2 m high. The stones are mostly roughly dressed and generally rectangular, but not finished to the point where the term “ashlar” would be appropriate for most of them. There is a definite preponderance of better masonry at the top of the slope – on the lower slope; walls are mainly of field stone. There are some nicely dressed ashlers incorporated into the walls at the summit, but it is not immediately clear from where they were robbed (assuming of course, that ashlers contained within walls otherwise of fieldstone are reused). There are also several column drums lying around the site, none larger than .5 m in diameter, but none in situ. The entire site is covered with stones collapsed from the walls, making the plan very hard to discern. The largest blocks in the walls on the summit of the hill are approximately 1 m by .5 m by .75 m. This was very substantial construction. The west wall seems to be the thickest and may have included projecting U-shaped towers. The stone used for all of this construction is about 99% limestone.
The entire site is built over a system of caves and small rock shelters. Ten cave openings were observed by the survey staff, and other areas of loose rubble suggest that there may be other openings which could be exposed by excavation. One curvilinear structure built around a cave opening contains a doorway with a cut stone lintel and uprights. Some of these are associated with water storage, and on the lower slopes, there is an extensive system of cisterns and water channels. Some of these are still in use and have been modified recently.

Pottery sherds are ubiquitous at this site, and fragments of vesicular basalt grindstones are also relatively common. Forty-nine sherds of which 28 were diagnostic were collected from this site by the survey. These were dated as: 22 L Islam; 3 Ayy/Mam; 1L Byz; 7 E Byz; 5 LR (late); 1 ER/Nab; I Iron II; 3 UD; 18 LR/ E Byz body sherds. Based on this evidence, it seems that this multi period site is an agricultural village of the late Roman and Byzantine periods, overlying earlier Iron Age remains. This occupation would have been contemporary with the primary occupation of the fort at Da’janiya. As such, it may well have been a component of the signaling system associated with the fort. Its location at the summit of the hill allows excellent visibility between this site and the fort, even though they are separated by some 10 km. The watchtowers on Jebel Da’janiya (Site 16), and Tell el Juheira (Site 25) are also mutually easily visible. It is also evident that there is a more recent occupation in the late Islamic period as well.
**Site number:** 6 (Plate 5)

**Location (UTM coordinates):** E757674 N3390294

**Elevation:** 1334 m

**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Late Roman, Early Byzantine, Late Byzantine, Late Islamic

**Description:**

This is a cemetery site, downslope from Hudeira (Site 5), and probably associated with it. It is approximately 130 m east-west by 150 m north-south. The cemetery is bounded on the north by a terrace/water canalization wall, on the west by a low stone wall, on the south by a linear bedrock outcropping, and has no discernable boundary to the east. The original number of graves is unclear as the cemetery has recently been robbed, and approximately 40 robber pits and associated spoil piles cover most of the current surface. These pits are concentrated towards the north (upslope) end of the cemetery. Many of these robber pits are very recent. Extensive human remains are scattered over the surface of this site, including the long bones of the leg of one individual who must have been at least 183 cm tall (from a field examination of the size of the femur and tibia).

The artifacts from this site include an architectural fragment of stone corner molding, approximately 25 cm by 40 cm by 20 cm, with a simple 3-bead molding on two sides. Presumably this came from the site above, but no matching fragments were located at Site 6. This seems to be further evidence of the prosperity of the site at Hudeira in antiquity.
Since the permit for this survey did not allow for any excavation, artifacts from this site were collected in two separate assemblages, in an attempt to obtain a sub-surface sample as well as a surface sample. This was accomplished by making separate collections for the surface and the spoil piles from the robber pits. The assemblage from the spoil piles contained 14 sherds, of which 5 were diagnostic. These were dated as: 4 ER/Nab; 1 UD; 1 tile; 8 R/Byz body sherds. The assemblage from the surface contained 30 sherds, of which 11 were indicators. These were dated as: 1 L Islam; 2 L Byz; 4 E Byz (specifically, 3 African Red Slipped – I type F67 [dates to 360-370 AD]); 1 LR; 11 ER/Nab, 2UD 9 R/Byz body sherds. These results tend to indicate that this cemetery was contemporary with the Roman/Early Byzantine occupation of Hudeira (Site 6). While sample sizes are low, it is worth noting that sherds more recent than the Byzantine period are only present on the surface – not in the subsurface sample. It is also possible that the earlier ER/Nab sherds reveal an Early Roman/Nabatean occupation not immediately evident among the sherds from Hudeira itself.

Site number: 7
Location (UTM coordinates): E757575 N3390156
Elevation: 1312 m
Periods of Occupation (pottery chronology): no pottery
Description:

This site consists of a lithic scatter downslope from sites 5 and 6. It extends in a 10 m wide band for approximately 50 m. It may represent a primary reduction site, as many chert nodules are weathering out of the surrounding rock here. However, the flakes
and debitage usually associated with flint knapping are not present in the expected great quantities on the surface. Recognizable lithic implements were not observed, only shatter and small quantities of debitage. Pot sherds were also present on the surface, but the similarity of the assemblage, the abraded, water-tumbled look of many of the sherds and the site location all suggest that the pottery was washed down hill from Hudeira. Thus it was not collected.

**Site number:** 8 (Plate 4)

**Location (UTM coordinates):** E756321 N3379932

**Elevation:** 1230 m

**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Late Roman, Early Byzantine, Late Byzantine, Late Islamic

**Description:**

This site, Khirbet Qannas, is a large strongly built structure approximately 112 m east-west by 45 m north-south. It is located approximately 9 km southwest of the fort at Da’janiya itself. The main walls are clearly visible in some places, and seem to be roughly 1.25 meters thick, constructed of field stone. The entire site is covered with stones from the collapsed walls, about 60% of it black basalt (the rest is mostly local limestone). Both the basalt and limestone are extremely ubiquitous in the region. Where they are visible, the walls still extant seem to contain a much higher percentage of limestone blocks than would be suggested by the rubble. Several robber pits within the site give a glimpse beneath the rubble and reveal sections of ashlar masonry. There may be two projecting U-shaped towers on the corners of the west wall, the southwest corner
seems to project diagonally, while the northwest corner seems to project only to the west. This may be due to a modification to the north wall in antiquity, when an additional room was built onto the outside of the north wall, flush with the projecting tower. There is also internal architecture visible mainly on the west end, but it is largely obscured by rubble. There may be a projecting square tower roughly halfway along the north wall. This tower has a (probably modern) roughly square enclosure approximately 16 meters by 16 meters built of rubble extending north from it. Along the east and north walls, small internal room divisions may be more easily observed. There is a modern Bedouin cemetery immediately southeast of the east wall, and a large modern field enclosure extends from the east side of the site. This seems to overlie a faintly visible ancient field system.

Northwest of the site is an area of sinkholes, caves and natural cisterns, that must have provided an ample water supply when full. At least three of these have been modified with masonry, enclosing the opening of the two of them. One of these has been reinforced with concrete in modern times. This northwest area is approximately 200 m by 300 m, and contains at least 32 such formations.

