

# HARRAT AL-BURMA K-LINES AND WĀDĪ BURMA KITE-SITE: PRELIMINARY REPORT OF THE 2003 SPRING SEASON OF THE JAFR BASIN PREHISTORIC PROJECT, PHASE 2

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## Introduction

The first phase of the Jafr Basin Prehistoric Project (JBPP) started in 1997 for the purpose of establishing the chronological framework of the later prehistory of the al-Jafr basin in southern Jordan, and ended in 2002 with the sixth and final excavation season at Qā' Abū Ṭulayḥa West (قاع ابي طليحة) (QATW), the core site for the investigation of this phase (Fujii 1998, 1999, 2000, 2001, 2002a, 2003). The results of this phase have enabled us to outline the chronology of this basin from the Late Neolithic (LN) to the Early Bronze Age (EBA) (Fujii 2003: Fig. 23, 24). The second phase began immediately the following year with a view to re-examining the results of the QATW excavations in a broader context and, in so doing, establishing a more reliable base for tracing the origin and development of the early pastoral nomadism in this basin. The specific goal of this season was to bridge the chronological gap between the Layer 4 LN entity and the Layer 3 EBA entity at QATW. Chosen for the first operation were Ḥarrat al-Burma K-lines and Wādī Burma kite-site 1, both of which had been found in our 2001-2002 winter survey season (Fujii 2002b).

Ḥarrat al-Burma K-lines (حرّة البُرمة) are located on a basalt plain that extends to the southwest of Tall Burma (تل بُرمة), a small volcanic hill ca. 5km northeast of al-Ḥusayniyya (الحسينية) (Fig. 1). The excavations of the two K-lines, Ḥarrat al-Burma K-line 1 (HB-KL1) and 2 (HB-KL2), have revealed that the K-Line, or locally called *Khatt Shabīb* (خط شبیب), is a linear combination of pseudo-wall cairns rather than a boundary or defensive wall built all at once. Typological comparisons with other pseudo-wall burial cairns thus far investigated in this basin suggest the date of the early half of the EBA. Both chronological and functional reassessments of the K-line on the basis of the excavated evidence would throw new light on this enigmatic feature that has long been a subject of controversy in the Badia archaeology.

Wādī Burma kite-site 1 (وادي بُرمة) (WB-KS1) is

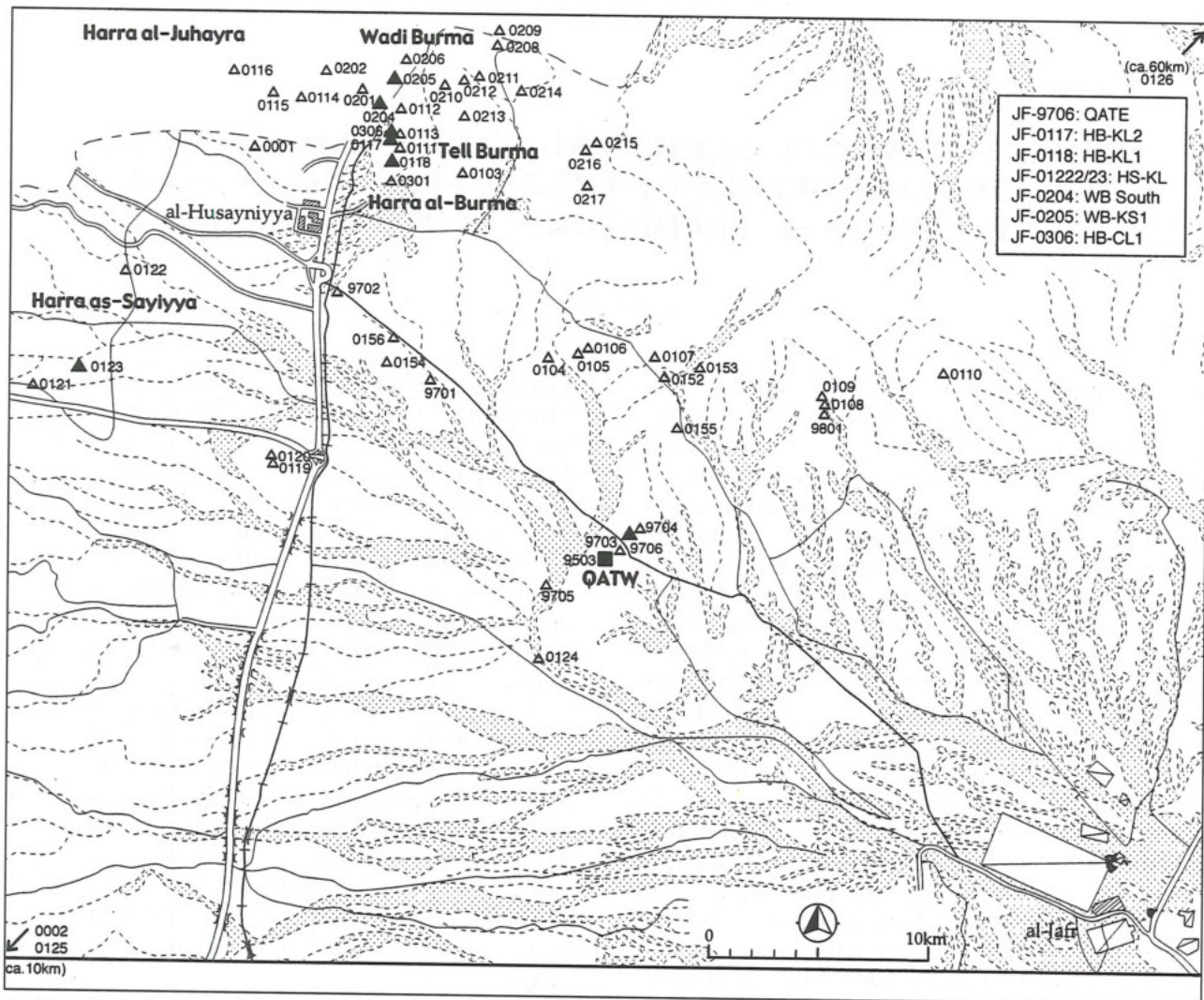
a large-scaled, stone-built structure extending over wadi beds and sandbanks ca. 2.5km north of these two K-lines. Unexpectedly, it turned out to be a drive hunting installation built probably in the Umayyad Dynasty and subsequently reused in the Ottoman period. Although Islamic sites are beyond the original scope of the JBPP, this feature is worthy of special comment in that, together with the fresco at Quṣayr 'Amra, it might reveal a concrete picture of drive hunting that was very popular among men of power in those days.

This report presents a brief summary of these excavations that were conducted from 9 May to 4 April in 2003 with the kind cooperation of the Department of Antiquities of Jordan. The description will follow the order of excavations; namely, HB-KL1 and HB-KL2 will be described first and then WB-KS1 will be referred to. In addition, a brief discussion will be made in the final section focusing on the function and chronology of these unique features.

## Ḥarrat al-Burma K-Line 1

Before discussing the details of the excavation, a few remarks should be made about the nomenclature "K-line". This term derives from Dr. Aharoni's designation for a unique structure that was confirmed for the first time in the Negev Highlands in the latter half of the 1950s (Evernari *et al.* 1958: 249; Haiman 2000: note 1). The sign "K" signifies the alphabetical number of the survey area where this unique feature was found; "line" literally means a long, freestanding, stone-built wall. Thus the "K-line" represents a long stone wall that was first identified in the "K" area of their survey sphere. Although no clear parallels have been found in Cisjordan, this term has long been used in the Israel archaeology (Haiman 1986, 1992, 1999, 2000).

It should be noted, however, that about ten years earlier than this first identification in the Negev Highlands, another example had already been reported from Transjordan under the name of *Khatt*



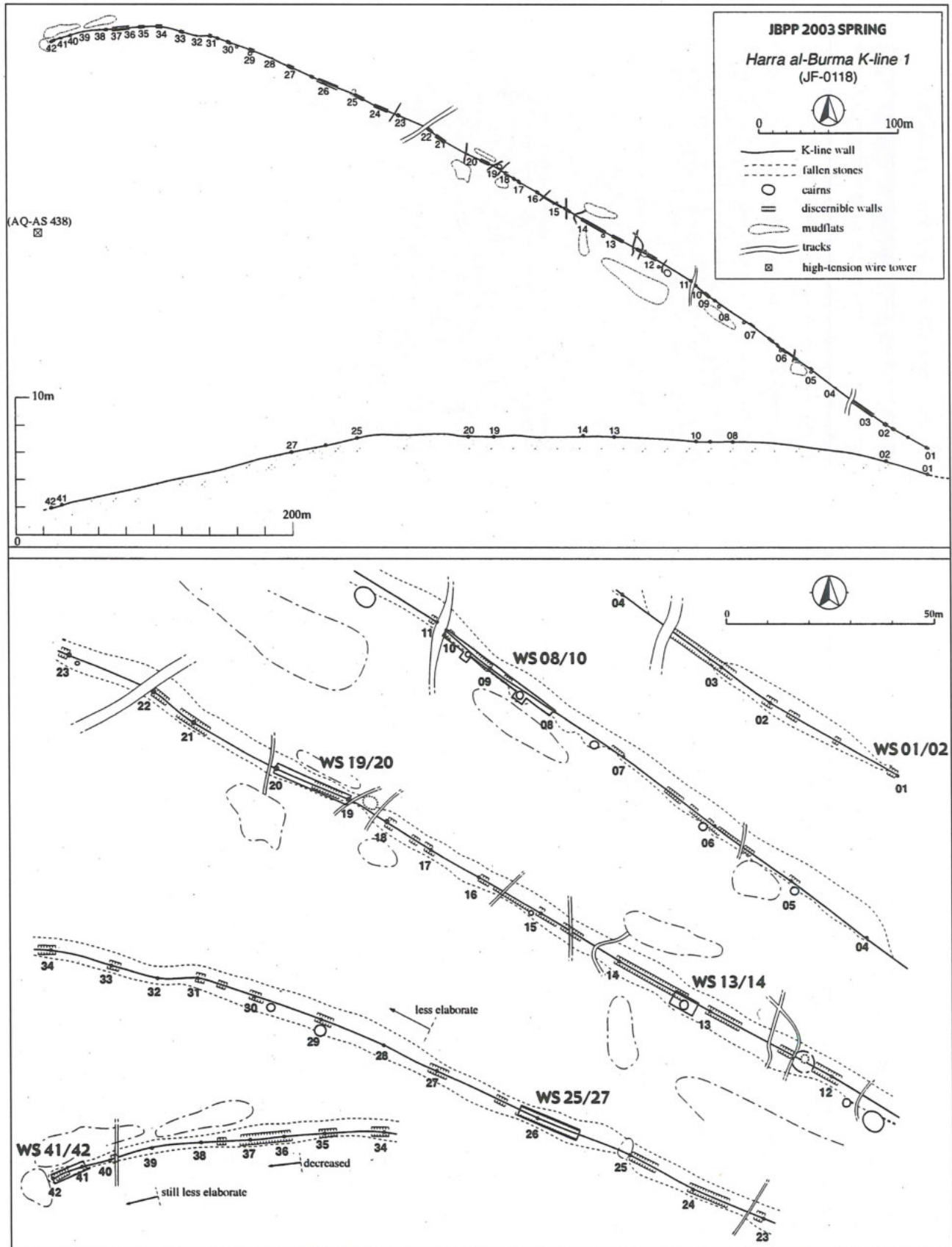
1. Site distribution map of the northwestern part of the al-Jafr basin.