At this site also, this survey made two separate collections at the main structure, in order to test whether the assemblage differed inside and outside the structure. Inside the structure 47 sherds were collected, of which 17 were diagnostic. They were dated as: 6 L Islam; 1 L Byz; 23 E Byz, 2 LR (late 3rd-early 4th century); 2 Byz (1 amphora, class 48-49 – 4th-6th century); 2 ER/Nab; 3 UD; 8 R/Byz body sherds. Outside the structure 71 sherds were collected, of which 34 were diagnostic. They were dated as: 33 E Byz (1 African Red Slipped type F67 [AD 360-470]); 3 LR (late); 5 ER/Nab; 1 UD; 1 amphora lid; 28 R/Byz body sherds. With the exception of a small Late Islamic occupation from
inside the structure, both assemblages seem to indicate a main occupation in the Late
Roman/Early Byzantine periods. The few ER/Nab sherds present, including one sherd of
Nabatean unpainted fine ware indicate a Nabatean or Early Roman occupation of the site
as well.

It seems likely that this site represents at least two separate phases of construction.
The extant structure seems to consist of a small *quadriburgium* (c. 40 meters square)
which has been joined to a rectilinear structure (c. 45 meters square), 20 meters to its east
to form one rectangular caravanserai. This theory was first put forth by Kennedy based
on aerial photography (Kennedy 2000: 163), and this survey certainly tends to support his
conclusion from surface examination, but a full understanding of the phases of
construction of the site will have to wait for excavation. Subsequent to these ancient
modifications, there are clearly several phases of modification and robbing of stones for
nomadic campsites and agricultural/pastoral enclosures, possibly in the modern period.

This site has been largely neglected by scholars, as only Graf (1997), Zayadine
(1992), and Kennedy (2000) have published on it.

**Site number:** 9

**Location (UTM coordinates):** E756501 N3380189

**Elevation:** 1219 m

**Periods of Occupation (pottery chronology):** Late Roman, Early Byzantine

**Description:**

This is the ancient cemetery associated with Khirbet Qannas. It is even more
disturbed than that at Hudeira. The area is roughly 150 meters by 100 meters. In the
center of this is an area about 100 m in diameter that is extensively robbed. There are more than a hundred robber pits and it is impossible to walk across this area without climbing over spoil piles or through pits. The burials seem to have originally been oriented east-west, but the original appearance of the graves on the surface is completely obscured by the robber pits and their associated spoil piles. There are no clear head or foot stones, and no evident grave mounds. There is some evidence that stones (in some cases nicely dressed ashlars) were originally placed in some of the graves, but whether they surrounded the body or covered it is unclear, as these stones are now in the spoil piles.

As this site has been extensively robbed, human remains are very abundant on the surface. At least 20 individuals were represented in the remains scattered over the surface. Much of this grave robbing activity was very recent, even occurring during the period of the survey. In some cases the earth in spoil piles was still moist in the morning when we arrived at the site, indicating it was dug during the preceding night.

A total of 21 sherds was collected from this site, including 10 diagnostic sherds. These were dated as: 10 E Byz; 11 LR/E Byz body sherds. This dating would suggest that this cemetery is contemporary with the main occupation of Khirbet Qannas (Site 8). It is possible that this is the site identified by Kennedy as an extramural settlement outside Khirbet Qannas (Kennedy 2000: 164).
Site number: 10 (Plate 9)

Location (UTM coordinates): E771182 N3385689

Elevation: 1119 m

Periods of Occupation (pottery chronology): Early Roman/Nabatean, Late Roman

Description:

This site is a multi component one, consisting of a masonry structure placed on top of a lithic site - that has been used for human burials after its primary period of use. This entire hilltop is covered in chert nodules, broken pieces of chert, and lithic debitage. All of these have heavy desert varnish. The lithic artifact density for most of this site is >5 per square meter. This chert deposit is roughly 300 m in diameter. Under the chert on the surface is a white limestone. This makes several modern bulldozer trenches nearby very visible as the white limestone stands out against the dark desert varnish of the chert on the surface.

The stone structure is approximately 15 m square, constructed of the white limestone mentioned above. This limestone is very decayed and collapsed, and the actual structure of the walls is completely indistinct due to the weathering of the limestone, except as visible in the robber trenches (of which there are several). In one of these, a 2 m long by 1.3 m high section of the interior of the north wall is revealed. It is composed of small irregular limestone blocks, none bigger than 30 cm long (although there are some scattered around the site much larger than this, up to 75 cm by 50 cm by 30 cm) the outer side of the wall is not visible, but the mound of rubble suggests a thickness of roughly 1 m. The rubble contains a large amount of lime mud. It is not clear whether this reflects natural decay of the limestone or mortar/plaster used in the construction.
There are at least four human burials within the structure, based on the robber pits and human remains scattered around them. Orientation cannot be determined from the pits, and nothing of the characteristics of the graves can be seen. From the presence of the os coxae of two different individuals, both males and females were buried at this site. Approximately 20 meters east of the structure is another series of robber pits, but the lack of associated human remains suggests that the robbers were less successful in finding graves by their prospecting.

Seventy-two sherds were collected, 22 of them diagnostic. They are dated as: 1 LR (early); 19 ER/Nab; 49 ER/LR body sherds. Based on this dating evidence, this site seems to have been occupied before the primary occupation of the fort at Da’janiya.

This site has a commanding view to the north, south, and west (towards Da’janiya). To the east, a ridgeline creates an area which cannot be observed from this site, thus lessening its military effectiveness, but the view is still impressive. This site is extremely significant, since this is a topographical location where one would expect to find a watchtower associated with the fort. However, it seems that the structure here may predate the fort.

Site number: 11 (Plate 8)
Location (UTM coordinates): E767125 N3386079
Elevation: 1117 m
Periods of Occupation (pottery chronology): Early Roman/Nabatean, Early Roman/Late Roman
Description:
This site is a stone structure on the peak of a volcanic cone, north-northeast of Da’janiya. It consists of a structure made of the same white limestone as that at Site 10. This building has decayed into a mound of rubble and lime mud. It is very distinct against the outcrop of black and dark red volcanic rock on which it is built. It now appears as a mound of limestone rubble approximately 1 m high, and 10 m in diameter. The underlying structure of this mound is not visible. There is one possible wall alignment, running roughly east-west in a straight line for 2.5 m. It suggests a wall 70 cm thick. It is possible that this mound was originally a rectilinear structure roughly 4 m by 5 m, but this is very unclear. There is a modern Bedouin cemetery on a small ridge just east of the site.

A total of 39 sherds was collected from this site, 1 of them diagnostic. They are dated as: 1 ER/Nab; 1 UD; 37 ER/LR body sherds. Based on this dating evidence, this site seems to have been occupied before the primary occupation of the fort at Da’janiya.

This site affords a clear view in all directions for many kilometers. Site 10 is clearly visible to the east, Hudeira to the northwest, and Da’janiya to the south-southwest. It is likely that it also is a watchtower, but also predating the fort.