*Shabib* (i.e. Shabib's wall) (Kirkbride 1948). Since then, this Arabic term has been used among scholars who are concerned with the Jordan archaeology (Abujaber 1992, 1995; MacDonald *et al.* 2001: 408-409). Here again, no clear parallels have been confirmed for a long time, but a promising candidate was found for the first time near Buṣayra in 2000 (MacDonald *et al.* 2001). Subsequently, some clear parallels have been confirmed in our survey area (Fujii 2002b: 45-47). Local inhabitants are well aware of these long walls, calling them *Habalāt Shabib*, the plural form of *Khaṭṭ Shabib*.

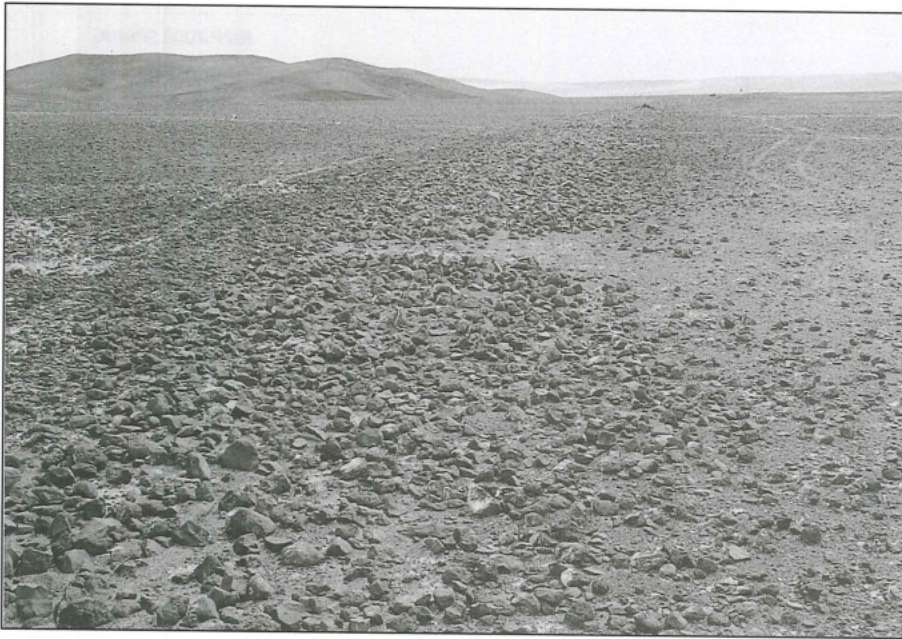
In comparison with the mechanical nomenclature K-line, the Arabic term *Khaṭṭ Shabib* has its own historical background and, in this sense, should be respected. However, it has a drawback in that it presupposes or implies an Islamic date, a questionable assignment in light of our excavation results. For this reason, this paper uses K-line as a neutral term for chronological discussions.

HB-KL 1 is a small-scaled K-line, measuring ca. 750m in total length and ca. 1 to 2m in width. It is located on the basalt plain west of Tall Burma and stretches roughly in a straight line from the ESE to the WNW with the northwestern end being slightly bent toward the WSW (Figs. 2, 3). Mirroring the surrounding geology, unhewn basalt cobbles, ca. 20 to 30cm in maximum length, are exclusively used for the construction material. The excavation has revealed that they were arranged in two rows on the upper surface of Layer 3 of the site stratigraphy, the ground surface in those days, with basalt pebbles being compacted in between. The walls are preserved merely to a height of a single course (ca. 20-30cm), but the volume of fallen stones around them, combined with an experimental reconstruction referred to below, suggests that it was originally some courses high.

Six narrow trenches were opened along the wall, two at both ends and the remaining four in



2. Ḥarrat al-Burma K-line 1: the plan and elevation.



3. Harrat al-Burma K-line 1: the general view (from W).

between. They total ca. 80m in length, roughly one tenth of the whole length of this short K-line. The excavations at these trenches will be briefly described below in order from the ESE to the WNW.

#### Wall 01/02

Wall 01/02, a wall segment between Point 01 and 02, is located on a gentle slope facing a small wadi that drains from the southern flank of Tall Burma. In order to clarify what this K-line begins (or ends) with, the eastern part of this wall segment was excavated by 7m in length (Fig. 4). Although the poor preservation state made it difficult to grasp the details, the excavation suggested that this K-line begins (or ends) with a two-rowed basalt cobble wall ca. 1-1.5m wide. In addition, a few small stone concentrations were found along the southern side of the wall.

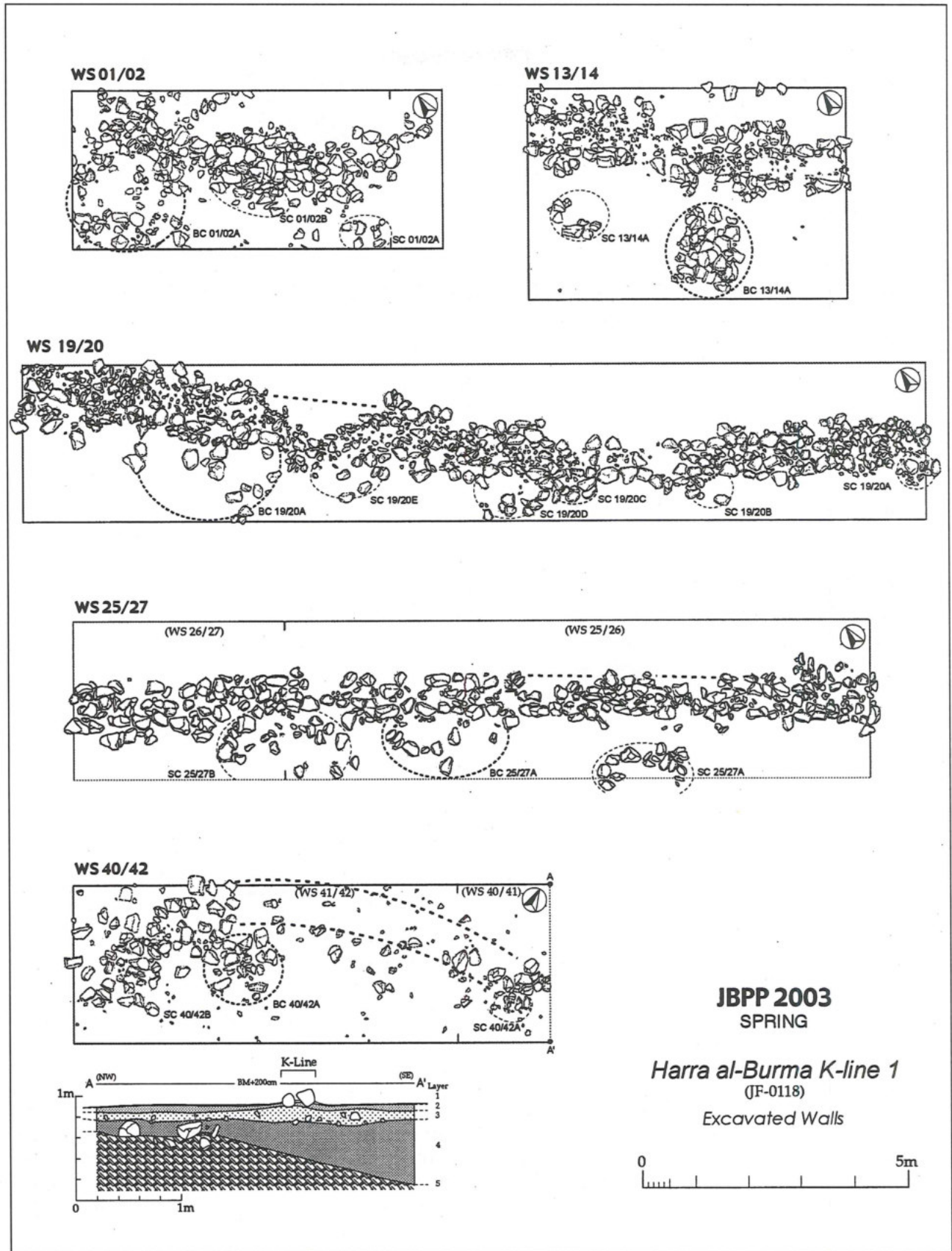
#### Wall 08/10

Wall 08/10 is located ca. 150m WNW of Wall 01/02, on the flat top of the basalt plain. In order to explore the stratigraphy and intra-structure of this K-line, these two wall segments, 33.5m in total length, were entirely excavated (Figs. 5, 6).

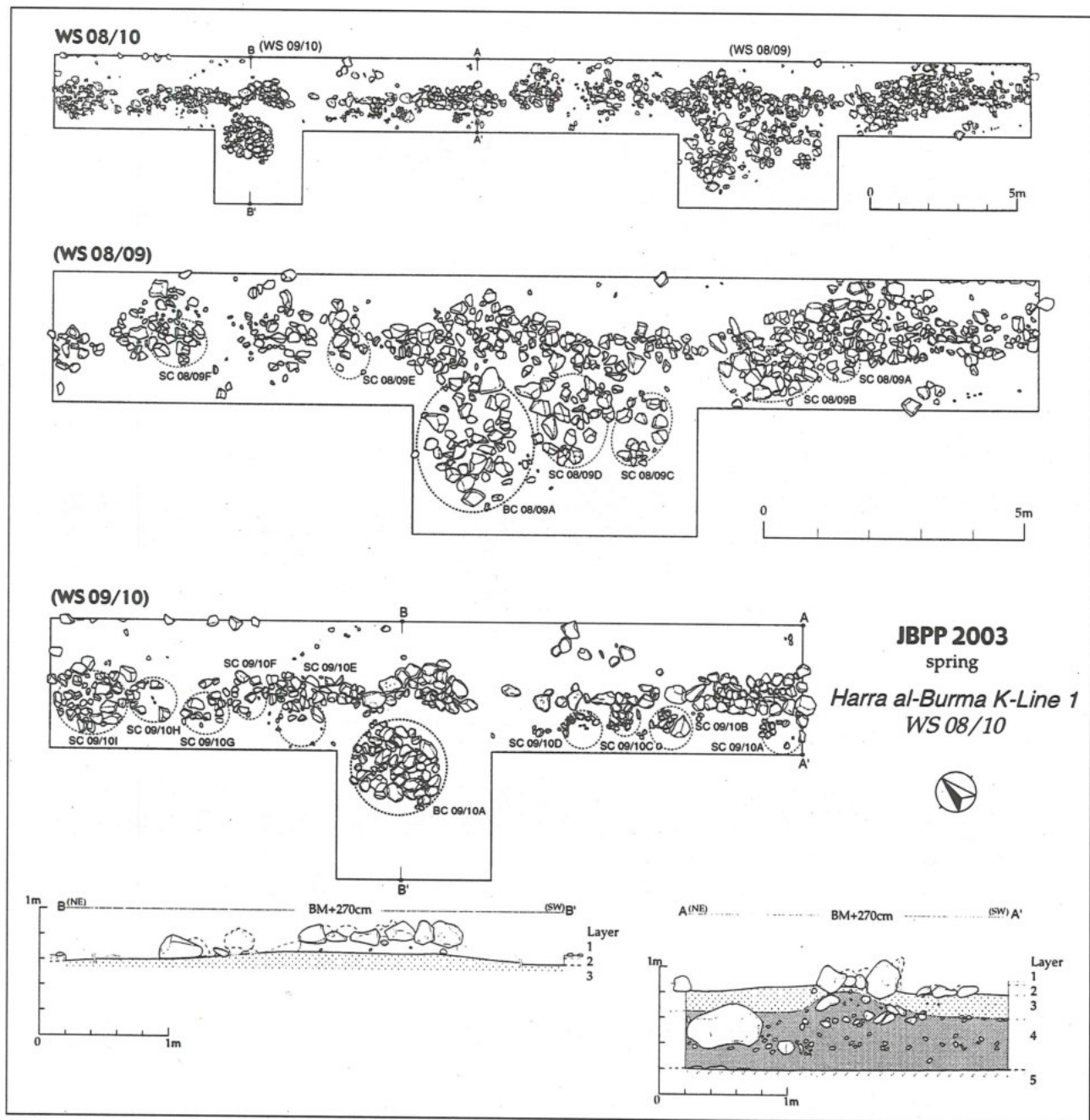
The stratigraphy was examined with a narrow trench 0.5m wide that was opened at the eastern extremity of this long trench. The deep sounding showed that the main wall of this K-line was built on the upper surface of Layer 3 of this site stratigraphy. However, this stratigraphical identification did not directly contribute to the dating of this K-line, because no datable *in situ* finds have been found from this site and no relevant archaeological

sites have been excavated in the surrounding area. (Although Layer 3 at QATW can be dated radiometrically to the EBA III, it is unwise to refer to the stratigraphy at a site ca. 20km distant). What interested us instead was the observation that the underlying Layer 5 not only contains a number of basalt pebbles and cobbles but also slightly rises and forms natural foundations for the wall. Although the deep sounding stopped halfway, it seems that a narrow band of lava eruption underlies this layer. Given this, it follows that this K-line was constructed on a narrow, long ridge caused by a linear lava eruption, a reasonable choice for both the procurement of construction material and utilization for natural foundations.

With respect to the intra-structure, this K-line proved to consist of the following three major components: the main wall, larger cairns, and small stone concentrations. The main wall is roughly straight but sometimes slightly curved in general plan, measuring ca. 1 to 1.5m wide. It is preserved to a single course (ca. 20 to 30cm high). Here again, the excavation confirmed that larger basalt cobbles are arranged in two rows with rubble being filled up in between. Two larger cairns, ca. 3 to 4m in diameter, were found along the southern side of this wall at intervals of ca. 15m. On the other hand, small stone concentrations, less than 1m in diameter, proved to be much larger in number (15 in total) and, consequently, much smaller in interval (ca. 0.3 to 2m). It is important to note that both kinds of small features are aligned along the southern side of the main wall and no clear parallels can be recognized on the opposite side. Also of interest



4. Ḥarrat al-Burma K-line 1: the excavation sectors.

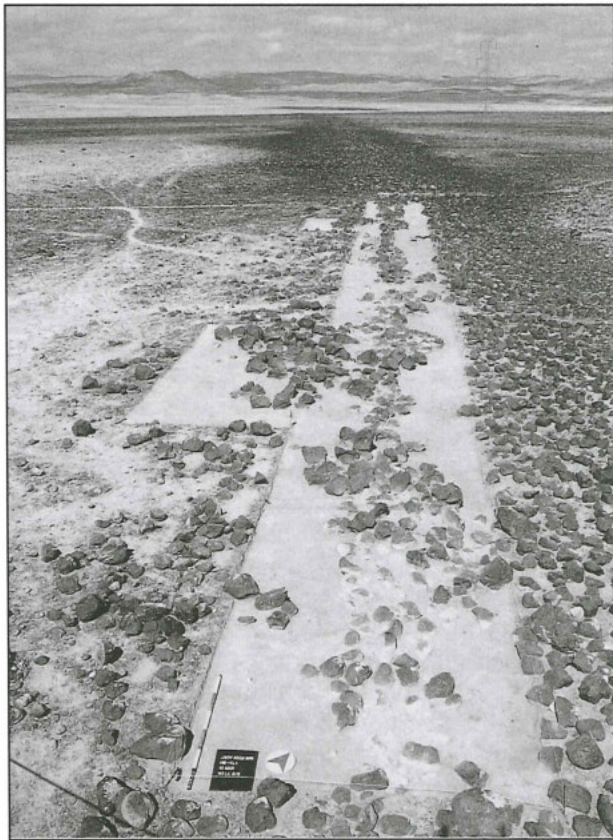


5. Harra al-Burma K-line 1: the plan and section of Wall Segment 08/10.

is the fact that the small stone concentrations often contain upright stones, a reminiscence of mourning installations identified at EBA enclosures at QATW (Fujii 2002a: fig. 6, 17).

These observations provide a key to the intra-structure and formation process of this K-line. The first point to be noticed is that larger cairns, when taking into consideration surface-examined examples as well as two excavated ones (Fig. 2), appear to be arranged at roughly even intervals of ca. 15 to 30m. This probably indicates that the K-line is a linear combination of plural units, each of

which comprises the three components mentioned above. Suggestive in this regard is the difference in width of the walls, which is larger in the first wall (i.e. the wall east of the eastern large cairn) but smaller in the next two walls (i.e. the wall between the two large cairn and the wall west of the western large cairn). The same applies to the construction material, which is larger in the first and second walls but generally smaller in the third walls. Likewise, the preservation state varies from wall to wall; the central wall is less preserved than the other two walls. All these observations, together with

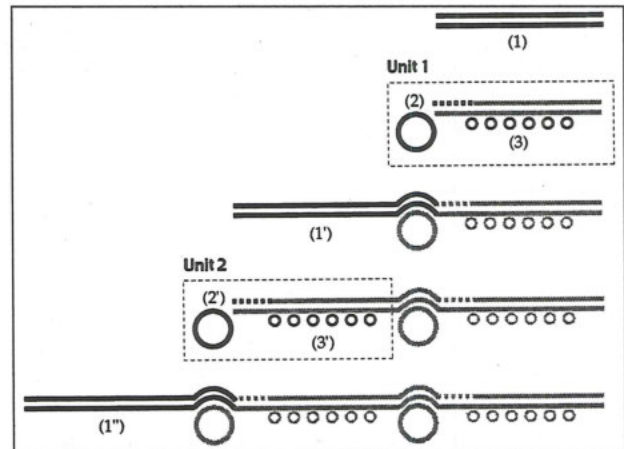


6. Harrat al-Burma K-line 1: the general view of Wall Segment 08/10 (from SE).

the difference in size and interval of small stone concentrations among units, clearly indicate that this K-line is a long chain of basic units rather than a structural entity built all at once.