**Site number:** 12

**Location (UTM coordinates):** E765583 N3383654

**Elevation:** 1110 m

**Periods of Occupation (pottery chronology):** Early Roman/Late Roman

**Description:**
This site appears as a stone ring approximately 7 meters in diameter surrounding a basically circular depression. Closer examination suggests that it is actually a large robber pit, surrounded by spoil. It may originally have been an ancient stone mound, and was dug into by robbers. No human remains were present, so it cannot be determined if it was originally a burial.

As the site now exists, it seems recent, but 2 sherds were collected, of which 1 was diagnostic. They were dated as: 1 ER/LR; I ER/LR body sherd. It is quite possible that these sherds are coincidental, and that the site represents only modern activity. However, the level of ceramic ‘background noise’ in this area (away from sites) is quite low, so the two sherds collected may be a significant indicator of the sites’ antiquity.

Site number: 13

Location (UTM coordinates): E758558 N3386569

Elevation: 1219 m

Periods of Occupation (pottery chronology): Chalcolithic/Early Bronze, Early Roman/Nabatean, Early Roman/Late Roman

Description:

This is a small, semi-circular mound, opening to the west, roughly 3 m in diameter, with no significant structure visible. It is made of large basalt boulders.

A total of 20 sherds were collected, 3 of them diagnostic. They were dated as: 3 ER/Nab; 1 Chalco/EB; 16 ER/LR body sherds. It is difficult to imagine this small semicircular mound as a significant multi period site, so if the Chalcolithic/Early Bronze
sherds is regarded as part of the general ‘background noise’. This could be regarded as a single period ER/Nab site.

**Site number:** 14

**Location (UTM coordinates):** E758244 N3386347

**Elevation:** 1220 m

**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Early Roman/Late Roman

**Description:**

This site consists of two conjoined stone circles. One is roughly 10 m in diameter and the other is roughly 15 m in diameter. The larger one seems to have an opening on the east side which is roughly 7 m wide. These stone circles are made of substantial basalt blocks, up to 50 cm by 60 cm by 50 cm, but including many much smaller stones. The actual structure of the circles cannot be determined, as they currently appear as low mounds of rubble, with no clear courses. At present, this site is located in the midst of modern agricultural fields on a very low ridgeline.

A total of 33 sherds were collected, of which 5 were diagnostic. They were dated as: 5 ER/Nab; 28 ER/LR body sherds. This site then seems to have been a relatively single period site, of the Early Roman/Nabatean period. It is likely an agricultural or pastoral site of some kind.
Site number: 15 (Plate 12)

Location (UTM coordinates): E762251 N3391221

Elevation: 1263 m

Periods of Occupation (pottery chronology): Iron, Early Roman/Nabatean, Early Roman/Late Roman

Description:

A large multi room enclosure, built of large, rectangular, naturally fractured tabular flint blocks. To the southwest is a series of natural caves and sinkholes, many of which have been modified or improved, perhaps for water catchment and storage. This area is roughly 100 m in diameter. There is what is possibly a small square structure (c. 4 m square) on the opposite side of the field of caves and sinkholes from the main structure. It is constructed of the same type of stone. The entire site rests on a ridge overlooking a deep wadi to the northeast. There are some (at least 13 distinct) elongate grave mounds on this site. They are oriented east-west. It is not clear whether they are ancient or modern. Some are so well preserved that it is likely they are modern Bedouin graves. Their easy visibility and the fact that they have not been robbed also suggest this.

The walls of the main structure are about 1.2 m thick, where the actual edges of the wall can still be seen under the rubble. The largest enclosure, which is also the least substantially constructed, was about 23 m in diameter. This is interpreted as a livestock pen. The most substantial structure is about 16 m in diameter, but is subdivided by multiple interior walls. One of the possible modern graves is inside the most substantial room of the main structure.
A modern trackway divides the main structure from the field of sinkholes and caves. There are also at least two improved cave openings on the same side of the modern road as the main structure. Very recently, stones robbed from this site have been gathered into three large piles to the southeast.

A total of 121 sherds were collected from this site, of which 9 were diagnostic. These were dated as: 11 ER/Nab; 1 Iron II; 31 ER/LR body sherds (mostly Nabatean); 78 Iron Age body sherds. From this dating, it seems safe to call this site an Iron Age agricultural complex, with a limited reuse in the Nabatean period.

**Site number:** 16 (Plates 6, 7)

**Location (UTM coordinates):** E760184 N3385233

**Elevation:** 1279 m

**Periods of Occupation (pottery chronology):** Iron II, Early Roman/Nabatean, Early Roman/Late Roman

**Description:**

This site is a multi period site located at the very summit of Jebel Da’janiya. It consists of a massive stone structure, as well as smaller structures and improved caves. There are also modern burials present at the site as well.

From the west and north, the massive structure appears as a huge mound of stone approximately 7-8 m high, and approximately 30 m in diameter. It is composed of black basalt boulders and smaller cobbles. On the south side, a wall alignment is barely visible in the rubble, and on the east, an actual wall with 4 courses of irregular basalt boulders is visible. It is about 1.5 m high. At no point is it possible to discern an inner face of any
A total of 87 sherds were collected. These were dated as: 6 ER/Nab; 38 ER/LR body sherds (mostly Nabatean); 12 E Byz body sherds; 6 Iron II; 33 Iron body sherds; 3 UD; 1 L Islam.

This site seems best interpreted as a watchtower, based on its location on what is the second highest peak in the survey area. It is a remarkably significant structure for a watchtower, however. Given the chronological distribution of the sherds collected, it seems clear that the main periods of occupation at this site are Iron Age and Early Roman/Nabatean, with a minor occupation in the Late Roman and Early Byzantine
period, contemporary with the fort at Da‘janiya, representing a part of the signaling system associated with the fort.

Site number: 17

Location (UTM coordinates): E759483  N3382639

Elevation: 1210 m

Periods of Occupation (pottery chronology): Iron, Early Roman/Nabatean, Early Roman/Late Roman

Description:

This site is at the summit of a small volcanic cone south of Jebel Da‘janiya. It consists of a scatter of sherds and lithics, a mound of basalt boulders (which are present here in outcrop) in which structure is not apparent, and several (probably modern) graves.

A total of 52 sherds were collected. These were dated as: 5 ER/Nab; 44 ER/LR body sherds; 3 possible Iron Age body sherds. This suggests another relatively single period Early Roman/Nabatean site, though the purpose of this site is not clear.

Site number: 18

Location (UTM coordinates): E759469  N3381779

Elevation: 1190 m

Periods of Occupation (pottery chronology): Iron, Early Roman/Nabatean, Roman/Byzantine, Early Byzantine

Description:
This site consists of an approximately 13 m diameter mound of black basalt boulders, roughly 2 m high. There is no discernable structure in the mound. It is surrounded by a sherd and lithic scatter. There seem to be 3 modern graves just southwest of the main mound.