Thus the next question is how this K-line was developed. A key to this question is the disturbance of the walls northeast of the two large cairns, which suggests that the construction material of these walls was diverted to somewhere, probably to the adjacent cairns. It is also highly important that the walls north of the two larger cairns are slightly out-curving as if they tried to avoid disturbing these cairns. This phenomenon shows that the larger cairns were built first and then the walls in concern were added beside them.

Considered in this light, the formation process of this K-line can be reconstructed as follows (Fig. 7): 1) the chieftain of a pastoral group, while still alive, builds a stone wall ca. 15 to 30m in length; 2) after his death or his retirement from the status, his successor builds a larger cairn at the western end of this wall by partly diverting the construction material from the adjacent wall (which explains the poorer preservation state of this part); 3) likewise, the participants to this funerary ritual add several small stone concentrations, probably mourning in-



7. A schematic reconstruction of the formation process of the K-line.

stallations, along this wall; 1') the successor also builds his own wall so as to join the last wall and, at the same time, so as not to disturb the last cairn (which results in the slight detour of the easternmost part of this newly-built wall); 2') this cycle is repeated up to forming a long wall ca. 750m in this case. This reconstruction, if acceptable, would explain the reason for the aforesaid differences among units. (This process is, of course, subject to minor changes. For example, when a large cairn is built at a sufficient distance from the K-line, the next wall does not necessarily make a detour around it, as evidenced by Wall 13/14 mentioned below. Contrarily, even when the distance is insufficient, it happens that the next wall does not detour and, instead, stretches roughly in a straight line involving the cairn in concern, as exemplified by Wall 19/20 referred to below).

Whatever the case, it is now nearly certain that this K-line is a linearly connected form of pseudo-wall cairns in our terminology and was developed unit by unit from the ESE toward the WNW. Of particular relevance is BC-600s, the last form of the QATW Layer 4 cairn entity, which can be taken as a proto-type of basic units that constitute this K-line (Fujii 2003). Also of significance is the practice that the westernmost part of a wall is partly disturbed due to the construction of a larger cairn, which is reminiscent of the relation between a façade wall and a burial cairn of the Layer 4 structural complex at QATW (Fujii 2002c). Both suggestions lead to the conclusion that the formation process of this K-line can best be understood within the framework of the unique funerary practice in the al-Jafr basin.

#### Wall 13/14

Wall 13/14 is a wall segment ca. 100m west of Wall 08/10. In order to double-check the intra-

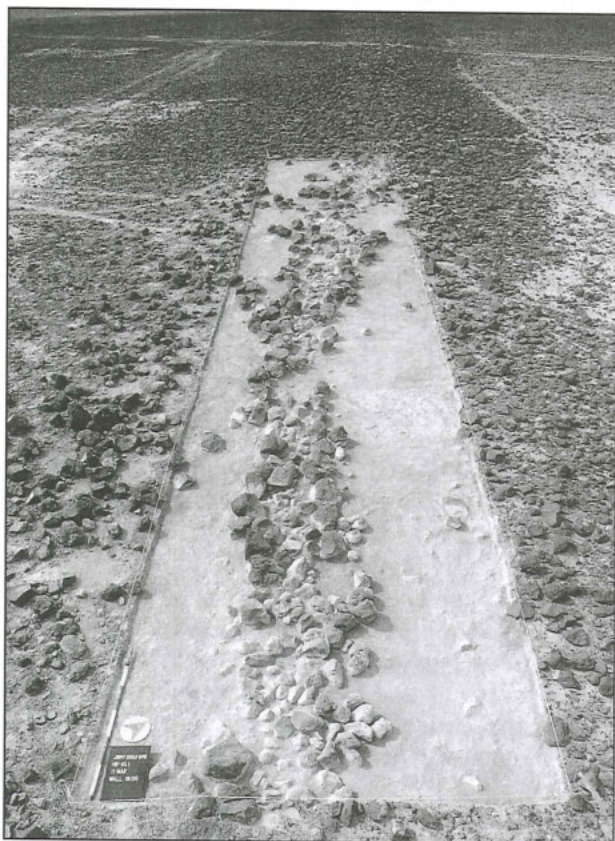
structure of this K-line, it was partly excavated 6m in length (Fig. 4). The excavation showed that this wall segment also consists of the three major components noted above. However, no further information was obtained because of the limitation in excavated area, except that, unlike the case of Wall 08/10, the wall does not make a detour beside the large cairn.

*Wall 19/20*

This wall segment is located ca. 70m northwest from Wall 13/14, roughly in the middle of this K-line. The full range of this wall segment, 17m in total length, was excavated in order to collect further information about this K-line (Figs. 4, 8). As a result, small stone concentrations and a probable large cairn (BC-19/20A) were found, here again, along the southern side of the main wall. It is important to note that the cairn is paired with a disturbed wall to the northeast.

*Wall 25/27*

Wall 25/27 is located ca. 100m west of Wall 19/20, roughly at the western turning point of the gradient of the basalt plain (Fig. 4). Here again, a probable large cairn was found in pairs together



8. Ḥarrat al-Burma K-line 1: the general view of Wall Segment 19/20 (from SE).

with a disturbed wall to the northeast, although the wall detour beside it was not recognized. An experimental reconstruction showed that the original wall was four to five courses high or, more precisely, ca. 0.5 to 0.7m high (Fig. 9).

*Wall 40/42*

In order to examine what this K-line ends with, the westernmost wall segments, Wall 40/42, were excavated by 9m in length. In addition, a narrow trench was opened at the eastern edge of this excavation sector to explore the reason why this K-line terminated at this point and why it is slightly bent at the westernmost part.

The following four components were confirmed (Figs. 4, 10): a small stone concentration, a slightly out-curving, heavily disturbed wall, a larger cairn, and a short, relatively well-preserved wall without any clear evidence for small features, listed from the east to the west. In light of the formation process suggested above, it is most likely that the former three components constitute the second last unit and the short, well-preserved wall alone belongs to the last unit. These identifications, if ac-



9. Ḥarrat al-Burma K-line 1: an experimental reconstruction of Wall Segment 25/27 (from S).



10. Ḥarrat al-Burma K-line 1: the general view of Wall Segment 40/42 (from W).



ceptable, lead to the conclusion that this K-line begins with Wall 01/02 to the east and ends with this short wall to the west. What is important here is that no larger cairns existed at both ends of this K-line. The reason for their absence at the eastern end is easy to understand, because, as suggested above, a K-line begins with the construction of a wall. Their absence at the western end, on the other hand, probably signifies that this K-line was abandoned for some reason after the construction of the last wall and before the addition of a large cairn and small stone concentrations.

The deep sounding at the trench showed that there is ca. 1m horizontal gap between the K-line wall and the underlying narrow ridge probably caused by a linear lava eruption. A plausible explanation for this discrepancy is that, unlike Wall 08/10, this ridge was not conspicuous enough to be followed precisely. This is likely, all the more because the thick overlying layers appear to have buried it completely before the construction of the K-line. Whatever the case, it seems reasonable to conclude that the disappearance of the ridge as both natural foundations and a major material source resulted in the termination of this K-line at this trench. Conversely, one may say that this K-line tried to follow the ridge so long as it is discernible, a probable reason for the slight bending at the westernmost part of this K-line.

#### *The Finds*

Unfortunately, no *in situ* finds were recovered from this K-line. Instead, the finds derived from either the ground surface or fill layers. They are small in number, consisting merely of a few iron horseshoes (Fig. 23: 1-2), one iron nail (Fig. 23: 3), and a handful of undiagnostic flint artifacts. Since they are obviously irrelevant to this K-line, the description is taken up for the final report.

#### **Harrat al-Burma K-Line 2**

Harrat al-Burma K-line 2 (HB-KL2) is located ca. 1.5m northwest of HB-KL1, at the western edge of the Tall Burma basalt plain (Figs. 1, 11). In comparison with HB-KL1, it is much shorter in total length, measuring ca. 400m. While HB-KL1 is oriented ESS to WNW crossing the contour lines of the basalt plain, HB-KL2 is oriented SSE to NNW thus stretching roughly parallel to them.

In order to briefly double-check the results of the excavation at HB-KL1, three small trenches were opened in the southern, relatively well-preserved half of this K-line, at intervals of ca. 50m respectively (Fig. 12). Since this K-line has much in common with HB-KL1, only a brief sum-



11. Harrat al-Burma K-line 2: the general view (from S).

mary will be made focusing on the differences from the latter.