A total of 44 sherds were collected, of which 8 were diagnostic. These were dated as: 3 E Byz; 4 ER/Nab; 7 Iron Age; 30 R/Byz body sherds. Again, it is hard to imagine this simple stone mound as a multi period site, but the Iron Age, Early Roman/Nabatean and Early Byzantine periods are all represented here. No interpretation readily suggests itself.

Site number: 19

Location (UTM coordinates): E759452 N3385333

Elevation: 1189 m

Periods of Occupation (pottery chronology): no pottery

Description:

This site is a probable cemetery west of Jebel Da’janiya. The site consists of 16 roughly circular low stone mounds about 2-2.5 m in diameter. None of the mounds is more than .5 m high, and all stones are heavily covered with desert varnish. There are no evident head or foot stones. No artifacts were collected. This site would be interpreted as a modern Bedouin cemetery, if it were not for the heavy patina that is unbroken over the entire site.
Site number: 20

Location (UTM coordinates): E758618 N3385882

Elevation: 1206 m

Periods of Occupation (pottery chronology): Early Roman/Late Roman, Late Islamic

Description:

This site lies in the midst of modern agricultural fields and consists of a small stone mound in a circular form, with an opening to the east. It is approximately 4 m in diameter and there is another curving wall forming an arc extending from the south side, also opening to the east. These configurations are constructed of basalt boulders, some as large as 50 cm by 70 cm by 60 cm. The boulders seem to have been concentrated here, as such boulders are ubiquitous in the area, and the surrounding agricultural fields seem more free than usual of them. If it were not for the hint of structure provided by the shape of the mound, and the few sherds collected, this site would probably be interpreted as the product of modern field clearance.

A total of 6 sherds were collected. These sherds were dated as: 1 L Islam; 5 ER/LR body sherds. This evidence suggests an interpretation of this site as a single period, perhaps agricultural, installation.

Site number: 21

Location (UTM coordinates): E757636 N3386396

Elevation: 1226 m

Periods of Occupation (pottery chronology): Chalcolithic/Early Bronze, Iron II, Early Roman/Nabatean, Roman/Byzantine, Early Byzantine
Description:

This is a large site of low stone walls forming connected large enclosures. The walls are constructed of basalt boulders, and are only rarely more than one course high. The walls are founded on and constructed from actual basalt outcroppings. The site lies low on the slope of a small wadi west of Jebel Da’janiya. In only a few places are the walls more than one course high and never more than 1 course wide. The total area seems to be approximately 130 m north-south by 60 m east-west, and there are a total of 9 irregular stone enclosures. These are all interconnected, and seem poorly made – only roughly laid and very irregular.

A total of 31 sherds was collected, 8 of them diagnostic. These were dated as: 4 E Byz; 4 ER/Nab; 6 Iron II; 2 Chalco/EB body sherds; 12 R/Byz body sherds.

This site was apparently a multi period agricultural complex, and most of these walls should be interpreted as enclosures for livestock.

Site number: 22

Location (UTM coordinates): E763814 N3393821

Elevation: 1247 m

Periods of Occupation (pottery chronology): Late Islamic

Description:

This small site is located on a relatively flat ridge west of Jebel Juheira. It has been robbed, the robber’s excavation revealing two parts of a connected structure. To the south is a rectangular room constructed of slabs of chert (very large slabs, approximately 60 cm by 75 cm by 20 cm) set on edge. These seem to have been gathered locally, from
the outcroppings of tabular chert that occur in the area (particularly at Site 7). This is a light brown chert that flakes easily, and seems to be particularly suited for flaked tools. Its one evident drawback is that while it occurs in large tabular blocks, these often have preexisting cracks, which make finding a suitable core or preform for a large tool difficult.

This room is roughly 1.5 m by 2.2 m. North of this is an ovoid room, roughly 2 m by 3 m, connected to the side of the rectangular structure. It is constructed of the basalt cobbles which are abundant on the surrounding surface. It appears to be a later addition to the rectangular structure. Only two sherds were collected, both diagnostic, and both from the same Late Islamic vessel. No interpretation of the date and purpose of this site is clear, although it does seem clear that there were two phases of construction – the earlier rectangular structure and the more recent oval structure.

**Site number:** 23 (Plate 13)

**Location (UTM coordinates):** E764459 N3394462

**Elevation:** 1357 m

**Periods of Occupation (pottery chronology):** Iron II, Early Roman/Nabatean, Late Roman, Early Byzantine

**Description:**

This is a massive stone building on the very summit of Jebel Juheira. It is remarkably similar to the one at the summit of Jebel Da’janiya (site #16). It now consists of a mound of boulder-sized stones approximately 25 m in diameter and 4-5 m high. Within it massive wall alignments of huge stones can be distinguished. These suggest a
roughly square structure, but its exact size remains unclear. It seems to have originally been a massive roughly square stone structure, but in decay now consists of an irregular ovoid mound. There is one clear wall alignment running roughly north-south that is approximately 10 m long. It does not visibly connect with a small section of the south wall that is visible. This wall is approximately 1 m wide, and composed of stones as large as 80 cm by 70 cm by 60 cm. These stones are almost all the ubiquitous black basalt boulders, although some of them have been dressed to be somewhat squared.

The other major feature of this site is a rock cut chamber cut into the side of the mountain, immediately below (roughly 10 m) the foundation of the structure above. It has three chambers, and displays no external decoration around what seems to be an ordinary cave opening. The main chamber is roughly 2 m wide, 5 m long and 1.5 m high (although this is an estimate, as it is now partially filled with rubble). This is clearly manmade, with squared corners and diagonal chisel marks on the stone walls and ceiling. There are hinge holes in the corners of the walls of the small side chambers, suggesting that there may have originally been doors there. The similarity of this feature, in both plan and construction, to the famous rock cut chambers at Petra is immediately obvious. The diagonal chisel marks on the rectilinear walls are also a well-known Nabatean attribute. There are also modern burials in caves around the summit.

Two separate collections were made, one from the surface and one from inside the rock cut chamber. The outside surface collection contained a total of 74 sherds, dated as: 3 E Byz; 42 ER/Nab (1 Nabatean Painted Fineware 3A [20-70 AD]); 25 Iron II; 4 R/Byz. The collection from inside the chamber consisted of 24 sherds, of which 7 were
diagnostic. They were dated as: 1 E Byz; 1; LR; 4 ER/Nab (1 Nabatean Painted Fineware 3B [70-100 AD]); 13 ER/Nab body sherds (5 NPFW 3A); 3 Iron Age; 2 UD.

These collections suggest that while there is some more recent occupation, this site has two major periods of occupation – The Iron Age and the Early Roman/ Nabatean periods. The location of this site makes it likely to have been important to any watchtower system associated with the fort at Da’janiya, as this is the highest peak within the survey area, and has a clear view of Hudeira, Jebel Da’janiya, and the fort. The structures here do seem to clearly predate the fort however.

Site number: 24

Location (UTM coordinates): E767040 N3376651

Elevation: 1158 m

Periods of Occupation (pottery chronology): Iron II, Early Roman/Nabatean, Early Roman/Late Roman

Description:

This site is at the north easternmost peak of Jebel Uneiza, which is the only volcanic cone in the survey area to have a significant crater, thus the top of the cone now exists as a roughly C-shaped ridge. This site is not located on the highest peak on this ridge, but it does afford the best view to the north and east. The entirety of Jebel Uneiza has been used recently, and for some time, by the Jordanian military for training (according to local sources). It is covered with trenches, foxholes, rifle pits, gun emplacements, and cleared areas, apparently for tents. The ancient site has been incorporated into one of these, and was mainly identified as ancient by the scatter of
pottery surrounding it. It seems to have been a very small structure, perhaps 3 meters square, of which there are now only two walls visible, forming a corner. They are roughly constructed of the loose stone from the surface here. The stones vary in size from 30 cm by 60 cm by 10 cm to very small cobbles. The wall as visible is only two courses high, and only one course wide.

In the center of the crater approximately 100 meters west of the site, there is a cistern which is probably ancient, though modified recently.

A total of 47 sherds were collected. These were dated as: 21 ER/Nab; 7 Iron II; 5 Iron II body sherds; 14 ER/Nab body sherds. This indicates a substantial occupation in the Early Roman/Nabatean period, and an earlier occupation in the Iron Age. While this location would appear an ideal site for a watchtower, and seems to have served as such earlier, this survey produced no evidence for use of this site contemporary with the fort at Da’janiya.

Site number: 25 (Plate 14)
Location (UTM coordinates):
Elevation: special
Periods of Occupation (pottery chronology): Early Roman/Nabatean, Early Roman/Late Roman
Description:

This is the Khatt Shabib, the ancient rock alignment that stretches for many kilometers through this region, and has been variously interpreted. It extends through the
entire length of the survey area, and the current working hypothesis is that it is a political boundary, marking the edge of the agricultural zone.

In the northern end of the survey area, we collected 14 sherds, of which 3 were diagnostic, along the alignment of the *Khatt Shabib*. These were dated as: 3 ER/Nab; 11 ER/LR body sherds.

**Site number:** 26

**Location (UTM coordinates):** E762640  N3391485

**Elevation:** 1204 m

**Periods of Occupation (pottery chronology):** no pottery

**Description:**

This site is located approximately 7 m from the flat gravel bottom of the wadi. It consists of a roughly rectangular stone enclosure. It seems to have had walls just over 1 m thick, made of flat slabs of cherty limestone (c. 10-30 cm thick) set vertically on edge with rubble fill between them. It is roughly 20 m north-south, and 12 m east-west. The north end is rounded, while the south end seems to have square corners. There is a stone mound approximately 2 m in diameter in the north end, and a small wall (one course wide) in the southwest corner. Both of these features are probably secondary.

This site may be of modern origin, as no ancient artifacts were found at all – after considerable search, and the site is located on what appears to be a relatively recent wadi terrace.
Site number: 27

Location (UTM coordinates): E764936 N3391605

Elevation: 1158 m

Periods of Occupation (pottery chronology): Iron, Roman/Byzantine, Early Islamic

Description:

This site is a sherd scatter, located on a terrace above current a wadi channel. There are three modern stone circles (20 m, 8 m, and 5 m, in diameter) and what may be four modern burials on the same terrace. These features are identified as recent mainly by their lack of patina.

A total of 8 sherds were collected, none of them diagnostic. They were dated as 2 Iron Age; 5 R/Byz, 1 Early Islamic body sherds. It is possible that this site represents an ancient nomadic campsite, and the recent circular rock alignments are related to a recent nomadic campsite. There is no way to establish this for certain with the currently available evidence, however.

Site number: 28

Location (UTM coordinates): E761675 N3393201

Elevation: 1301 m

Periods of Occupation (pottery chronology): no pottery

Description:
This is a 10 m by 10 m square stone enclosure. Its walls vary between 1 and 2 courses wide. It is built immediately east of the Khatt Shabib, and there were no artifacts found. It is possibly of modern origin, built of stones robbed from the Khatt Shabib.

**Site number:** 29

**Location (UTM coordinates):** E763236 N3396876

**Elevation:** 1373 m

**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Early Roman/Late Roman

**Description:**

This is another enclosure built onto the east side of the Khatt Shabib. It consists of an approximately 10 m square enclosure of stones possibly robbed from the Khatt Shabib, laid in two rough courses. It is abutted to the south by a rounded enclosure, about 9 m in diameter, of similar construction. It is also possibly of modern origin (like site # 28), and built of stones robbed from the Khatt Shadid, although at this site a few pot sherds were present and collected.

A total of 11 sherds were collected, of which 5 were diagnostic. They were dated as: 5 ER/Nab; 6 ER/LR body sherds. This homogenous assemblage seems to argue for an ancient origin for this structure, and possibly for Site 28 as well.

**Site number:** 30

**Location (UTM coordinates):** E763304 N3397239

**Elevation:** 1378 m
Periods of Occupation (pottery chronology):  no pottery

Description:

This site consists of a small rectangular structure, 3 m by 2.2 m, approximately 3 m from the alignment of the Khatt Shabib. It is constructed of naturally rectangular blocks roughly 20 cm by 40 cm by 70 cm laid on edge. It is only 1 course high, and 1 course wide.

No artifacts found. This structure is perhaps of similar origin to sites no. 28 and no. 29, though of better construction.

Site number:  31

Location (UTM coordinates):  E770777  N3391344

Elevation:  1047 m

Periods of Occupation (pottery chronology):  Early Roman/Nabatean, Late Roman, Early Byzantine

Description:

This is a small stone structure set on the west slope of a low hill approximately 7.5 km east of Jebel Juheira. It is constructed of locally gathered field stone, a combination of black basalt cobbles and boulders and limestone and chert blocks (which underlie the surface of basalt cobbles here). It is roughly 4 m north/south by 5 m east/west. It is only one visible course in width, but three courses in height are visible in the robber pit in the center of the structure. Except for where wall alignments are visible in the robber pit, the whole structure appears as an irregular stone mound approximately
2.5 m high and about 10 m in diameter. What may be the outer face of a wall is visible at
one point – this reveals a wall thickness of approximately 1 m.

A total of 37 sherds were collected, of which 18 were diagnostic. They were dated
as: 3 E Byz; 5 LR; 7 ER/Nab; 3 UD; 19 R/Byz body sherds. This assemblage suggests
that this may be a watchtower site that was in use in both the ER/Nab periods and the
LR/E Byz periods. This maybe a watchtower associated with the fort.

Site number: 32
Location (UTM coordinates): E772405  N3390098
Elevation: 1083 m
Periods of Occupation (pottery chronology): no pottery
Description:
This site consists of a lithic scatter about 25 m in diameter on the summit of a
limestone hill, east of the Desert Highway. There were no structures, and no pottery was
found. This site may also represent an early stage in the lithic reduction sequence, as
chert nodules are weathering out of the limestone in this location. There are several
probably modern burials in the area as well.