#### *Wall 08/10*

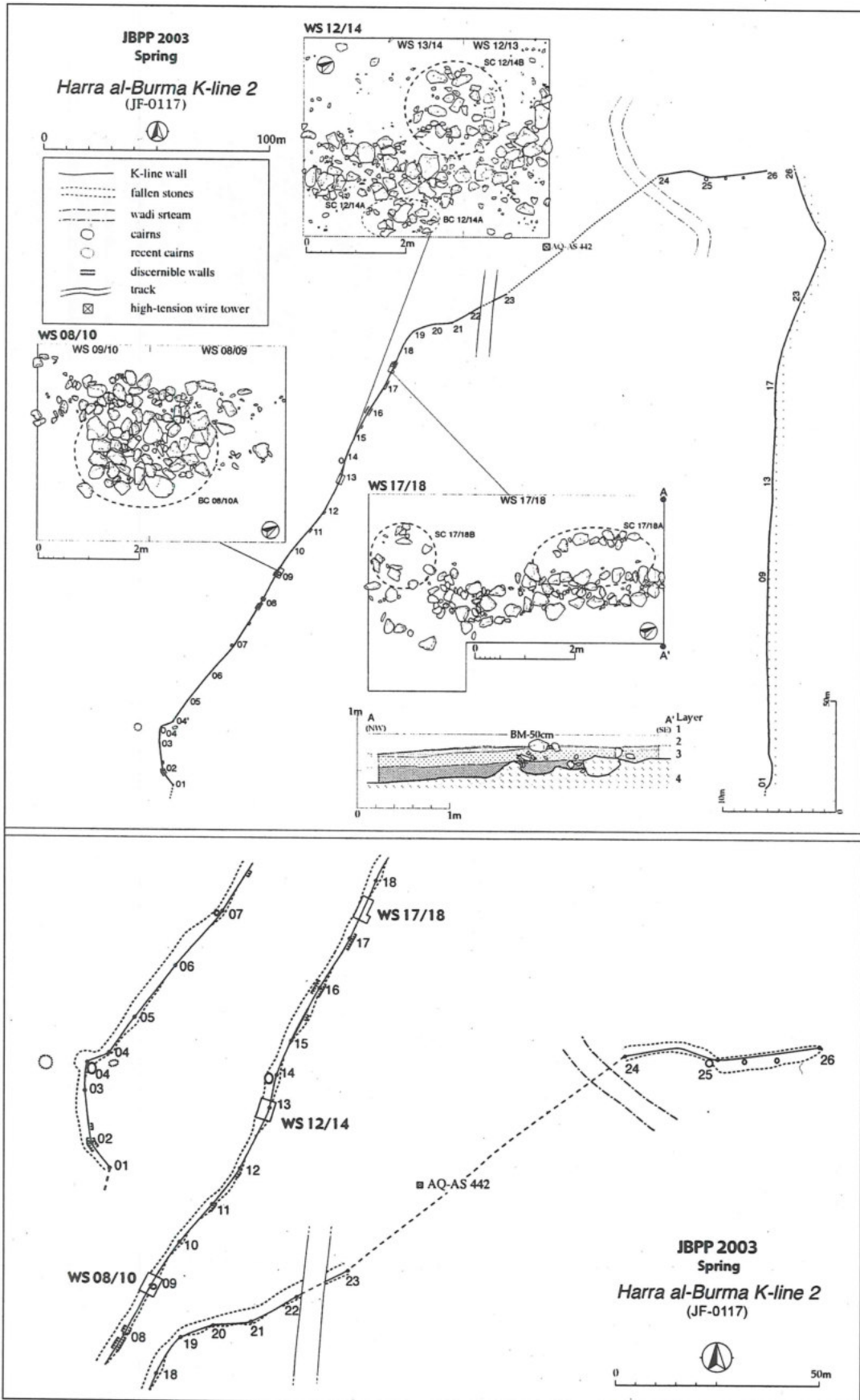
The excavation confirmed a poorly preserved, two-rowed basalt cobble wall ca. 1m wide and a large cairn ca. 2m in diameter. It should be kept in mind that the latter component is attached to the former from the east.

#### *Wall 12/14*

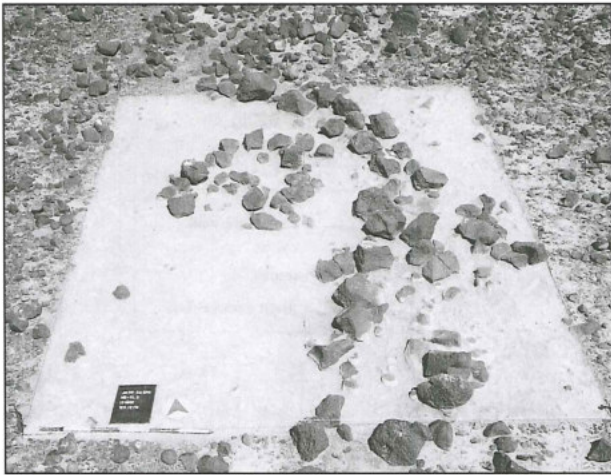
Here again, a two-rowed basalt cobble wall ca. 1m wide and a large cairn ca. 2m in diameter were found. What should be noted is that, as opposed to the large cairn of Wall 08/10, this large cairn is attached to the wall from the west. It is also interesting to note that a few small stone concentrations were located at the opposite, eastern side with the K-line wall in between. Both phenomena illustrate that this K-line is less standardized in the arrangement of small features than HB-KL1, where they are all aligned along the same side. This contrast may indicate that this K-line was constructed slightly earlier than HB-KL1. Also significant is the disturbance of the northern half of the wall, which, coupled with the slight detour beside the large cairn (Fig. 13), is suggestive of the development of this K-line from the NNE toward the SSW.

#### *Wall 17/18*

This wall segment is located roughly in the middle of this K-line. The excavation revealed a well-preserved, two-rowed basalt cobble wall ca. 0.8m wide and a few questionable stone concentrations attached to it from the west. A deep sounding at the northern edge of this excavation sector, as in the case of Wall 08/10 of HB-KL1, attested to the positional correlation between the K-line wall and



12. Harra al-Burma K-line 2: the plan and elevation/section.



13. Ḥarrat al-Burma K-line 2: the general view of Wall 12/14 (from S).

the underlying basalt band.

### *The Finds*

The finds from this K-line are still scantier than those from HB-KL1, comprising merely a handful of undatable flint flakes.

### **Wādī Burma Kite-Site 1**

Wādī Burma is a short but very wide wadi that drains northwards from the Tall Burma area into Wādī al-Ḥasā, one of the largest drainage systems in southern Jordan. Wādī Burma Kite-site 1 (WB-KS1), our present concern, extends over gently undulating beds and sandbanks of this wadi (Figs. 14, 15). Driving southwards on the Desert Highway, one can notice it on one's left hand side at the point ca. 7km this side of al-Ḥusayniyya. A land bridge over the al-Ḥijāz railway will provide a good landmark for the site.

WB-KS1 is a vast, stone-built enclosure with an inside area of ca. 13ha. It consists of a circular perimeter wall ca. 1.3km in total length and a number of small features attached to it. It should be noted, however, that the latter contain not only a series of installations proper to this enclosure complex but also many features either anterior or posterior to it, including a cist enclosure (WBs-CE8) at the southwestern corner and a line of small cairns at the southeastern corner. In addition, a variety of structural remains are dotted inside this perimeter wall, on the central and southern sandbank in particular. Because of the site location at wadi beds, a variety of stones are used for the construction, including limestone, flint, and basalt cobbles. Interestingly, while limestone and flint are predominant in the southeastern half of the perimeter wall, basalt is prevalent in the northwestern half, a reflection of the site location between a limestone hilly country

(i.e. Tallāt 'Ubyda) to the southeast and a volcanic plain (i.e. Ḥarrat al-Juhayra) to the northwest.

In order to explore the function and chronology of this unique structure, five excavation sectors were set up, four along the perimeter wall and one on the central sandbank. As a result, unexpectedly enough, this large enclosure turned out to be a drive hunting installation built probably in the Umayyad dynasty and reused in the Ottoman period. The description below will follow the order of the supposed procedure of drive hunting; namely, it begins with drive gates (DG), followed by service entrances (SE), drivers' hides (DH), and ambush walls (AW), and ends with capture gates (CG).

### *Drive Gates (DG)*

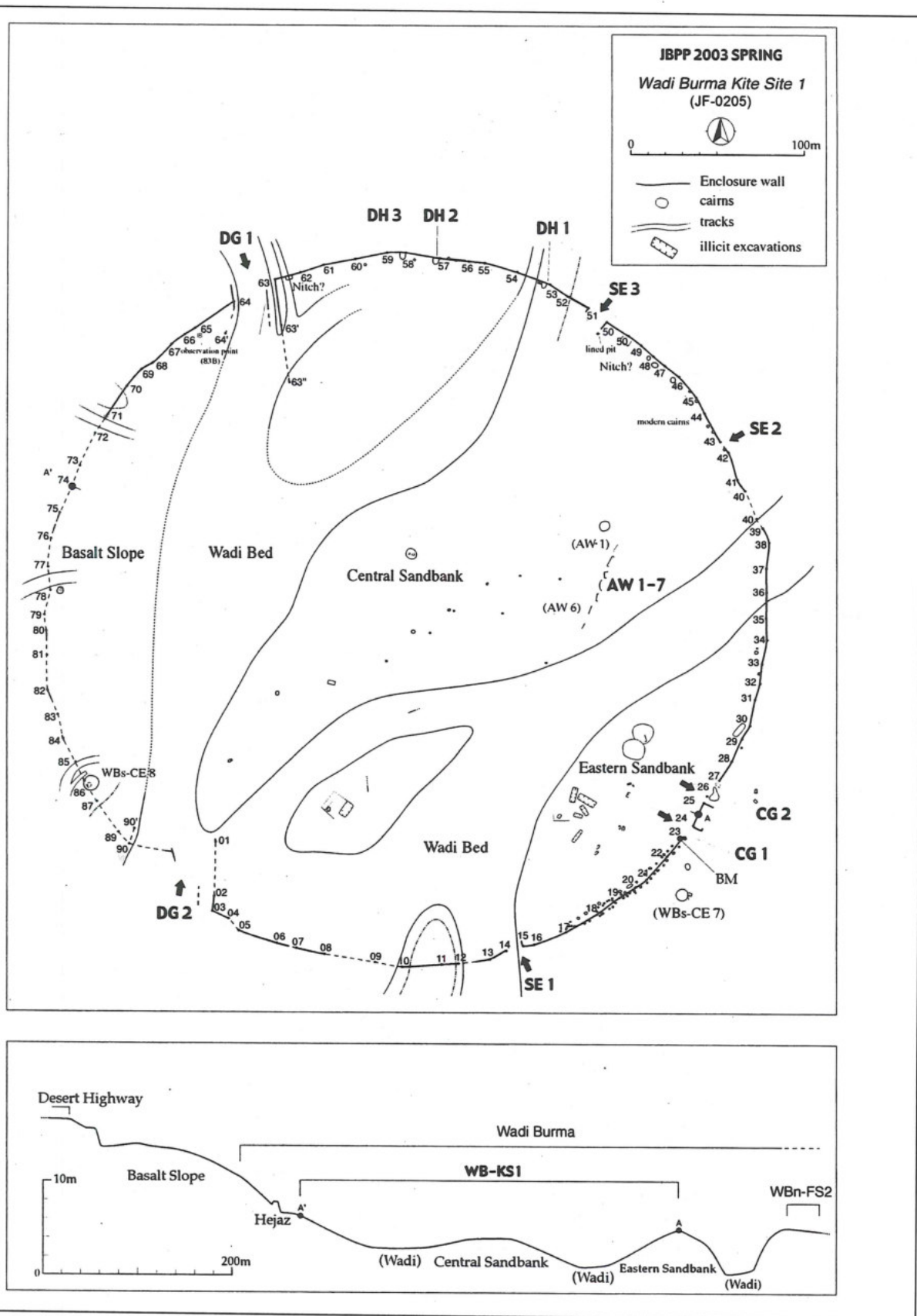
What characterizes this vast enclosure is seven breaks in the perimeter wall. Of particular interest is a pair of wide wall breaks (DG1 and -2) at the western wadi bed. Both of them are ca. 20m wide and accompanied with a pair of long guiding walls, suggesting the function as drive gates. Our excavation was focused on DG1, the northern counterpart.