Site number: 33
Location (UTM coordinates): E765097  N3394790
Elevation: 1160 m
Periods of Occupation (pottery chronology): Chalcolithic/Early Bronze,
Roman/Byzantine, Late Byzantine
Description:

This site consists of a large series of stone circles and rock alignments occupying the whole of a small wadi terrace East of Jebel Juheira. These are at least heavily modified recently, if not entirely of recent origin. The overall size of the site is about 60 m north/south by 100 m east/west.

A total of 9 sherds were collected, of which 2 were diagnostic. These were dated as: 2 L Byz; 5 R/Byz body sherds; 1 Chalco/EB; 1 UD. Based on the wide chronological distribution of the ceramic assemblage, it is likely that the ceramic collection represents the usual background level of pot sherd distribution.

Site number: 34

Location (UTM coordinates): E764792  N3393965

Elevation: 1202 m

Periods of Occupation (pottery chronology): Early Roman/Nabatean, Late Roman

Description:

This is a small roughly square structure on the lower slope of the southeast side of Jebel Juheira. It has clearly been heavily modified recently for reuse as a sheep/goat pen, but it may be of ancient origin, since there are some ancient potsherds present. It is approximately 14 m north/south by 21 m east/west. Where the recent modifications to the wall are missing are the remains of a possibly ancient wall 75 cm wide, constructed with two good faces and a rubble core.
A total of 22 sherds were collected, of which 3 were diagnostic. These were dated as: 1 LR; 1 ER/Nab; 1 UD; 19 ER/LR body sherds. This assemblage suggests a date in the Roman period.

**Site number:** 35

**Location (UTM coordinates):** E766696 N3383521

**Elevation:** 1075 m

**Periods of Occupation (pottery chronology):** no pottery

**Description:**

This site consists of a lithic scatter approximately 20 m in diameter on the plain between Da’janiya and the Desert Highway. There were no structures or pottery – only a scatter of lithic artifacts on the otherwise flat plain.

**Site number:** 36 (Plate 15, 16, 18, 19)

**Location (UTM coordinates):** N/A

**Elevation:** special (this site is a road, extending over several km, and multiple changes of elevation)

**Periods of Occupation (pottery chronology):** no pottery

**Description:**

This site is a well preserved section of a Roman road. It is paved with field stones, but have curbs formed of roughly cut rectangular blocks. In some sections, it seems to have been widened to double its original width, from 3 m up to 6 m wide. The
modern paved road from Tafila to Shoubak closely parallels it, and for one section of almost 4 km, is built over it, so that this survey recorded two sections, one of approximately 3 km, and one of approximately 5 km. No artifacts were located along this ancient road, but from its location, it is clearly a section of the Via Nova Traiana that exists within the survey area.

**Site number:** 37 (Plate 17)

**Location (UTM coordinates):** E752076 N3383281

**Elevation:** 1285 m

**Periods of Occupation (pottery chronology):** Early Roman/Nabatean

**Description:**

This is an obviously secondary deposit of Roman milestones, about 5 m from the alignment of the Via Nova Traiana (site #36). There is one complete milestone, 2.3 m tall. There is another, more weathered milestone that is broken roughly in half (only the bottom half is present). There are 3 pieces of a third milestone scattered around. There are no inscriptions visible on any of them.

A total of 3 sherds were collected, only one of them diagnostic. They were all dated ER/Nab, which is in keeping with the recorded date of the Via Nova Traiana.

**Site number:** 38

**Location (UTM coordinates):** E751942 N3381544

**Elevation:** 1294 m
**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Roman/Byzantine, Early Byzantine

**Description:**

This site is directly on the alignment of the *Via Nova Traiana*. It is only about 20 m from the modern Tafila-Shoubak road. It seems to have originally been a structure of some kind, probably a way station on the *Via Nova*. Unfortunately, it is now an irregular mound of stones. There are no apparent ashlars, though there are some fairly rectilinear natural limestone blocks. There are no clearly visible wall alignments or other structure. The mound has been heavily modified by two robber pits (one very large) and some bulldozer activity on the south side. The mound is currently bisected by a modern dirt road, making it two mounds - a larger southern one, which is about 24 m by 20 m and about 1.75 m high; and a smaller northern one, which is about 8 m by 15 m and 1 m high. Both mounds are roughly rectilinear, with no wall alignments visible, but this site seems to reflect two buildings, a larger southern one and a subsidiary northern one. There are also numerous fragments of roof tiles scattered around the site. This site is surrounded by the densest sherd scatter recorded in this survey.

A total of 50 sherds were collected, of which 18 were diagnostic. These were dated as: 4 E Byz; 17 ER/Nab; 29 R/Byz body sherds (10 NPFW, 4 NUFW). This assemblage is entirely consistent with the recorded date of the *Via Nova*, and this site is interpreted as a feature associated with the primary use of the road.
Site number: 39

Location (UTM coordinates): E751268 N3380797

Elevation: 1302 m

Periods of Occupation (pottery chronology): Early Roman/Nabatean, Early Roman/Late Roman

Description:

This site is located about 4 m west of the alignment of the *Via Nova Traiana* (site # 36). It consists of a structure approximately 5 m square, although wall alignments are very indistinct. The structure currently exists as a mound of rubble about .5 m high, containing field stones of all sizes, as well as lime mud. There is what seems to be a modern burial built into the northeast side of the structure, oriented roughly northeast/southwest. Just across the *Via Nova* is a shallow trench, containing 3 pieces from at least 2 different milestones, all anepigraphic. The shallow trench is a robbed grave, as human remains are present at the surface – female, based on the *os coxae*.

A total of 41 sherds were collected, of which 5 were diagnostic. They were dated as: 5 ER/Nab; 36 ER/LR body sherds. This assemblage certainly supports the interpretation that this site is associated with the primary use of the *Via Nova*.

Site number: 40

Location (UTM coordinates): E765550 N3379465

Elevation: 1095 m

Periods of Occupation (pottery chronology): no pottery

Description:
This site is a lithic scatter on the plain southeast of Da’janiya. There was no structure or pottery present. It does not seem to represent an actual lithic period activity site; the artifacts seem to be a secondary deposit washed out onto the alluvial plain.

Site number: 41

Location (UTM coordinates): E752918 N3386349

Elevation: 1309 m

Periods of Occupation (pottery chronology): Early Roman/Nabatean, Early Roman/Late Roman, Late Islamic

Description:

This is a large site, immediately west of the alignment of the Via Nova Traiana (site # 36). The main structure is roughly 65 m square. The external walls are well built, and include some nicely cut ashlar, but are mostly constructed of roughly squared blocks of black basalt (some as large as 50 cm by 50 cm by 75 cm). The outer walls are about 1 m thick. There are numerous internal divisions, also with well built, substantial walls, but slightly less so than the external walls. There are also two cisterns and two improved caves (with partially walled openings), roughly in the center of the structure – in what may have been a courtyard. The whole structure is situated on a slight slope to the north.

Approximately 20 m north, there is another structure, apparently about 12 m square, but only discernable on the south and east sides. It is not nearly as well constructed or preserved as the other two structures.

The third structure at this site is approximately 20 m south of the main structure, and is rectangular, 9 m by 7 m and is very well constructed of very large basalt blocks,
and with walls about 1.25 m thick. Between this and the main structure there is a small modern Bedouin cemetery. One of the graves has a headstone robbed from the main structure, with a modern inscription on it. These graves are all oriented east-west.

A total of 78 sherds were collected, of which 28 were diagnostic. They were dated as: 20 ER/Nab (7 Nabatean Unpainted FineWare, 5 Nabatean Painted FineWare – 3 3A; 3 3C); 14 ER/Nab body sherds; 2 UD; 41 L Islamic; 1 LR. This assemblage supports an interpretation of this site as having been an important way station on the Via Nova, with substantial re-occupation in the Late Islamic period. The large gap in occupation between the Roman and Late Islamic periods is currently unexplained.

**Site number:** 42  
**Location (UTM coordinates):** E758846 N3385500  
**Elevation:** 1179 m  
**Periods of Occupation (pottery chronology):** Early Roman/Nabatean, Early Roman/Late Roman, Late Islamic  

**Description:**  
This site consists of a small irregular mound of stones, probably originally several adjacent grave mounds that have been robbed. It has nine probable ancient burials surrounding it. Approximately 35 m east are 11 more burials. Approximately 50 m north are 10 more graves. It is likely that additional burials associated with this cemetery have not been located and enumerated above.

A total of 34 sherds was collected, of which 1 was diagnostic. They were dated as: 2 ER/Nab (1 NPFW); 27 ER/LR Body sherds; 4 L Islam; 1 UD.
Site number: 43

Location (UTM coordinates): E758596 N3386242

Elevation: 1210 m

Periods of Occupation (pottery chronology): Roman/Byzantine

Description:

This site is a small ancient cemetery on a slope above a minor wadi, northwest of Jebel Da’janiya. There are 5 graves visible, probably oriented east-west. Two sherds of pottery were collected, both dated as R/Byz body sherds. This is thin evidence upon which to assign a date for this site, but it is all the evidence available.
Conclusions

Climate and Geography

This project has allowed several conclusions about the ancient environment of the survey area. First, the underlying geology is the determining factor in most of the human activity in the area. The bedrock is mostly a soft highly fractured whitish limestone containing veins of tabular chert, which is overlain by black basalt cobbles, boulders and gravels in and on top of a gravelly reddish soil. Thus pits and spoil piles are very evident in this landscape, as the white limestone is revealed, in contrast to the reddish black of the basalt and desert varnished surface. Within the survey area are several extinct volcanic cones which provide the main topographic relief (and are the source of the basalt).

Roughly the western half of the survey area consists of the modern agricultural zone, where the gravelly soil is plowed, and the basalt (and a few blocks of limestone and chert) has largely been cleared. Within the survey area, the desert surface becomes increasingly undisturbed to the east.

It seems clear that the same climatic differential that applies along the length of the Levant applies here – from the agricultural west to the drier and drier desert to the east. Based on the location of the archaeological remains, it is possible to conclude that the edge of the agricultural zone in this region has been roughly in the same location since at least the Iron Age. This also suggests a purpose for the location of the fort at Da’janiya, as the modern agricultural zone extends almost to the fort. It is also notable
that all significant ancient water sources (mainly cisterns) are within the modern agricultural zone.

**Early Occupation of the Survey Area**

While the bias of this project against lithic period sites has been mentioned above, it is still unlikely that any significant lithic period site within the survey area was missed, due to the general obtrusiveness of sites. It is thus possible to postulate that the region was relatively thinly populated during the pre-pottery lithic periods. The relative paucity of pre-Iron Age pottery suggests the same for the Neolithic, Chalcolithic and Bronze ages.

**Iron Age Occupation**

During the Iron Age, however the situation changes, with several sites suggesting extensive habitation and agriculture. In fact, the Iron Age settlement of the survey area bears some resemblance to the modern settlement of the region, with small villages, agricultural fields and isolated farmsteads – all within the same agricultural zone. The more interesting aspect of the Iron Age occupation is the presence of watchtowers on top of the high points. While Glueck (1939) identified at least one of these as Iron Age, most other scholars have assumed that watchtowers on the high points surrounding the fort must be associated with Da’janiya itself. While it is impossible to know the chronology of construction of the two massive towers at the summit of the two highest peaks within the survey area, it is at least suggested by the pottery chronology that they were constructed during the Iron Age, and merely reused during the occupation of the fort at Da’janiya. It seems also, that the edge of the agricultural zone formed a ‘harder’
boundary during this period than in more recent periods, as watchtowers and other sites east of the agricultural zone tend to have been occupied in more recent periods.

**Early Roman/Nabatean Occupation**

A somewhat unexpected result of this survey was the extensive Early Roman/Nabatean occupation of the area. Based solely on the number of sites where this period of occupation is represented (24), this is the most heavily populated time for this region. This impression seems to be correct, possibly even including the modern era. Also, the presence of the rock cut tomb just below the summit of Jebel Juheira is a very significant Nabatean Structure. There is an apparent difference between this era and the preceding Iron Age settlements. During the Iron Age, sites seemed to be larger and fewer; during the Early Roman/Nabatean period they are smaller, and more densely distributed. Does this suggest a more stable political situation, with better security? It might, and could be support for an Iron Age date for the massive towers on the summits, if both could be seen as evidence for a lack of security in the region during the Iron Age. However, there is very clear evidence for occupation of the high points and watchtowers during this period as well, and it is possible that the major construction of the watchtowers dates from this period. At least one of them likely does (Site 10).

**Late Roman and Byzantine Occupation**

Sites dating from these periods are nearly as ubiquitous as those from the Early Roman/Nabatean period, and roughly follow the same pattern of distribution, many of them being multi-period sites, with earlier material present as well.
By far the most significant occupation within the survey area during this period is the fort itself. The fort has been securely dated by excavation to around 300 AD. It does not appear to be included in the *Notitia Dignitatum*, and is apparently not directly connected to the road system along the *limes*, Thomsen’s (1920) maps notwithstanding. Welsby (1994) sees two phases of construction in the walls, and Godwin (in press) suggests that the fort has a relatively long occupation, and does in fact have good evidence for occupation into the 6th century. It is important, however, to distinguish between military and squatter occupation. It is likely that this fort represents a relatively short lived military purpose, but like all significant structures in the region, has a long history of squatter occupation after the military abandonment.