The excavation confirmed that this feature was built on the upper surface of Layer 2b of the site stratigraphy. (The same is true of the other features with the exception of AW, which, as mentioned below, proved to belong to the upper surface of Layer 2a). This feature consists of the western guiding wall, a short, central partition, and the eastern guiding wall, the former two of which were actually excavated (Figs. 16, 17).

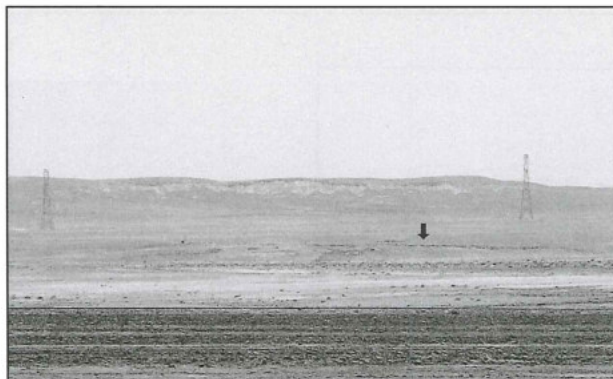
The western guiding wall, ca. 60m in total length and ca. 4.5m wide at its northernmost part, proved to be carefully protected with a rectangular bank at its northern end. The large-scaled, careful construction of this guiding wall highlights that this gate (and its southern counterpart) was a key installation to this enclosure. In comparison with the two guiding walls at both sides, the central partition proved to be much smaller in size, measuring ca. 5m long (or ca. 15m long if the intermittent line of stones is also included) and ca. 1m wide. The less elaborate construction of this wall suggests that it had a subsidiary function to facilitate the control of a driven herd. The western guiding wall, though not excavated, is interesting in that it extends not only inward but also outward by ca. 20m in length. This may have been a device to prevent a driven herd from swerving towards a gentle slope to the west.

### *Service Entrances (SE)*

There are three other wall breaks in the perimeter wall: two at the northeastern part of the



14. Wadi Burma Kite Site 1: the plan and elevation.



15. Wādī Burma Kite Site 1: the general view (from NW).

central sandbank (SE2 and -3) and one at the southern corner of the eastern sandbank (SE1) (Fig. 14). What differentiates them from the drive gates is the break width, which is much narrower (ca. 3-10m wide) in these cases. It is also important to note that they are equipped merely with a pair of very short, buttress-like walls, another contrast to the drive gates. The intra-site location is also noteworthy; while the drive gates are located on a wadi bed, these smaller entrances are positioned on sandbanks. The final point to notice is that they occupy intermediate, strategic positions between the drive gates to the west and the capture gates to the southeast. All these suggest that they were used for some supplementary function, service entrances for example.

Our excavation focused on SE2, which proved to be ca. 3.5m wide and protected with a pair of side walls (Fig. 16). What most interested us was the stone pavement at the lower part of this entrance, which also argues against the functional identification as a drive gate in favor of that as a service entrance.

#### *Drivers' Hides (DH)*

Aside from the five wall breaks mentioned above, three small niches (DH1 to DH3) were found at the northern part of the perimeter wall (Fig. 14). The excavation at DH1 showed that it is a rectangular cell ca. 6m wide and ca. 4m deep with a stone pavement at the northwestern corner (Figs. 16, 18). The small size of these cells, along with their location adjacent to the northern drive gate (DG1), suggests their function as drivers' (and possibly hunters') hides. Similar features occur at many kite-sites in the Transjordan desert (e.g., Echallier and Braemer 1995; Helms 1981: 38-50, 1982: Fig. 4; Helms and Betts 1987: Fig. 9-14). It is noteworthy, however, that, unlike most hides thus far identified, these cells are attached to the perimeter wall from the inside.

#### *Ambush Walls (AW)*

A long, intermittent, freestanding wall ca. 60m in total length was found at the southeastern slope of the central sandbank (Fig. 14). It consists of seven wall segments ca. 5 to 10m long with six small gaps in between. The existence of these narrow breaks, combined with their strategic location in front of capture gates and their orientation facing game driven toward the capture gates, argues for their function as ambush walls.

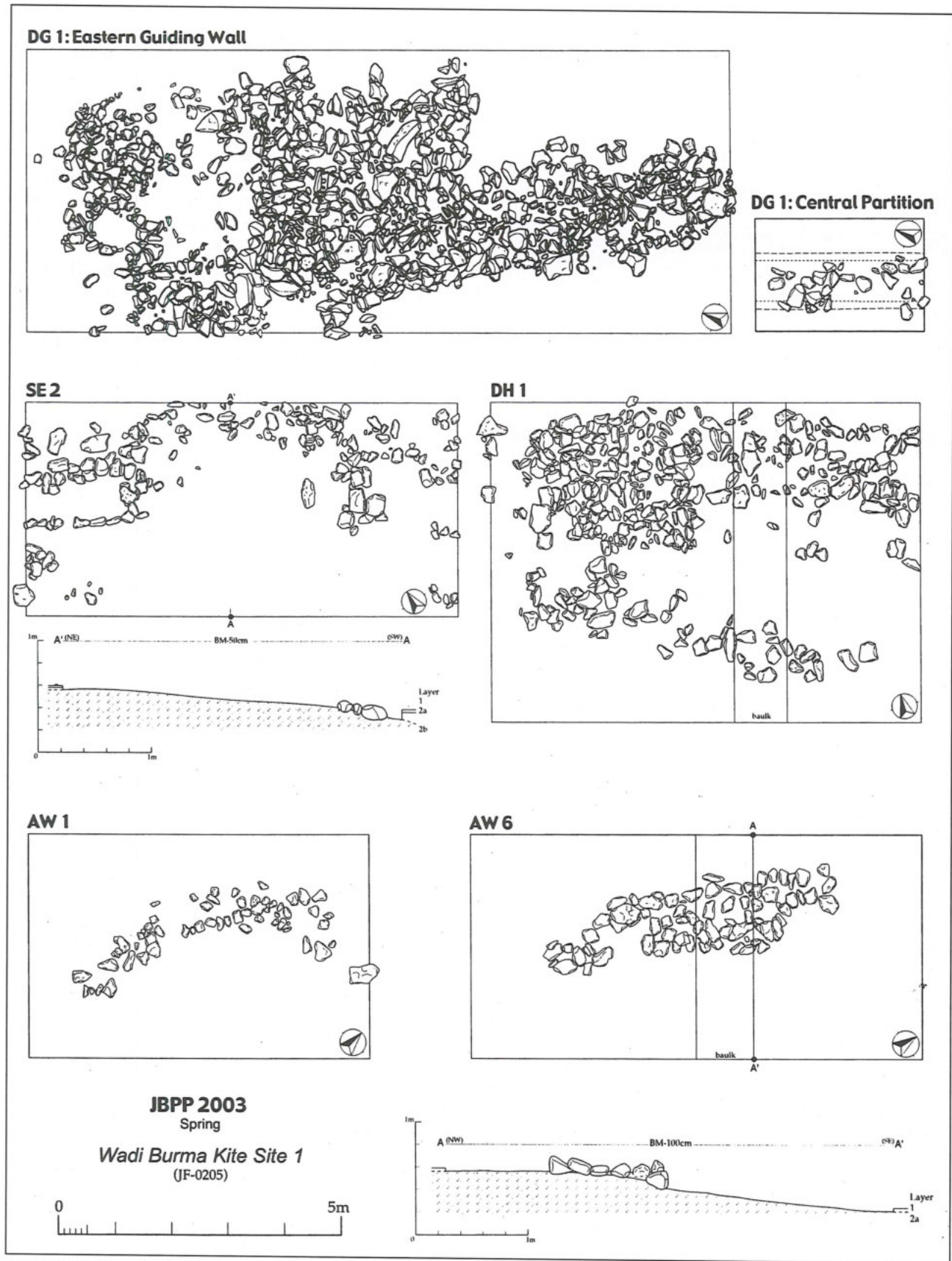
AW1 and AW6 were excavated (Figs. 16, 19). Unexpectedly, unlike the other excavated features, both of them proved to have been constructed on the upper surface of Layer 2a. It is therefore evident that this enclosure was subsequently reused with minor modification. Fallen stones around these ambush walls are very small in number, suggesting that their original height was not more than a few courses high. It is possible that ambush men used firearms lying down on the ground surface. This seems likely, all the more because the ambush walls represent the later reuse of this drive hunting installation.