It has been assumed that the fort would be surrounded by a dense web of watchtowers and roads, in order to provide a “defense in depth” for the frontier. This survey provides relatively strong evidence that while lookouts may have been posted on the high points in the survey area, the major construction and use of these sites was earlier. This is not as compelling as it may seem at first, however, as the preexisting structures on these sites may well have been in good repair and entirely suitable to the needs of the garrison at Da’janiya. If any of these sites were to be excavated, great care should be exercised to identify possible multiple phases of repair and reuse of the structures. The apparent lack of relationship to the *limes* road system is also puzzling, and perhaps the only conclusion is that the desert surface surrounding the fort is as good a pavement as the average Roman road in Jordan already.
Godwin also suggests that the unit stationed here utilized camels for patrol in the surrounding desert, based on the ubiquity of camel bones at the site. This is somewhat supported by the lack of roads leading to the fort.

A major question relating to the fort has always been - why is the fort located where it is? It is not obviously protecting a major settlement or resource, and for general patrol of the limes, a much smaller fort would seem to be the more typical method. This survey has produced mostly negative evidence pertaining to this question. There is however one hypothesis that suggests itself which might be tested by excavation. The modern reservoir near the fort is the most significant source of water for many kilometers. It is not unknown for Nabatean reservoirs to be repaired and modified for use in modern times, and this one is within the range of size and shape of such a reservoir. Thus the hypothesis is that at about AD 300, the Roman army built a major fort next to the largest pre-existing source of water in the region – a Nabatean reservoir at the very edge of the agricultural zone. This is somewhat supported by the presence of Early Roman and Nabatean sherds on the surface in and around the fort. Although no architectural evidence for Nabatean occupation at the site has been found, it is quite possible that a smaller Nabatean structure could underlie the present fort, and was completely missed by the limited test excavation that has taken place.

Another major question has been the existence of and exact nature of the signaling system in use along the Roman *limes*. This survey suggests that such a system might exist within the survey area, but there is little evidence for extensive construction as part of such a system. It is possible to observe almost the entirety of the survey area from the several watchtowers. It is equally possible to signal (though probably only via
beacons of fire or smoke) from tower to tower, or to the fort. There are also high points both to the north and the south, outside the survey area, which could also be part of the signaling system, as visibility is clear. We visited the largest and highest of these, north of the survey area, which is clearly of the same size and style of construction as those on the summits of Jebel Da’janiya (Site 15), and Jebel Juheira (Site 23).

This survey, as many do, seems to have raised more questions than it has answered. A series of small test excavations might do much to elucidate the dating of many of the sites located by this survey, which would considerably clarify the interpretation of the region. These might include soundings at the towers at the top of Jebel Da’janiya and Jebel Juheira (Sites 15 and 23). Firm dating of these would confirm or refute the hypothesis above as to the political control and security of the region. Excavation around the reservoir might reveal the existence of a pre-existing ancient reservoir, providing reason for the location of the fort. Finally of course, the fort at Da’janiya itself would be fertile ground for serious excavation. It is also one of the most promising sites in Jordan for development of educational and tourist sites, due to its striking preservation and accessibility.
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<th>Abbreviation</th>
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<td>Middle Paleolithic (90,000-45-000 B.C.)</td>
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<td>Turkish/Ottoman (A.D. 1516-1918)</td>
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### Table 2: Sites and periods represented.

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<tr>
<td>Site 41</td>
<td>ER/Nab; L Islamic; LR</td>
</tr>
<tr>
<td>Site 42</td>
<td>ER/Nab; LR; L Islamic</td>
</tr>
<tr>
<td>Site 43</td>
<td>R/Byz</td>
</tr>
</tbody>
</table>
Table 3: List of Sites by Period

<table>
<thead>
<tr>
<th>Period</th>
<th>Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalco/EB</td>
<td>13; 21, 33</td>
</tr>
<tr>
<td>Iron age</td>
<td>5; 15; 16; 18; 21; 23; 24; 27</td>
</tr>
<tr>
<td>ER/Nab</td>
<td>5; 6; 8; 10; 11; 12; 13; 14; 15; 16; 17; 18; 21; 23; 24; 25; 29; 31; 34; 37; 38; 39; 41; 42</td>
</tr>
<tr>
<td>LR</td>
<td>1; 4; 5; 6; 8; 9; 10; 11; 12; 15; 16; 17; 20; 31; 34; 41; 42; 43</td>
</tr>
<tr>
<td>E Byz</td>
<td>1; 2; 4; 5; 6; 8; 9; 18; 21; 23; 32; 38</td>
</tr>
<tr>
<td>L Byz</td>
<td>4; 5; 6; 8; 33</td>
</tr>
<tr>
<td>E Islam</td>
<td>27</td>
</tr>
<tr>
<td>L Islam</td>
<td>5; 6; 8; 16; 20; 22; 41; 42</td>
</tr>
</tbody>
</table>
Figure 1: Map of Jordan, showing location of the survey area
Figure 2: Map of the survey area, showing all sites, as well as the modern roads
Figure 3: Map of the survey area, showing modern cisterns that are likely reused ancient ones, and the approximate edge of the current agricultural zone within the survey area
Figure 4: Map of the survey area showing Iron Age sites within the survey area
Figure 5: Map of the survey area showing Late Roman and Byzantine sites (sites likely contemporary with the fort) within the survey area
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Plate 1

The fort at Da’janiya, view from the north. (Site 1)
Plate 2

Mud brick structure outside the east wall of Da'janiya. (Site 4)
Plate 3

View of the southeast wall of the probable lime kiln east of the fort at Da’janiya. This photo somewhat obscures the preserved height of the wall nearest the camera. (Site 2)
Plate 4

Extensively robbed cemetery at Khirbet Qannas. DoA representative Adnan Rafiah for scale (Site 8)
Plate 5

Robber spoil pile from the cemetery at Hudeira, including human remains. (Site 6)
Plate 6

This is the large structure at the summit of Jebel Da’janiya (Site 16)
Plate 7

An ashlar showing the distinctive Nabatean diagonal dressing (Site 16)
Plate 9

A large stone structure, revealing the light colored limestone of its construction amid the surrounding desert surface (Site 10)
Plate 10

Rock alignment west of Da’janiya
Architectural fragment or olive press weight from Hudeira (Site 5)
Plate 12

This is an improved cave, possible used for water storage, at a site that is probably an Iron Age agricultural complex, but reused in the Early Roman/Nabatean period. (Site 15)
Rock cut chamber beneath the summit of Jebel Juhiera, showing Nabatean diagonal dressing. (Site 23)
Plate 14

View of the *Khatt Shabib* descending into a wadi, and extending (diagonally across photo from bottom left to upper right) to the north. (Site 25)
Plate 15

Particularly well-preserved section of the curbstones of the *Via Nova Traiana*, alongside a modern road. Within the survey area, there is a modern road running immediately adjacent to the *Via Nova*. (Site 36)
Plate 16

The *Via Nova Traiana*, showing curbstones and apparent central alignment of stones, either indicating that the road was widened during its period of use, or always had a central ridge. (Site 36)
Plate 17

An obviously secondary deposit of anepigraphic milestones along the *Via Nova Traiana*. (Site 37)
Plate 18
Poorly preserved anepigraphic milestone along the *Via Nova Traiana* (Site 36)
Plate 19

Well preserved Anepigraphic milestone along the *Via Nova Traiana* (Site 36)