#### *Capture Gates (CG)*

A pair of narrow wall breaks, CG1 and -2, was found along the ridge of the eastern sandbank, the highest point of this enclosure (Fig. 14). In order to clarify the structure of this probable key feature, a total of 300 square meters were excavated focusing on the central wall segment (Figs. 20, 21). As a result, it turned out that a large trench up to ca. 0.8m deep was dug behind this wall. The existence of this trench, along with its strategic location in concert with both the drive gates to the west and a steep slope behind, strongly suggests that these two wall breaks were used for final capture gates.

What puzzled us is that no conspicuous installations were found behind these two gates. This means that some of the driven game might have passed through these gates without being captured. It is, however, more likely that most, if not all, of the game were shot inside this large enclosure and a few of them were driven to these two gates to be finally captured, as suggested by an Assyrian relief that depicts the Assurbanipal's horseback drive hunting scene (Barnett 1959/60: Plate 101) and a pair of Sasanian rock-reliefs that portray royal hunting either on horseback or on boat (Erdmann 1969: Tafel 29, 30). Whatever the case, it is now evident that the construction of this drive hunting installation was based on a careful plan including the systematic arrangement of the small features and the effective use of topography.

#### *The Finds*



16. Wādi Burma Kite Site 1: the excavation sectors.



17. Wādī Burma Kite Site 1: the general view of Drive Gate 1 (from E).



19. Wādī Burma Kite Site 1: the general view of Ambush Wall 6 (from SE).



18. Wādī Burma Kite Site 1: the general view of Drivers' Hide 1 (from SE).

Since no *in situ* finds were recovered from this enclosure complex, the material at hand is limited to the finds from the ground surface and fill layers. They consist of a few bags of flint artifacts and pottery sherds, some iron artifacts, and a few clay objects.

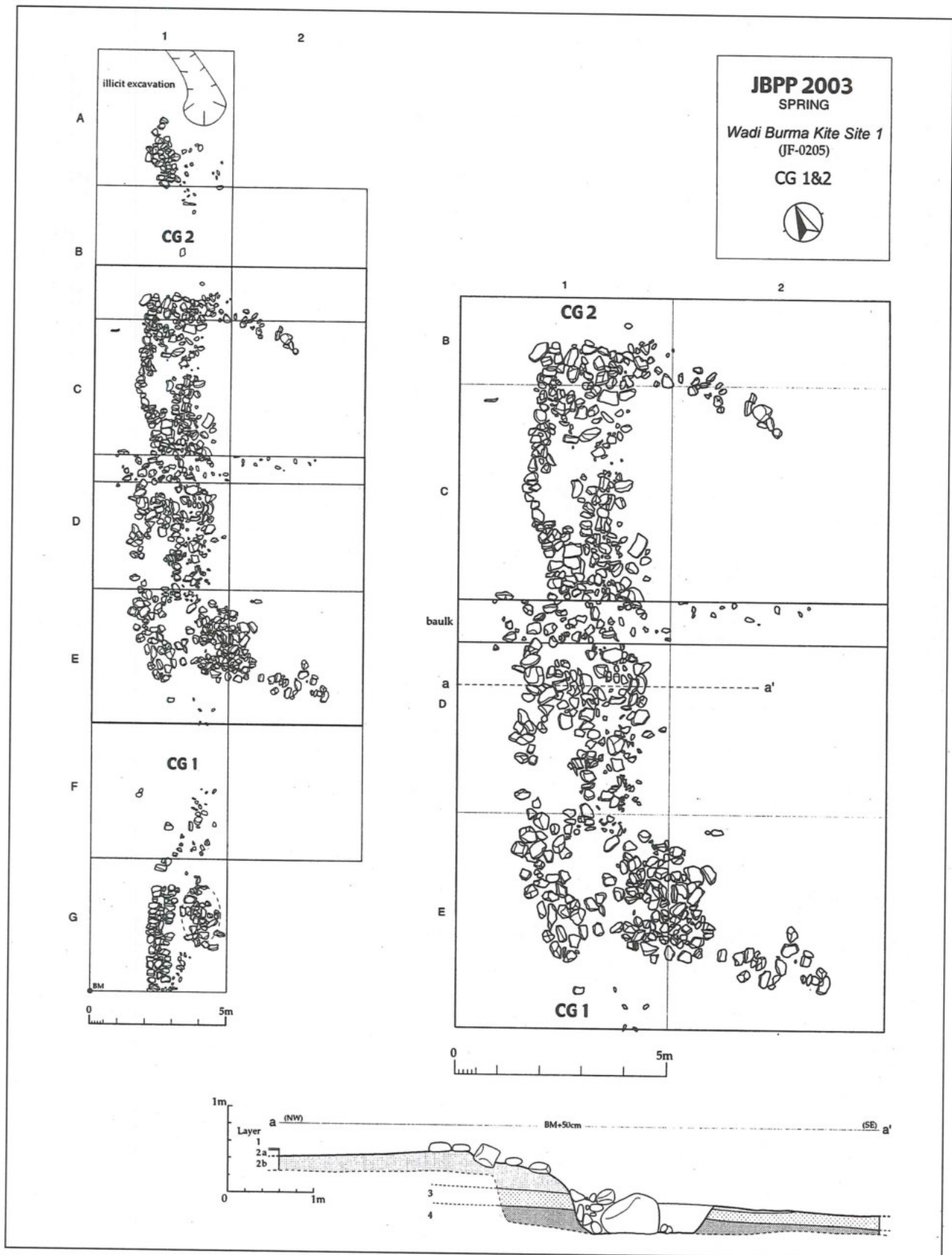
The flint artifacts include Middle Palaeolithic Levallois cores and flakes, Epipalaeolithic micro-

liths, Chalcolithic to EBA tabular scraper components, and a variety of undiagnostic flakes. They are too heterogenous in nature to be reliable chronological markers. The pottery finds also vary in date, containing a variety of samples from EBA coarse ware sherds to modern products. It is important to note, however, that Umayyad sherds are the most predominant among them. Of particular significance is the occurrence of well-leveled, wheel-made, handwriting, red-painted pottery sherds with wavy or linear line motifs (Fig. 22), which mark the Umayyad pottery repertoire in Jordan (Abdel-Jalil 1988: Fig. 1, 2; Sauer 1982: Fig. 3, 4; 1986: Fig. 2). Also of interest are gray-faced, well-fired sherds, which are reminiscent of casserole type of wares, another hallmark of the Umayyad pottery repertoire (Hendrix *et al.* 1996; Walmley 1995: Fig. 8). In addition, the finds include a boots-heel protection (Fig. 23: 6), some horseshoe fragments with or without a iron nail (Fig. 23: 4-5, 7-8), and two clay pipe fragments (Fig. 23: 9), the latter two of which can be dated to the Ottoman period according to some recent syntheses (Hayes 1992, Simpson 2002, Sparkes 1998; Takeuchi 2005; Hirota 2005).

Thus, overall, the finds suggest two distinct dates: the Umayyad dynasty and the Ottoman period. This picture accords well with the twofold history of this drive hunting installation suggested above. It is therefore tentatively concluded that this drive hunting installation was built in the Umayyad dynasty and then reused in the Ottoman period.

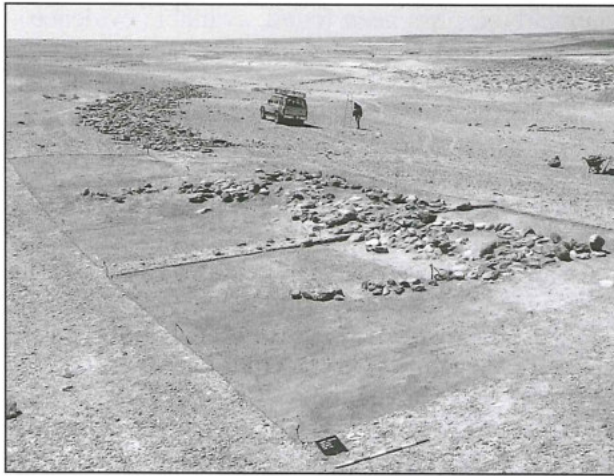
#### Discussion

On the basis of the excavated evidence, a brief discussion will be made about the function and chronology of the two sites investigated this season.

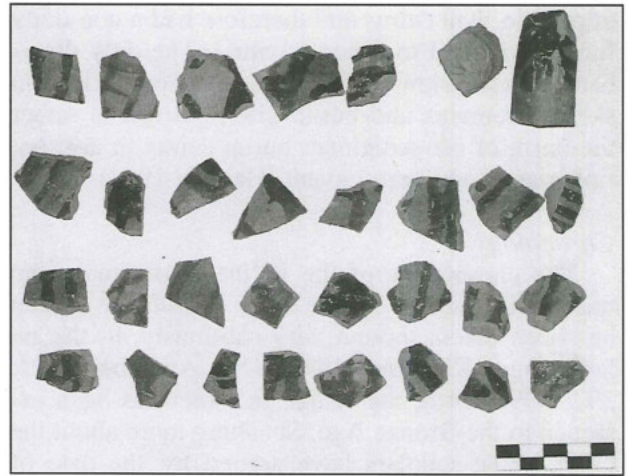


20. Wādi Burma Kite Site 1: the plan and section of Capture Gate 1 and 2.

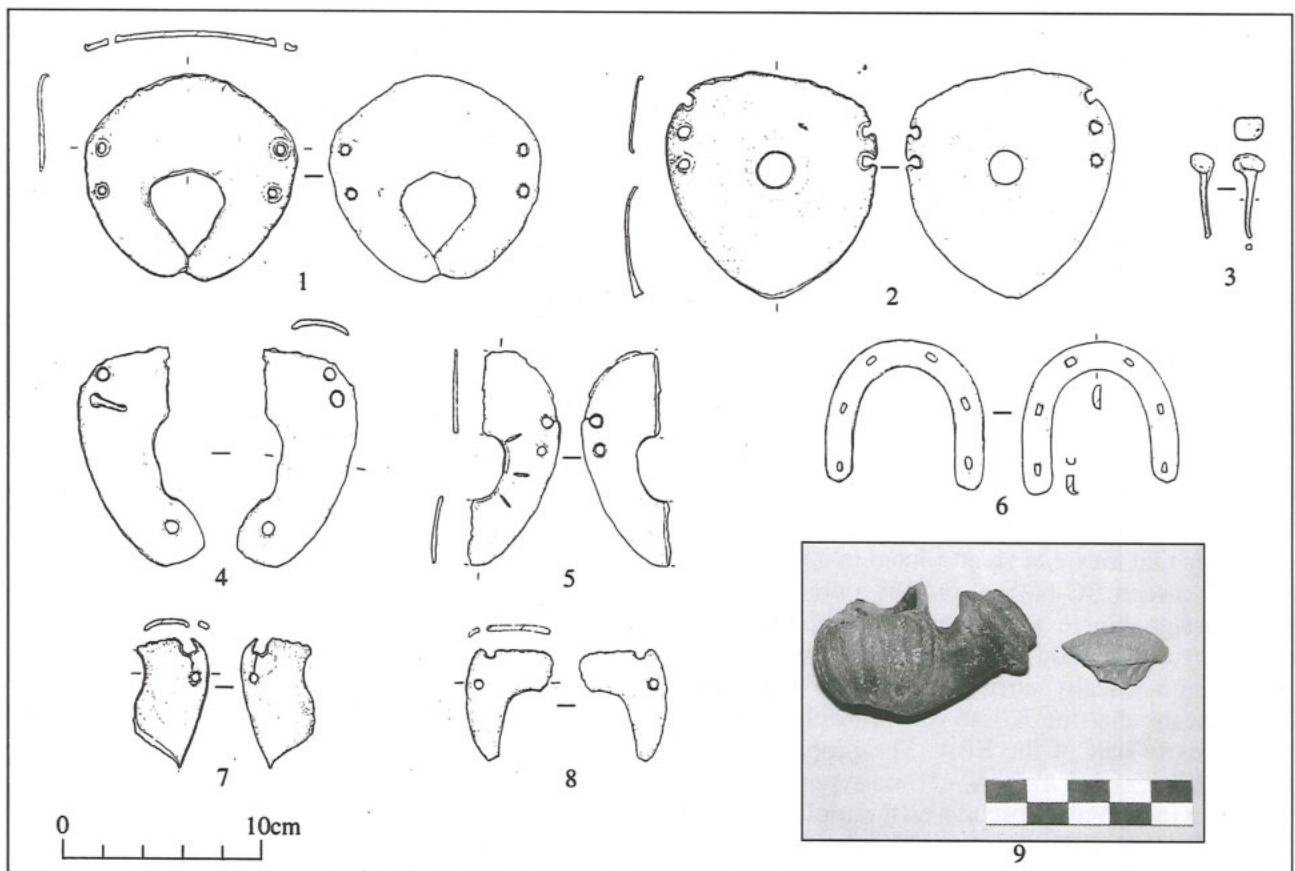




21. Wādi Burma Kite Site 1: the general view of Capture Gate 1 and 2 (from NE).



22. Wādi Burma Kite Site 1: red-painted ware sherds.



23. Iron horseshoes, boots-heel protector, and nails: Ḥarrat al-Burma K-line 1 (no. 1-3) and Wādi Burma Kite Site 1 (no. 4-9).

### Ḥarrat al-Burma K-lines

#### Function

The function of the K-line, or *Khatt Shabib* in Jordanian archaeology, is still controversial. Some scholars have suggested that it was an ancient boundary wall between the sown and the desert (Kirkbride 1948: 154); others have supposed its function as a defensive wall against marauding nomads (Evernari *et al.* 1958: 249-250). In addition,

some local inhabitants insist that it was a pilgrim road or a long landmark leading to Mecca.

However, the intra-structure and formation process of Ḥarrat al-Burma K-lines cast doubt on these traditional views in favor of the suggestion that the K-line represents a long chain of cairns and walls (Glueck 1958: 28; 1959: 9-10; Haiman 2000: 22-23, 25). In light of our excavated evidence, it is now evident that the K-line is a linear combination

of pseudo-wall cairns and therefore had a non-daily function related to funerary ritual. The only drawback to this view is the total absence of human skeletal remains and burial gifts, but this is rather the norm of off-settlement burial cairns in arid peripheries of southern Levant (Haiman 1992).

#### *Chronology*

The chronology of the K-line also remains an unsettled question. While *Khatt Shabib* in Jordan has been dated, though very cautiously, to the Islamic age (Kirkbride 1948: 154; Abujaber 1992: 392; 1995: 740), the K-line in Israel has been assigned to the Bronze Age. Speaking more about the latter, some scholars have argued for the date of the Middle Bronze Age (MBA) (Evenari *et al.* 1958: 249-250), but others cast doubt on this view (Glueck 1959: 10-12). Recently, Haiman has suggested that the K-line may reasonably be attributed to the EBA on the basis of the proximity to EBA settlements (Haiman 2000: 24-25).

Unfortunately, no solid evidence for the date of the K-line has been retrieved from our excavations, but a series of circumstantial evidence allows us to narrow it down to some extent. First, the general occupational history of the al-Jafr basin is in favor of the dating of the K-line to the EBA (Fujii 2002b, 2004b). It is needless to say that Ḥarrat al-Burma K-lines are encompassed with a number of EBA sites, although, unlike the K-line in the Negev Highlands, no settlement sites are included among them.

The second circumstantial evidence derives from the intra-structure of the K-lines itself, which suggests that they can be attributed to a transitional stage between BC-600s at QATW (which is probably assignable to the second half of the Chalcolithic) and pseudo-wall cairn enclosures (which are radiometrically attributable to the EBA III). This means that the K-line can probably be dated to the early half of the EBA. The problem is that there still remains a small, chrono-typological gap between independent pseudo-wall burial cairns (i.e. BC-600s) and their linear combination (i.e. the K-line). However, as will be described elsewhere in this volume (Fujii 2004a), this gap will reasonably be bridged with Ḥarrat al-Burma Cairn-line 1, a linear but intermittent combination of pseudo-wall cairns.

### **Wādī Burma Kite Site 1**

#### *Function*

There is little doubt that this large enclosure was used for drive hunting. Although no specific evidence such as hunting weapons and slaughtered

animal bones has been found, available evidence – the location on wadi beds, the vast area within the enclosure, and the systematic arrangement of relevant features – casts doubt on daily use such as an animal pen in favor of the non-daily use suggested above. The frequency of kite-sites in the Transjordan plateau also argues for this functional identification.

Thus the question is what kind of drive hunting took place there. A key to this question is the fact that, unlike many kite-sites thus far confirmed in the Transjordan plateau, WB-KS1 consists merely of a vast enclosure and lacks a pair of long guiding walls converging on it. What is incorporated to this enclosure is several pairs of short guiding walls that protrude inward, a marked contrast to the standard form of kite-sites. Thus, taking the vast inside area into account, it seems reasonable to suppose that the large enclosure itself was used for a drive hunting ground. Suggestive in this regard is the hunting scene depicted on the fresco at Quşayr 'Amra (Almagro *et al.* 1975) and the relief at *Taq-i-Bustan*, both of which illustrate that royal hunting was conducted on the game that was driven into a large enclosure either in parallel to or in advance of that (Fujii 1989). The same probably holds true of WB-KS1, every aspect of which is highly suggestive of ceremonial hunting in historical periods rather than subsistence activities in prehistoric times.

#### *Chronology*

As opposed to the functional identification, the dating of WB-KS1 is troublesome because of the total absence of datable *in situ* finds. To make matters worse, the site location on wadi sediments makes stratigraphical comparisons with surrounding sites difficult. Thus, the available clue is limited to the finds from the ground surface and fill layers, which, as noted above, suggest the twofold date: the Umayyad dynasty and the Ottoman period.

A few clues are available to test the reliability of this tentative dating. The first clue concerns the construction order between WB-KS1 and WBs-CE8, a cist enclosure incorporated to the former, which clearly shows that the former postdates the latter and, therefore, can be dated to a period posterior to the EBA III. The second clue comes from techno-typological comparisons with other kite-sites. No close parallels to WB-KS1 have been found among prehistoric kites thus far identified in southern Levant; instead, as noted above, it shares basic characters with royal hunting installations of historic ages. Highly suggestive in this respect is

the fact that, despite the undulated topography, the enclosure of WB-KS1 draws a nearly true circle ca. 400m in diameter, solid evidence for advanced surveying and construction technology. Also of significance is the popularity of drive hunting in the early half of the Islamic age. It is commonly known that Abbasid Caliphs and princes often enjoyed drive hunting in a large circle constructed in a desert fringe (Hitti 1970: 340-341). The Umayyad dynasty is no exception to this; both the fresco at Qūṣayr 'Amra and numerous hunting villas dotted in the Jordanian Badia testify that drive hunting was very popular among men of power in those days.

Considered in this light, the twofold date suggested by the surface finds seems to be well founded. It is therefore reasonable to conclude that WB-KS1 was built in the Umayyad dynasty and then reused in the Ottoman period, although further evidence is needed to reach a final conclusion.

### Concluding Remarks

The first operation of the JBPP-2 has shed new light on the K-line and the kite-site, two unique features that characterize the dryland archaeology of southern Levant. *Harrat al-Burma K-lines* turned out to be a form of the EBA pseudo-wall cairn entity in the al-Jafr basin and thus contributed to filling up the chronological gap of the QATW sequence to some extent. Though not directly relevant to the objective of this season, it is another significant result that a probable Umayyad drive hunting installation, Wādī Burma kite site 1, was identified for the first time as an archaeological site. However, much still remains to be explored before the general occupational history of the al-Jafr basin will be fully understood. The second operation, due this summer, will hopefully contribute to this issue.

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